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Thibault Darcillon. Do Interactions between Finance and Labor Market Institutions Affect Wage Distribution?. 2012. halshs-00768908

HAL Id: halshs-00768908

<https://shs.hal.science/halshs-00768908v1>

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Thibault DARCILLON

2012.89



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First version: March 14, 2012

This version: December 17, 2012

Abstract

This article analyzes the linkages between financial liberalization, labor market institutions and wage inequality for 17 OECD countries over the 1989 to 2005 period. With the help of a fixed effect model with an interacted term, one crucial contribution of this article is to analyze the interacted impact of labor market institutions (*i.e.*, workers' bargaining power and employment protection legislation) on the one hand and financial liberalization on the other hand on wage distribution. Our results indicate that changes in workers' bargaining power and in employment protection affect wage distribution (p_9/p_1 ratio). Estimates of the marginal effects show that by increasing labor markers regulation (*i.e.*, reinforcing workers' bargaining power and increasing employment protection legislation) one also weakens the impact of financial liberalization on the increase in wage inequality.

Résumé

LIBÉRALISATION FINANCIÈRE, INSTITUTIONS DU MARCHÉ DU TRAVAIL ET INÉGALITÉS SALARIALES DANS LES PAYS DE L'OCDE

Cet article s'intéresse aux interactions entre les institutions associées au marché du travail (pouvoir de négociation des travailleurs et législation de la protection de l'emploi) et la libéralisation financière sur la distribution des salaires dans 17 pays de l'OCDE de 1989 à 2005. Nous trouvons que des modifications relatives au pouvoir de négociation des travailleurs et au niveau de protection de l'emploi ont un impact sur les différentiels de salaires (ratio p_9/p_1). Les effets marginaux montrent qu'augmenter la régulation sur le marché du travail permet de réduire l'impact de la libéralisation financière sur la hausse des inégalités salariales.

Keywords: Wage inequality, Financial Liberalization, Corporate Governance, Employment Protection, Political Economy

Mots clés: inégalités salariales, libéralisation financière, gouvernance d'entreprise, protection de l'emploi, économie politique

JEL Classification: G34, J5, P16

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1 Introduction

The recent financial and economic crisis has put the focus on the rise in inequality in the most of OECD countries. In a recent report (OECD, 2011), the OECD notes that income inequality measured by the Gini coefficient has increased by 10% from the mid-1980s to the late 2000s in the OECD countries and identifies three main drivers to explain this increase: economic globalization, technology factors and regulatory reforms (particularly in product and labor markets). Consequently, at first sight, the rise in inequality seems to result in several changes in different institutional domains.

In this article, we focus on the role of increasing financial liberalization in 17 countries to explain within-country variation in wage disparity. Since the early-1980s, the financial sector has been gradually deregulated in all developed countries., and more recently, major reforms of corporate governance intended to strengthen the institutional power of minority shareholders have been adopted in the most of OECD countries. The aim of this paper is to investigate the linkages of financial liberalization and wage inequality accounting for two central institutional arrangements in labor markets: workers' bargaining power and employment protection legislation. A vast empirical literature has shown that enhancing shareholder value at the firm level will often be accompanied by short term perspectives and by measures to reduce workplace and/or to increase the degree of flexibility on labor markets. More theoretically, Amable, Ernst and Palombarini (2005) have demonstrated that industrial relations and employment protection legislation can be affected by financial liberalization. Workers' bargaining power refers to the ability of workers (through for instance collective agreements with trade unions) to negotiate with firms on real wages and the general level on employment.

One crucial contribution of this article is to analyze the interdependence across financial liberalization and labor market institutions on the wage structure: in other words, we want to show that the impact of financial liberalization on the wage distribution depends on the institutional features on the labor market. We expect that financial liberalization amplifies wage inequality in countries with weak labor market institutions. In this article, we focus on two central labor market institutions: workers' bargaining power and employment protection legislation. We assume that there is an institutional complementarity between financial structures (bank-based *versus* market-based), industrial relations/employment protection systems (corporatist *versus* non corporatist) and wage distribution. Specific institutional forms are considered as complementary if they *jointly* contribute to a higher economic performance (Amable *et al.*, 2005). An growing empirical literature has explored the institutional complementarities between finan-

cial systems and labor markets. Using data on output in 27 manufacturing industries in 19 OECD from 1970 to 1995, Ernst (2004) finds out that concentrated ownership structures and employment protection have a positive impact on growth in bank-financed industries while disperse ownership structures and flexible labor markets stimulate growth in equity-financed industries. Using data for 18 OECD countries from 1980 to 2004, Gatti, Rault and Vaubourg (2012) find that interactions between labor and financial factors have a significant impact on unemployment: increasing stock market capitalization reduces unemployment with weak labor market institutions (*i.e.*, union density and wage bargaining centralization) while enhancing intermediated credit increases employment with strongly regulated and coordinated labor markets.

Using panel data on 17 OECD countries from 1989 to 2005, we find that strong encompassing labor market institutions (*i.e.*, workers with strong bargaining power and high employment protection legislation) are contributing to reduce wage inequality in the era of financial liberalization. To capture financial deregulation, we use two *de facto* measures of financial liberalization: the stock market capitalization related to GDP and the total value of shares traded on the stock market divided by GDP. These two indicators of financial development are supposed to reflect minority shareholder strength: these indicators proxy for the intensity of financial activity in an economy that is correlated with an increase in power of minority shareholder (Barker and Rueda, 2007). To capture the impact of labor market institutions on wage distribution, we have built a new measure of workers' bargaining power and we use the traditional index of Employment Protection Legislation (EPL) proposed by the OECD. In order to estimate the interactive impact of financial liberalization and labor market institutions on the wage structure, we begin using a simple OLS model for panel data. Then, we use a simultaneous equation model with the three-stage least squares method (3SLS) to take into consideration the interdependence between labor market institutions.

The paper is organized as follows. In Section 2, we present the theoretical channels between financial liberalization and wage inequality. In Section 3, we detail our principal argument. In Section 4, we describe our dataset, the empirical model and the econometric results. Finally Section 4 provides some concluding remarks.

2 Why should financial liberalization affect wage distribution?

In a normative perspective financial liberalization policies aim at improving capital allocation. This approach does not account for the distributive effects of such policies. Financial deregulation - and more particularly the adoption of a shareholder value maximization strategy - may have important consequences on wage distribution. Basically, Roe (2003) shows that countries with weak scores of Gini coefficient of national income inequality are more likely to have a high degree of ownership separation. In the long run, Moss (2010) finds that periods of financial liberalization are associated with an increase in the 10% top income share in the United States from 1917 to 2009. Top 10% income share substantially decreased after 1933 where were introduced several regulatory measures to repress the financial system. Top 10% income share has then remained weak until the beginning of bank and finance deregulation in the early of 1980s. More importantly, top 10% income share sharply increased from 1980 to nowadays (See Figure 1). On a sample of 15 OECD countries between 1979 and 2000 Sjöberg (2009) estimates the impact of corporate governance on cross-national differences and trends in earnings inequality. Corporate governance is measured by the size of stock market relative to GDP, the share of private bank credit on money bank deposits, the time-invariant measure of minority shareholder protection from La Porta *et al.* (1998) and the volume of M&A activity relative to GDP. Sjöberg's results indicate that only a higher degree of minority shareholder protection as well as higher M&A activities are responsible for increasing wage inequality. There are various mechanisms at work through which financial deregulation and the adoption of a shareholder value maximization strategy may affect wage distribution.

2.1 Financial liberalization and top income

New forms of incentive remuneration of executives (such as performance related salary or stock-options) were introduced in the 1980s and the 1990s. The aim of these new forms of remuneration schemes is to align minority shareholders' interests with those of managers by proposing high rewards to top managers. These new mechanisms have brought into the emergence of a new alliance between top managers and financiers in the wake of financial liberalization (Boyer, 2005). This alliance of executives with financiers led to an erosion of wage earners' bargaining power. These new forms of remuneration are directly indexed to the change in the stock market prices. In the case of US, Philippon and Reshef (2010) find out that the wage differential between the financial sector and the rest of the private sector

is about from 30% to 50%. The two authors show a positive correlation between relative financial wage and an index of financial deregulation in the United States¹. As noted above, Figure 1 reveals a strong correlation between top income and financial liberalization: the financially restricted post-war period saw a reduction of inequality whereas the top decile's income share rapidly rose during the 1990s. This new situation contrasts with the stagnation in the growth of the real-after tax income (Boyer, 2011). Based on a French database on wages Godechot (2012) shows that half of the increase of the share of the top 0.1% is due to an increase in pay among top finance managers between 1996 and 2007 in France.

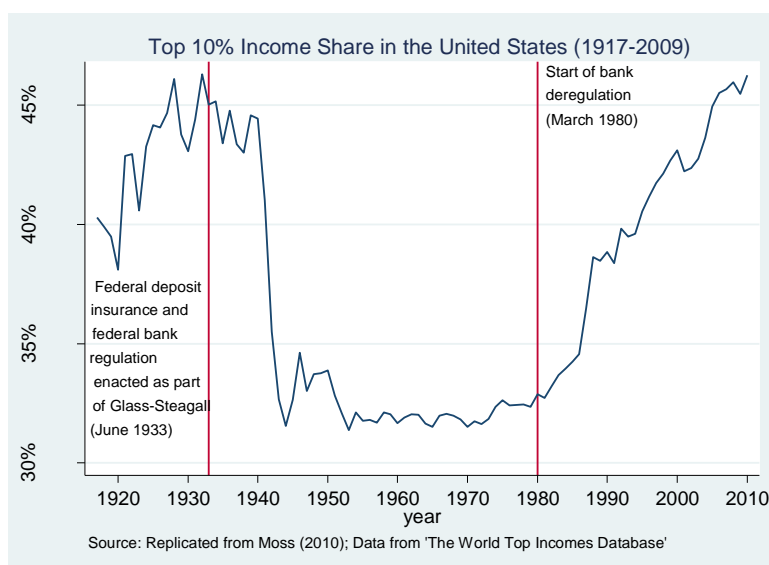


Figure 1: Top income share and financial deregulation in the US

2.2 Financial liberalization and labor market flexibility

According to the Varieties of Capitalism literature (Hall and Soskice, 2001), firms in liberal economies give priority to profitability - resulting in negative impacts on labor relations (employment cut) - whereas firms in coordinated economies are less sensitive (due to the traditional relationships with main banks) to returns to shareholders and profits. Whether shareholders prefer to intervene directly or indirectly on labor management depends on the ownership structure. In the UK, the adoption of shareholder value maximization strategy has had major consequences on employment (with a reduction of workplaces) though those workers that remain sometimes benefit from pay increases. In the USA, Gospel and Pendleton

¹Philippon and Reshef's index of financial deregulation takes into account several measures such as the removal of bank branching restrictions, the end of the separation between commercial and investment banks on the one hand and between banks and insurance companies on the other hand, and the suppression of interest rate ceilings.

(2003) argue that “*there is evidence of a decline in job security, decreases in recalls from layoffs and reductions in job tenure in the wake of the rise in shareholder value*” (Gospel and Pendleton, 2003, p.568). For this reason, the investment in firm-specific skills is less important in the USA than in Germany or in Japan. Compared with Germany and Japan, the ratio of senior executives’ pay to shop-floor employees’ pay is greater, wage inequality is more important and employee share ownership plans are more common in the USA and in the UK. Moreover, a single-employer form for collective bargaining systems is more developed than in coordinated economies which have developed multi-employer systems.

Black *et al.* (2007) show that equity market activity is negatively associated with job tenure, initial training and with bargaining centralization and positively associated with stock plans for workers and with pay dispersion (*i.e.*, the ratio of chief executives’ pay to that of manual employees in manufacturing) as expected. It is indeed assumed that (i) job tenures are shorter when merge and acquisition (M&A) activity is high because firms have no long-term commitments to offer to employees, (ii) that decentralization of collective bargaining reflects a decline of power of unions (and thus reflecting the primacy of shareholder interests in management decision-making) and (iii) that employee share ownership plans (ESOP) render employees more sensitive to financial results and investor returns. Black *et al.* (2008) look at the impact of equity markets and corporate governance on labor market flexibility where labor market flexibility is understood as flexibility in employment (*i.e.*, job tenure, labor supply measured by activity rate and annual hours worked per workers and employment flexibility over the cycle) and pay (pay dispersion and the elasticity of real wages to changes in the state of the economy). The results for equity markets are statistically significant in the areas of job tenure, activity rates and employment flexibility over the cycle. However, the relationship between equity market trading and pay flexibility is not statistically robust to the addition of a number of additional variables.

2.3 Financial fragility and wage inequality

Theoretical and empirical works have shown that financial liberalization is more likely to increase the likelihood of major economic crises (see for instance Saillard, 2012): in developed as well as in developing countries, the frequency of banking and/or financial crises has increased since the early of the 1980s with the rise of financial markets in the economy. Consequently, risks associated with further financial liberalization directly affect the wage structure. As witnessed the recent financial crisis of 2007-2008, the bursting of assets bubbles may have direct impact on economy’s real sectors: the negative shock on the economy at large - and more specifically the reduction in credit availability (due to deterioration of the fi-

nancial industry's intermediary function) - are more likely to affect lower wage-earners. More generally, assets bubbles have a mechanical impact upon income and wealth (Boyer, 2011). Beyond the argument of financial fragility, Bumann *et al.* (2012) notes that financial intermediation does not systemically become more efficient in a liberalized market because of credit market imperfections and asymmetric information. These imperfections can lead to a lending restrictions from banks to low income groups. Moreover, high income groups are more likely to benefit from the removal of capital account restrictions and from the development of global equity markets.

3 Our argument

It is often argued that the increasing financial development has caused a rise in wage inequality. Some countries have experienced a greater increase in wage differentials than other countries whereas all countries were exposed to an important development of financial markets. First, let us compare the situation in France and Germany: Figure 2 shows that inequality is much weaker in France than in Germany whereas France has experienced much more pro-shareholder reforms during the last decade². How to explain this situation? Changes in labor market institutions have been more important in Germany than in France. Figure 2 provides a graphic summary of the wage-distributive outcomes. Figure 2 also reveals important cross-national variations in levels and in trends: in the United States wage inequality is traditionally high and is constantly increasing whereas the Scandinavian countries (e.g. Sweden or Norway) are characterized by weak levels of inequality. Inequality has particularly risen in the US, the UK but also in Austria or Germany where wage inequality was traditionally weak. This paper seeks to explain this cross-national diversity?

3.1 Data analysis

Let us now have a first look at data and, in particular, to the descriptive evidence about levels of shareholder protection and labor market institutions, as well as their effects on wage distribution as shown in Figure 3. This preliminary empirical analysis relies on a sample of 17 OECD countries over the period 1980 to 2009. These variables are presented and commented in the subsection 4.1. First, figure 3A presents composite indexes of corporate governance and labor relations. Following Hall and Gingerich

²Darcillon (2011) finds that France enacted 17 important reforms intended to increase the power of minority shareholder whereas Germany experienced 14 similar reforms. Qualitative literature also finds that reforms in corporate governance were more major in France than in Germany.

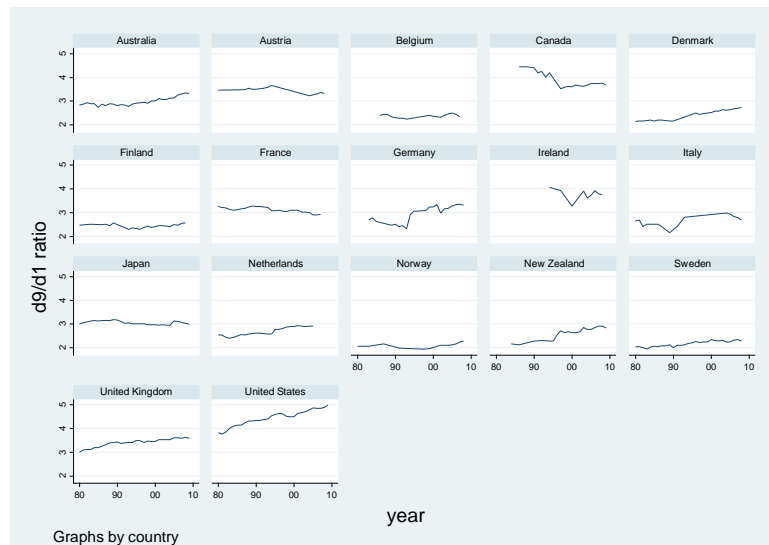


Figure 2: Wage distribution in 17 OECD countries (1980-2009)

(2009), we built a composite index of corporate governance using the index of minority shareholder protection suggested by Lele and Siems (2007) and an indicator of stock market (market valuation of equities on the stock exchange divided by GDP) proposed by Beck *et al.* (2010). The composite labor relations index takes into account the level and the degree of wage coordination (provided by Visser, 2011)) and the average job tenure in number of years (provided by OECD). These two composite indexes are obtained as a standardized Principal Component Analysis (PCA) result. The first graph compares the situation of four countries (France, Germany, United Kingdom, United States) in the mid-1980s and in the mid-2000s. As the figure shows, all these countries have experienced an increase in the level of minority shareholder protection between 1985 and 2005. Regarding labor relations, transformations between the 1980s and the 2000s are more important in the Anglo-Saxon countries than in European countries.

Figure 3B presents the ‘Antidirector Rights’ index (provided by Spamann (2009) that proposes a revisited version of the La Porta *et al.*'s (1998) original index) and the OECD Employment Protection Legislation (EPL) for all countries included in the sample. The average country values of EPL is depicted against the single available country value of shareholder protection. As expected, we find that the Anglo-Saxon countries (United States, New Zealand, Australia, Canada, United Kingdom and Ireland) as well as more surprisingly Japan share high level of minority shareholder protection (MSP) and low level of EPL. On the contrary, most of European countries (Netherlands, Austria, Belgium, Finland, Germany,

France, Norway and Sweden) are characterized by low level of MSP and high level of EPL.

The picture is more dispersed in the Figure 3C that presents the average value of workers' bargaining power relative to the 'Antidirector Rights' index: the United States, the United Kingdom and Canada have comparable values. Most of European countries, excluding France, share low values of MSP and higher level of workers' bargaining power. The position of France is singular because the average value of workers' bargaining power in this country due to very low values of trade union density is lower than in other European countries.

Finally, in Figure 3D average values of p_9/p_1 ratio are drawn against the 'Antidirector Rights' index: we observe no direct relationship between MSP and wage inequality.

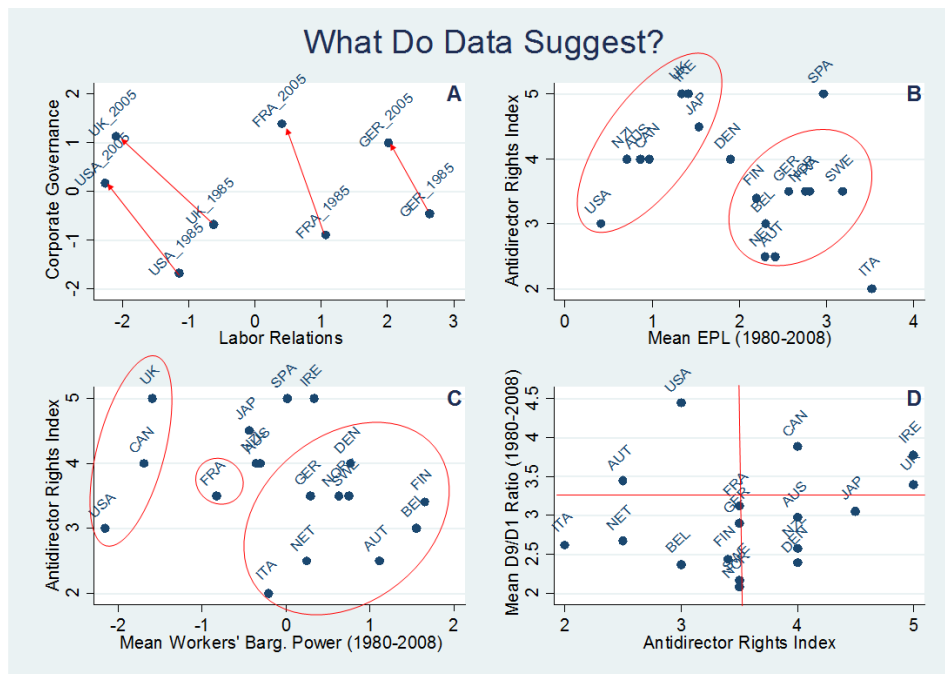


Figure 3

3.2 The impact of labor market institutions on wage distribution

This preliminary analysis suggests that finance development - or more specifically high minority shareholder protection - alone cannot be responsible for the rise in wage inequality. We suppose that the impact of finance on wage distribution is conditioned by two central labor market institutions: workers' bargaining institutions (such as wage bargaining institutions and the institutional weight of unions in the economy) on the one hand and the strictness of employment protection legislation on the other

hand. Empirical results provided by Checchi and García-Peñalosa (2008) suggest that strong labor market institutions (employment protection legislation, tax wedge, the presence and the size of a minimum wage, unemployment benefit, union density and coverage, and the degree of centralization/coordination of wage bargaining) are associated with lower income inequality but in some cases with higher rates of unemployment. We will detail the main theoretical channels through which labor market institutions will affect wage inequality.

Employment Protection Legislation and wage inequality The literature explaining the linkages between employment protection legislation and wage inequality is quite sparse. As argued above by Black *et al.* high activities on financial markets are associated with high labor turnover: in that sense, employment protection is more compatible with long-term employment objectives. On a sample of 11 OECD countries for the 1973-1998 period, Koeniger *et al.* (2007) find that changes in labor market institutions can account for much of the change in wage inequality: strictness of employment protection legislation is positively and significantly correlated with a compressed wage structure. Consequently, we consider that employment protection legislation should be positively associated with low wage inequality through the employment channel. Figure 4 displays a strongly negative relationship between employment protection legislation and the p_9/p_1 ratio in 2005.

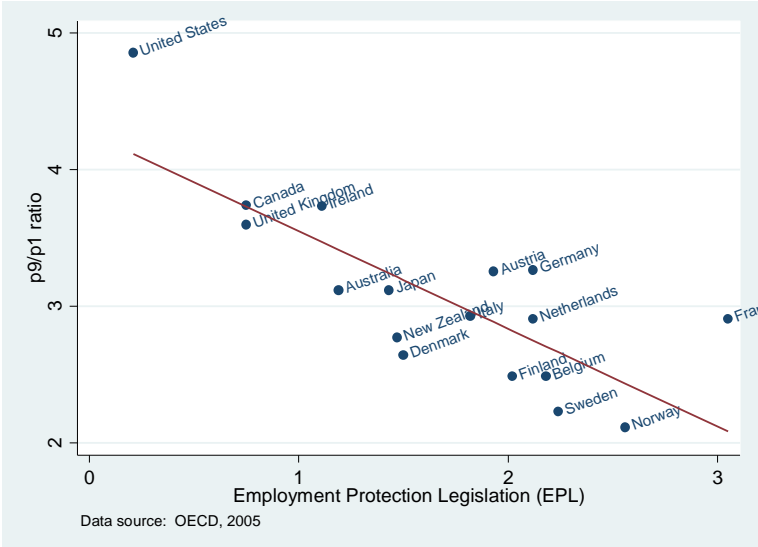


Figure 4: Employment Protection Legislation and Wage Inequality

Theoretically, employment protection makes more difficult for a worker to be laid off even during economic downturns. Following the OECD’s recommendations, higher employment protection raises the

costs of employment which moves downwards the labor demand curve particularly for lower-productivity workers. For this reason, employment protection - as a regulatory obstacle to market flexibility - is responsible for increasing unemployment. Furthermore, deregulated product markets seem to increase this impact of employment protection on unemployment. Hence, deregulated product markets and deregulated labor markets are complementary in regard with unemployment. The more deregulated product market is, the higher unemployment rates will be if levels of employment protection legislation are high³. In this sense, any increase in the deregulation in product markets combined with high levels of employment protection would imply a rise in wage inequality. Conversely, Amable and Gatti (2004) question the argument of complementarity between deregulated forms on product and labor markets. Based on a dynamic efficiency model, the authors find out that increased product market competition induces an increase in job turnover and then an increase in efficiency wage premia: this results in lower aggregate employment. Contrariwise high levels of employment protection have a positive effect of aggregate employment by avoiding wage pressure. Amable *et al.* (2011) empirically find that strong employment protection legislation amplifies the positive effects of product market deregulation on employment: in other words, employment protection, accounting for the degree of competition on product markets, has a positive impact on aggregate employment. Assuming implicitly that high unemployment rates are *ceteris paribus* positively correlated with a rise in wage inequality (see *supra*), we expect that employment protection through its positive impact on employment contributes to lower wage disparities. In the same vein, Koeniger *et al.* (2007) 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.

Collective bargaining institutions and wage inequality Collective bargaining institutions limit the ability of individual firms to offer wage premium to skilled workers and thus are designed to prevent skill poaching. Moreover, collective bargaining institutions allow low-income groups to influence the distribution of wages. A majority of empirical studies use the density rate as a proxy for industrial relations. However, the effects of a high density rate can be ambiguous on wage distribution: on one hand,

³See for example Nicoletti and Scarpetta (2002).

a higher union density rate contributes to decrease wage differentials among union members; on the other hand, it may also participate to increasing wage differentials between union members and nonmembers (because of the wage premium associated with union membership)⁴. Finally, we suppose that strong workers' bargaining power should induce a more compressed wage structure, *i.e.* it reduces wage gap between skilled and unskilled workers. An individualization of the wage bargaining makes more difficult for unions to maintain a unilateral control of the interfirm and intersectoral wage differentials (Rueda and Pontusson, 2000). A recent contribution from OECD (2011) notes that the fall in the share of union members among workers has contributed to widen wage disparities. For instance, Streeck (2009) notes that the share of employees and workplaces covered by industry-wide collective bargaining has fallen since the mid-1990s in Germany: this resulted in an increase in p_5/p_1 ratio and in intersectoral wage dispersion.

To summarize, we expect to prove that strong encompassing labor market institutions are contributing to reduce wage inequality in the era of financial liberalization. In that sense, financial liberalization amplifies wage inequality: any tension on these overall institutional arrangements will to be likely to imply an increase in wage inequality.

4 Empirics

4.1 Data

The study uses time-series cross-section data for 17 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, United Kingdom and United States) over the 1989-2005 period. We want to test empirically the impact of financial liberalization on industrial relations. Table 1 provides descriptive statistics for the variables used in the regressions.

4.1.1 Measuring wage inequality

We use as the dependent variable the ratio of earnings at the 90th percentile to earnings at the 10th percentile (p_9/p_1 ratio) that is a summary measure of the distribution of gross income from employment⁵.

⁴Rueda and Pontusson (2000) conclude that overall union density should be negatively associated with wage inequality.

⁵ p_9/p_1 ratio represents the earnings of a full time worker in the top decile of the earnings distribution relative to the earnings of a worker in the bottom decile, each decile being the threshold earning between this decile and the previous decile.

Table 1: Summary statistics

Variable	Mean	Std. Dev.	Min.	Max.	N	n
p_9/p_1 ratio	1.063	0.216	0.662	1.606	389	17
p_5/p_1 ratio	0.486	0.126	0.25	0.847	361	17
Top 10% income share	31.251	5.359	21	45.96	377	17
Stock market capitalization ratio (stmktcap)	66.492	39.25	5.556	246.196	368	17
Total value of shares traded on the stock market/GDP (stvaltraded)	57.905	61.401	1.679	401.233	368	17
Workers' bargaining power	0	1.297	-2.465	2.54	538	17
Employment Protection Legislation (EPL)	1.954	0.972	0.21	3.82	428	17
Unemployment rate	5.721	3.633	0	16.817	518	17
Openness	67.611	34.434	16.106	184.308	540	17
Government ideological position	1.38	15.973	-49.839	45.6	540	17
GDP growth	2.346	0.266	0.304	2.988	539	17
R%D expenditures/GDP	1.198	0.607	0.182	3.199	463	17

Our measure ignores sources of income, such as self-employment, income from capital, and government transfers. This measure of income inequality is limited to full-time employees. More precisely, this indicator includes the annual base salary, overtime pay, some several periodic payments. However, some elements relative to executive compensation such as stock options can be excluded⁶. As robustness checks, we also use an alternative measure of wage inequality. To look at the impact of financial liberalization on the lower-tail inequality, we use the p_5/p_1 ratio. This ratio compares the median with the bottom of the wage distribution. We choose to use data on earnings ratio because they are available for a wide range of countries and across time. We consider that these data are consistent to conduct a cross-country comparison over time. Moreover, the variety of the methods of calculating Gini coefficients - another very frequently used index of measuring inequality - remains a major problem to conduct a cross-sectional analysis over time., although Solt (2009) has recently proposed a harmonized index of Gini coefficients: the Standardized World Income Inequality Database (SWIID) obtained from the United Nations University's World Income Inequality Database (WIID) completed by the Luxembourg Income Study (LIS).

However, given that neither the p_9/p_1 ratio nor the p_9/p_5 ratio include any forms of financial bonuses (such as stock options) for executives, we use the top 10% income share proposed by Alvaredo, Atkinson, Piketty and Saez in their *World Top Incomes Database*. Nevertheless, this indicator presents some limitations: first, focusing on top income shares, this measure provides no information about the evolution of inequality elsewhere in the distribution. Then, the database is constructed using tax statistics: the series are concerned with gross income before tax and the definition of income can vary across countries. In spite of these limitations, we find interesting to use this index as robustness checks to focus on the

⁶For further details on definition and sources of data, see OECD (1996).

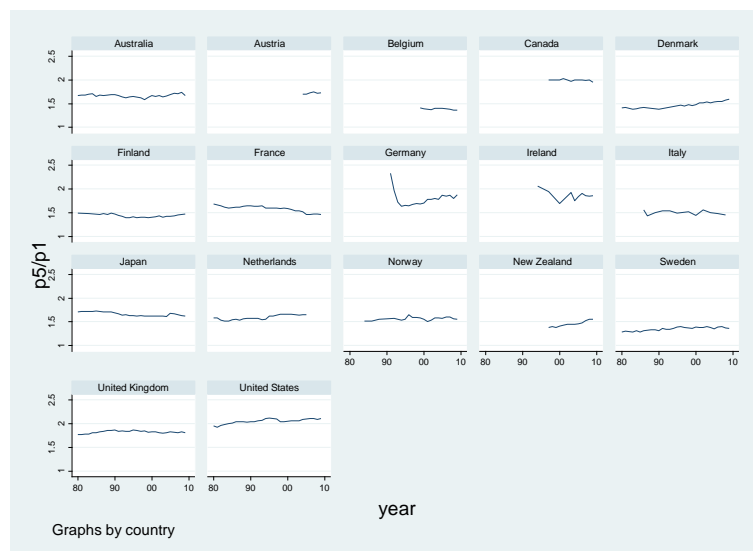


Figure 5: p_5/p_1 ratio in 17 OECD countries

upper-tail inequality.

4.1.2 Explanatory variables

Financial liberalization To account for financial liberalization, we use two measures of financial development (Figure 7): the stock market capitalization (*stmktcap*) ratio to GDP and the stock market total value traded divided by GDP (*stvaltraded*):

1. The *stock market capitalization* ratio gives a measure of stock market activity, *i.e.* to what extent the stock market can efficiently allocate capital to investment projects. It is assumed that a more developed financial market also increases the investors' opportunities for risk diversification. Consequently, this indicator reflects the capacity of stock markets to provide external financing. In other words, the higher the ratio, the more likely firms in this economy would need of financing from external minority shareholders. However, Barker and Rueda (2007) and Barker (2010) point out some possible limitations for using this measure as a proxy for outsider corporate governance: first, equity market can be held by 'blockholders'; second, the size of stock market can be the result of institutional factors such as pension system that are unrelated to corporate governance regime.
2. The second indicator we use is the *stock market total value traded* divided by GDP. This indicator refers to the total value of shares traded during the period and is a common measure of liquidity

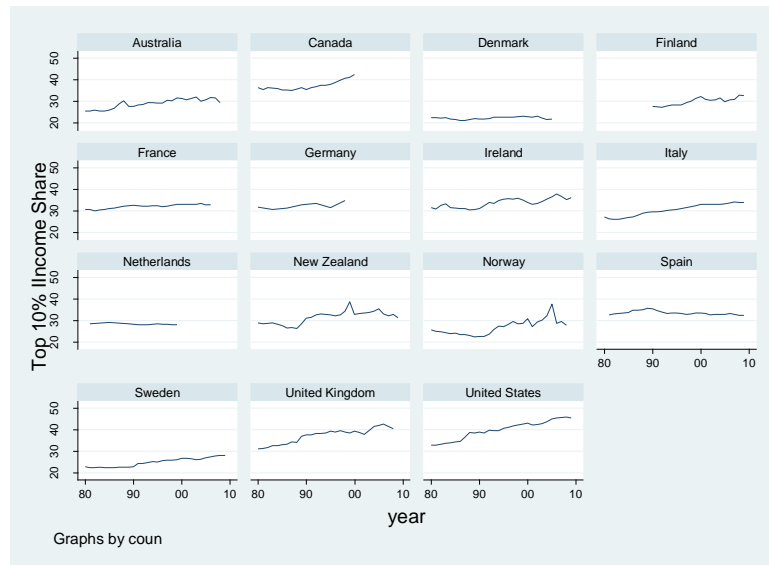


Figure 6: Top 10% Income Shares in 14 OECD Countries

of equity markets. This measure is more likely to reflect the minority shareholder strength than the stock market capitalization ratio because blockholder equity stakes are much less traded than those of minority shareholders.

As displayed in Figure 7, these two measures are highly correlated ($r = 0.71$), excluding for the United Kingdom and the United States where the stock market total value traded ratio has grown more rapidly since the 2000s.

Collective bargaining institutions We are interesting in determining the impact of specific labor market institutions on wage distribution. First, we want to capture the impact of ‘industrial relations’ on wage distribution. Industrial relations refer to the composition and the strength of trade unions and to the system of collective bargaining. Adopting a multidimensional definition of industrial relations, we constructed an synthetic indicator by running a principal-component analysis. As a proxy for industrial relations, *Workers’ Bargaining Power* refers to the degree of coordination of union bargaining, mandatory extension of collective agreements by public law to non-organized firms, and union density (Gordon, 1994). These three variables are all provided by Visser (2011). To capture industrial relations it seems to us to be more appropriate to construct a multidimensional indicator because trade union density does not capture the strength of bargaining power but rather refers to the unions’ attractiveness to potential new members (Vernon, 2006).

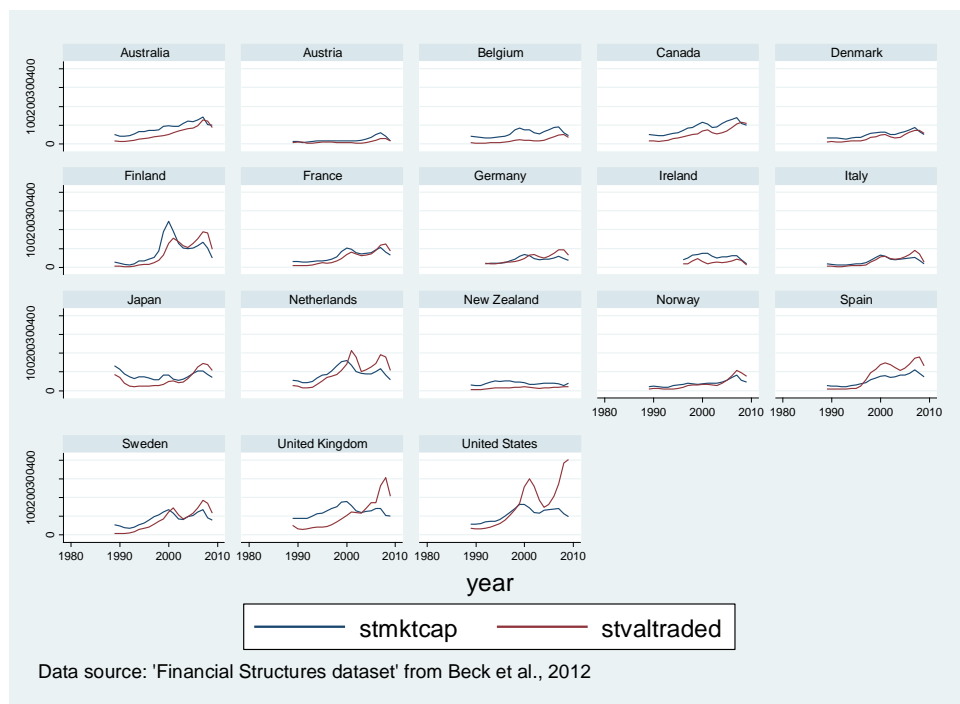


Figure 7: Indicators of financial development

Visser (2011) distinguishes several levels of coordination of wage bargaining: economy-wide bargaining, mixed industry and economy-wide bargaining, industry bargaining with no or irregular pattern setting, mixed or alternating industry- and firm level bargaining, and fragmented bargaining. Extension of collective agreements to non-organized firms can be regularly applied and affecting a significant share of the workforce ($> 10\%$), can be not regularly or widely used ($< 10\%$). In some countries, there is no legal provision for mandatory extension. High levels of wage bargaining centralization and extension of collective agreements are supposed to be correlated with a more homogenous wage distribution. Finally, we include in our composite index union density defined as the net union membership as a proportion wage and salary earners in employment. As explained above, the relationship between unionization and wage inequality is unclear. Consequently, a decline in workers' bargaining power simultaneously reflects a decentralization of wage bargaining and a decline in trade union density.

Employment protection legislation Looking at the impact of employment protection on wage distribution, we use the *Employment Protection Legislation (EPL)* indicator provided by the OECD available from 1985 to 2009. The OECD proposes a measure of employment protection strictness taking into account three different components: (i) protection of regular workers against individual dismissal, (ii)

regulation of temporary forms of employment, and (iii) specific requirements for collective dismissals.

4.1.3 Control variables

First, we want to estimate the impact of trade openness on wage distribution. The variable *Trade Openness* is defined as the sum of exports and imports as a percentage of current GDP and is provided by Armingeon *et al.* (2010). We assume that economic openness contributes to increase wage differentials (p_9/p_1 ratio) in the sense that globalization has brought higher rewards mainly for high-skilled workers. Indeed, it was proved that the removal of barriers to trade and the workers' shift from traditional low-productivity toward modern high-productivity activities caused a rise in inequality in most industrial countries. According the Stolper-Samuelson theorem⁷, increased trade integration is associated with higher relative wages of skilled workers in richer countries. Symmetrically, low-skilled workers in those countries are directly competed with low-skilled workers from the emerging countries. Hence, trade integration is accordingly associated with a rise in wage inequality in developed countries.

We suppose that unemployment rate may have a direct impact on the wage structure. The variable *Unemployment* is the unemployment rate as a percentage of civilian labor force and is provided by Armingeon *et al.* (2010). An increase in unemployment is likely to exert downward pressure on wages at the lower end of wage distribution because the number of unemployed workers increases. Consequently, we assume that unemployment is contributing to increase wage differentials (p_9/p_1 ratio) in the sense that unemployment is more likely to affect low-paid and low-skilled workers. An increase in unemployment may reduce the threshold earnings p_1 .

We take into account the government ideological orientation. The variable *Gov. Ideological Orientation* is a new version of an index of government ideology from Amable, Gatti and Schumacher (2006)⁸. This argument is based on the idea that a significant cleavage between Left and Right concerns the issue of wage inequality. Low-income voters will demand for strong redistribution or social protection in a view of addressing wage inequality. Thus, left-wing governments are more inclined to promote generous redistributive policies (through government taxation and spending). The government ideological orientation may also influence the distribution of wages *via* their effects on legislation: it is frequently accepted that left-wing governments are more in favor of strong workers' bargaining power (by creating a more

⁷It should be noted that this theorem was expounded under some specific economic assumptions (constant returns, perfect competition, equality of the number of factors to the number of products).

⁸See Darcillon (2011) for more details.

union-friendly environment) and high level of employment protection legislation.

Finally, we want to estimate the impact of technological change on wage distribution. Following the OECD's (2011), we take as a proxy of technological change the research and development (R&D) expenditures. The variable *R&D expenditures* refers to business enterprise expenditures on R&D as a percentage of GDP and is provided by the OECD. As noted by García-Peñalosa (2010), technological change is often seen as inherently 'skill-biased'. Consequently, faster technology-driven growth may result in greater earnings inequality as technological change reduces the relative wage of unskilled or low-skilled workers.

4.2 Econometric specification and methodology

We want to test the argument that the impact of financial liberalization on the wage structure is conditional to specific labor market institutions. Hence, we will estimate the following relationship:

$$\begin{aligned} \ln Y_{it} = & \alpha_i + \beta_1 \cdot FL_{it} + \beta_2 \cdot BARG_{it} + \beta_3 \cdot FL_{it} \cdot BARG_{it} + \beta_4 \cdot EPL_{it} + \beta_5 \cdot FL_{it} \cdot EPL_{it} \\ & + \beta_k \cdot \sum_k X_{k,it} + \delta_t + \epsilon_{it} \end{aligned} \quad (1)$$

where Y_{it} denotes the dependent variable capturing wage inequality, FL_{it} the variable capturing financial liberalization, $BARG_{it}$ the variable measuring workers' bargaining power, EPL_{it} the variable relating to employment protection legislation, $\sum_k X_{k,it}$ a set of control variables, δ_t year fixed effects and ϵ_{it} an error term. We want the joint effects of the degree of financial development and labor market institutions on wage distribution by using data on 17 developed countries over the 1989-2009 period. In the first specification, we run OLS estimates with PCSE estimator appropriate for TSCS data in order to assess the combined impact on labor market institutions and financial liberalization on wage distribution.

Second, we assume that labor market institutions are not exogenous but can be result from several evolutions. For instance, that financial liberalization may have a significant impact on labor market institutions. Hence we can express employment protection legislation and workers' bargaining power as:

$$BARG_{it} = \alpha_{1i} + \beta_{11} \cdot FL_{it} + \beta_{1k} \cdot \sum_k X_{k,it} + \delta_t + \epsilon_{1it} \quad (2)$$

$$EPL_{it} = \alpha_{2i} + \beta_{21} \cdot FL_{it} + \beta_{2k} \cdot \sum_k X_{k,it} + \delta_t + \epsilon_{2it} \quad (3)$$

Therefore, we use a simultaneous equation model to capture the indirect effect of financial liberalization on labour market institutions. Hence, this model allows us to analyze the specific determinants of each labor market institution. We will hence estimate the simultaneous equation system through three-stage least squares methods (3SLS). The 3SLS method has the main advantage of exploiting the correlation of the disturbances across different equations. In other words, we suppose that the two labor market institutions as endogenous and depend on the disturbances of each equation.

Our principal argument is based on the idea that the effect of the financial liberalization on wage inequality is *conditional* on specific levels of workers' bargaining power and employment protection legislation:

$$\frac{\partial E(\ln Y_{it}|\mathbf{x})}{\partial FL_{it}} = \widehat{\beta}_1 + \widehat{\beta}_3 \cdot BARG_{it} + \widehat{\beta}_5 \cdot EPL_{it} \quad (4)$$

given that \mathbf{x} is the vector of explanatory variables. The coefficient β_1 can be interpreted as the effect of financial liberalization on wage distribution but when $BARG_{it}$ and EPL_{it} equal zero. Determining the significance of the effect of FL_{it} on $\ln Y_{it}$ conditional on $BARG_{it}$ values, we compute the standard error of the sum $(\beta_1 + \beta_3 \cdot BARG_{it})$ as follows⁹:

$$se_{(\widehat{\beta}_1 + \widehat{\beta}_3 \cdot BARG_{it})} = \sqrt{\text{var}(\widehat{\beta}_1) + BARG_{it}^2 \cdot \text{var}(\widehat{\beta}_3) + 2BARG_{it} \cdot \text{cov}(\widehat{\beta}_1, \widehat{\beta}_3)} \quad (6)$$

Accordingly, the t values obtained from an interactive model indicate the effect of an independent variable on the dependent variable but a *particular* levels of another independent variable: hence, it is very surprising that insignificant variables can produce significant marginal effects (Friedrich, 1982). We report marginal effects of financial liberalization at different sample values of workers' bargaining power and employment protection (minimum, mean minus one standard deviation, mean, mean plus one standard deviation, maximum).

⁹Respectively, the standard error of $(\beta_1 + \beta_5 \cdot EPL_{it})$ can be expressed as:

$$se_{(\widehat{\beta}_1 + \widehat{\beta}_5 \cdot EPL_{it})} = \sqrt{\text{var}(\widehat{\beta}_1) + EPL_{it}^2 \cdot \text{var}(\widehat{\beta}_5) + 2EPL_{it} \cdot \text{cov}(\widehat{\beta}_1, \widehat{\beta}_5)} \quad (5)$$

4.3 Results

Before running 3SLS regressions, we run OLS with PCSE (Panel corrected standard errors) estimator from Beck and Katz (1995) appropriate for time-series cross-section data (TSCS). In this first model, labor market institutions are considered as strictly exogenous. This first approach explores the correlations between financial liberalization and wage inequality. Then, we will introduce a 3SLS estimation, we investigate the endogeneity of labor market institutions. More specifically, 3SLS will allow us to understand the particular mechanisms through which financial liberalization impacts labor market institutions.

4.3.1 OLS/PCSE estimations

Before running regressions, we run unit root tests to check whether our variables are stationary or not. Following Maddala and Wu (1999) we run a Fisher test which assumes that all series are non-stationary under the null hypothesis. We find that our variables in levels are stationary, sometimes with a drift. Because Time-Series-Cross-Section (TSCS) data have repeated observations on fixed units, both the temporal and spatial properties of TSCS data make the use of ordinary least squares (OLS) problematic. The OLS regression assumes homoskedasticity and independence of the errors. These specific hypotheses are not verified. As a consequence, we are able to use the ordinary least squares (OLS) with Beck and Katz's (1995) panel corrected standard errors (PCSE). Finally, we run Wooldridge test for autocorrelation in panel-data models: we fail to reject the null hypothesis of no serial correlation concluding that the data does not have first-order autocorrelation. Results with PCSE estimator are shown in Table 2. We present only results with p_9/p_1 ratio as dependent variable. Results when using other measures of wage/income inequality are similar. The stock market capitalization ratio is used in models [1] and [2] as proxy for institutional power of minority shareholders whereas we use the total value of shares traded on the stock market divided by GDP in models [3] and [4].

PCSE estimator shows a positive correlation between financial liberalization and wage inequality but only in model [4]. We do not find robust evidence that an increase in the degree of financial development should be positively correlated with an increase in wage inequality. As expected we find that trade openness, technological change (proxied by R&D expenditures) and unemployment are all positively correlated with our dependent variable: consequently, these three variables would lead to a rise in wage disparity. Results indicate no significant impact of government ideological orientation and GDP growth. More particularly, we want to look the effect of labor market institutions on wage distribution: we observe

Table 2: Impact of financial reforms on wage inequality
(OLS/PCSE Estimations)

	Dependent variable p_9/p_1 ratio (log)			
	[1]	[2]	[3]	[4]
stmktcap	-0.000 (0.000)	0.001 (0.000)		
stvaltraded			-0.000 (0.000)	0.001*** (0.000)
Employment Protection Legislation (EPL)	-0.097*** (0.010)	-0.065*** (0.013)	-0.092*** (0.008)	-0.072*** (0.009)
Workers' Barg. Power	-0.074*** (0.014)	-0.101*** (0.008)	-0.084*** (0.009)	-0.100*** (0.008)
stmktcap × Workers' Barg. Power	-0.000*** (0.000)			
stmktcap × EPL		-0.001*** (0.000)		
stvaltraded × Workers' Barg. Power			-0.000*** (0.000)	
stvaltraded × EPL				-0.001*** (0.000)
Trade Openness	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
Unemployment	0.010*** (0.003)	0.009*** (0.003)	0.010*** (0.003)	0.009*** (0.003)
Gov. Ideol. Orientation	0.001* (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
R&D Expenditures	0.085*** (0.011)	0.078*** (0.011)	0.078*** (0.009)	0.069*** (0.009)
Growth (log)	0.037 (0.041)	0.014 (0.037)	0.025 (0.038)	0.004 (0.034)
Constant	0.906*** (0.117)	0.919*** (0.117)	0.917*** (0.105)	0.944*** (0.094)
R-squared	0.706	0.704	0.717	0.713
Observations	250	250	250	250

Note: Panel Corrected Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

a negative and significant relationship between the two labor market institutions (employment protection legislation and workers' bargaining power) and p_9/p_1 ratio. More interestingly, coefficients between financial liberalization and labor market institutions are all significantly negative. We do find that the impact of financial liberalization on wage distribution depends on levels of labor market institutions: indicators of financial liberalization and p_9/p_1 ratio are negatively correlated at high levels of employment protection legislation and workers' bargaining power. Based on estimates from models [2] and [3], we find that every one point increase in employment protection legislation and workers' bargaining power respectively decrease wage differentials by -9.24% and -9.60%.

4.3.2 A simultaneous equation model

We want to estimate our reduced equation (1). A simultaneous equation model allows us to estimate the impact of each labor market institution through its specific determinants on our dependent variable. First, relying on a growing body of theoretical and empirical literature of political economy analyzing institutional features determined by economic, social and political factors, we suppose that workers' bargaining power and employment protection legislation depend on economic factors (financial liberalization, trade openness and unemployment rate) but also on some political economy institutions (the government ideological orientation).

Tables 3 and 5 present the results from 3SLS estimations. Results for wage inequality equation are consistent with previous results. Regression coefficients in the workers' bargaining power and employment protection legislation equations present however surprising: we do not find as expected that financial liberalization has a significant impact on labor market institutions. Conversely, trade openness and GDP growth (in some cases) seem to affect labor market institutions. Concerning the relationship between financial liberalization and wage inequality, we do not find robust evidence suggesting that financial liberalization would be associated with an increase in overall inequality (models [1] and [2] in both tables). This results confirms the OECD's (2011) result that concludes that financial liberalization had little impact on wage inequality *per se* but put pressure on policies and institutional reforms. However, if we look more specifically the lower-tail inequality (models [3] and [4]) and the upper-tail inequality, we find that more developed stock markets are associated with an increase in (wage or income) inequality. We find robust results on trade openness, unemployment and technological change that all increase wage differentials. As in OLS regressions, government ideological orientation and GDP growth have no significant impact on our three dependent variables.

Among labor market institutions, employment protection legislation and workers' bargaining power both contribute to decrease wage inequality. These findings are robust using different measures of wage/income inequality. More interestingly, this article focuses on the interaction of financial liberalization and labor market institutions on wage distribution. The marginal effect of financial liberalization according to the level of labor market institutions can be read in Tables 4 and 6. When using the stock market capitalization ratio as independent variable, one can see that the marginal effect of the financial development on wage/income distribution decreases with the level of labor market institutions. The marginal effect is positive for low levels of workers' bargaining, although not significant from zero, and turns progressively negative and significant for higher levels. The marginal effect is significantly at the lowest and the highest levels of employment protection legislation. When using the total value of shares traded on the stock market as independent variable, results are consistent for employment protection legislation. Results are more contrasting for workers' bargaining power: although we find similar results with p_9/p_1 and p_5/p_1 ratios results are more surprising when using the top 10% income share as dependent variable: the marginal effect of financial liberalization on income inequality increases with the level of workers' bargaining. This result suggests that wage collective bargaining institutions would be more likely to compensate *wage* inequality than *income* inequality in an era of increasing financial development.

Overall we find that increasing levels of workers' bargaining power and levels of employment protection legislation one weakens the impact of financial liberalization on the increase in wage inequality. The higher workers' bargaining power and employment protection legislation are, the less financial liberalization is associated with a rise in wage differentials. This finding confirms our main argument that the impact of financial liberalization is conditional to central labor market institutions. We can conclude that reforming labor market institutions towards further deregulation may result in a substantial increase in wage disparity. Nevertheless, reforms in financial sector has not *per se* caused a rise in wage inequality. However, central labor market institutions that had contributed in the past to compress the wage structure may have been gradually affected by major reforms in financial sector as suggested by the 3SLS model.

5 Conclusion

The aim of this article was to assess the consequences of increasing financial liberalization on wage distribution. We find that encompassing labor market institutions - strong workers' bargaining power and the

Table 3: Impact of financial reforms on wage inequality
(3SLS Estimations)

Dependent variables	p_9/p_1 ratio (log)		p_5/p_1 ratio (log)		Top 10% Income Share	
	[1]	[2]	[3]	[4]	[5]	[6]
Workers' Bargaining Power						
stmktcap	0.001 (0.001)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	0.000 (0.001)	0.000 (0.001)
Trade Openness	0.010** (0.004)	0.009** (0.004)	0.004 (0.004)	0.004 (0.004)	0.009* (0.005)	0.010* (0.005)
Gov. Ideol. Orientation	0.000 (0.003)	-0.000 (0.003)	-0.001 (0.003)	-0.001 (0.003)	-0.004 (0.003)	-0.003 (0.003)
Unemployment	0.022 (0.016)	0.021 (0.016)	0.023 (0.017)	0.022 (0.017)	0.029 (0.018)	0.030 (0.019)
Growth (log)	-0.285* (0.163)	-0.288* (0.164)	-0.146 (0.169)	-0.158 (0.169)	-0.371** (0.186)	-0.394** (0.187)
Employment Protection Legislation (EPL)						
stmktcap	0.001 (0.001)	0.001 (0.001)	0.002** (0.001)	0.002* (0.001)	0.000 (0.001)	0.001 (0.001)
Trade Openness	-0.019*** (0.002)	-0.018*** (0.003)	-0.018*** (0.003)	-0.018*** (0.003)	-0.019*** (0.003)	-0.019*** (0.004)
Gov. Ideol. Orientation	0.001 (0.002)	0.002 (0.002)	-0.000 (0.002)	0.000 (0.002)	0.001 (0.002)	0.000 (0.002)
Unemployment	-0.015 (0.010)	-0.014 (0.010)	0.001 (0.010)	0.002 (0.010)	-0.006 (0.013)	-0.008 (0.013)
Growth (log)	0.366*** (0.101)	0.371*** (0.101)	0.275*** (0.101)	0.287*** (0.101)	0.396*** (0.130)	0.408*** (0.130)
Wage Inequality						
stmktcap	0.001 (0.001)	-0.001* (0.000)	0.001*** (0.000)	-0.000** (0.000)	0.080*** (0.016)	0.016 (0.010)
EPL	-0.040* (0.022)	-0.090*** (0.012)	0.002 (0.014)	-0.048*** (0.008)	1.803*** (0.593)	-0.663** (0.323)
stmktcap × EPL	-0.001*** (0.000)		-0.001*** (0.000)		-0.036*** (0.007)	
Workers' Barg. Power	-0.124*** (0.010)	-0.083*** (0.017)	-0.060*** (0.007)	-0.030*** (0.011)	-2.604*** (0.315)	-2.581*** (0.513)
stmktcap × Workers' Barg. Power		-0.000*** (0.000)		-0.000*** (0.000)		-0.001 (0.005)
Trade Openness	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.024** (0.010)	0.010 (0.010)
Unemployment	0.010*** (0.003)	0.011*** (0.003)	0.002 (0.002)	0.003 (0.002)	0.048 (0.075)	-0.063 (0.078)
Gov. Ideol. Orientation	0.001 (0.001)	0.001* (0.001)	0.000 (0.000)	0.001* (0.000)	-0.002 (0.018)	0.010 (0.018)
R&D Expenditures	0.094*** (0.016)	0.098*** (0.016)	0.031** (0.010)	0.033*** (0.010)	-0.414 (0.474)	-0.437 (0.486)
Growth (log)	0.002 (0.050)	0.034 (0.050)	0.031 (0.032)	0.055* 0.640 (0.033)	0.897 (1.482)	
R-squared	0.929	0.930	0.931	0.933	0.913	0.916
Observations	250	250	241	241	225	225

Note: Standard errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Impact of financial reforms on wage inequality conditional to labor market institutions (3SLS estimations)

	Workers' bargaining power			Employ. Prot. Legislation		
	[1]	[3]	[5]	[2]	[4]	[6]
Min	0.0006 (0.0005)	0.0006* (0.0003)	0.0175 (0.0156)	0.0005 (0.0005)	0.0008*** (0.0003)	0.0728*** (0.0152)
Mean_less_1sd	-0.0000 (0.0003)	0.0001 (0.0002)	0.0166 (0.0119)	-0.0000 (0.0000)	0.0002 (0.0002)	0.0450*** (0.0114)
Mean	-0.0005* (0.0003)	-0.0004** (0.0002)	0.0156 (0.0099)	-0.0007** (0.0003)	-0.0005*** (0.0002)	0.0100 (0.0097)
Mean_plus_1sd	-0.0011*** (0.0003)	-0.0009*** (0.0002)	0.0146 (0.0115)	-0.0014*** (0.0004)	-0.0013*** (0.0003)	-0.0251** (0.0127)
Max	-0.0017*** (0.0005)	-0.0013*** (0.0003)	0.0137 (0.0153)	-0.0020*** (0.0006)	-0.0019*** (0.0004)	-0.0573*** (0.0176)

Note: Standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

strictness of employment protection legislation - contribute to reduce wage disparities. Accounting for the interaction of these two institutional arrangements and the degree of financial liberalization, we find that by increasing labor market regulation one also weakens the positive impact of financial liberalization on the increase in wage inequality. Our results provide an explanation of the cross-national variation in wage inequality: increasing financial development implies larger inequality in countries with weak labor market regulation. On the contrary, we find that countries with strong encompassing labor market institutions have experienced a modest increase in wage inequality. Consequently, we consider the central role of labor market institutions in explaining wage differentials. We assume that financial reforms may have strong on these labor market institutions. However, we only provide a partial explanation of wage inequality. Causes of growing wage inequality are various: skill-biased technological changes, changes in social expenditure policies (see for instance Doerrenberg and Peichl, 2012), changes in employment patterns, changes in family formation and household structures, changes in tax and benefit systems (more specifically changes in progressive taxation systems) (OECD, 2011).

Thus, these empirical results point out the institutional compatibility between financial and labor markets. Due to the institutional complementarities between financial systems and labor market institutions the introduction of pro-minority shareholder reforms may be conducive to politically weakening labor's collective representative. We doubt that such an evolution favors the emergence of a political stable equilibrium between shareholders and workers. Because of changes in the balance of power between social groups, the associated political equilibrium is consequently modified. The emergence of these new insti-

Table 5: Impact of financial reforms on wage inequality
(3SLS Estimations)

Dependent variables	p_9/p_1 ratio (log)		p_5/p_1 ratio (log)		Top 10% Income Share	
	[1]	[2]	[3]	[4]	[5]	[6]
Workers' Bargaining Power						
stvaltraded	0.001 (0.001)	0.001 (0.001)	0.002** (0.001)	0.002** (0.001)	0.002* (0.001)	0.002* (0.001)
Trade Openness	0.010** (0.004)	0.009** (0.004)	0.005 (0.004)	0.005 (0.004)	0.009* (0.005)	0.010** (0.005)
Gov. Ideol. Orientation	0.000 (0.002)	-0.000 (0.002)	-0.001 (0.002)	-0.001 (0.002)	-0.004 (0.003)	-0.004 (0.003)
Unemployment	0.020 (0.015)	0.021 (0.016)	0.018 (0.016)	0.018 (0.016)	0.025 (0.019)	0.026 (0.019)
Growth (log)	-0.287* (0.157)	-0.289* (0.157)	-0.168 (0.160)	-0.170 (0.160)	-0.422** (0.181)	-0.430** (0.181)
Employment Protection Legislation (EPL)						
stvaltraded	0.001 (0.000)	0.001 (0.000)	0.001* (0.000)	0.001* (0.000)	0.000 (0.001)	0.001 (0.001)
Trade Openness	-0.018*** (0.003)	-0.018*** (0.003)	-0.017*** (0.003)	-0.017*** (0.003)	-0.019*** (0.004)	-0.019*** (0.004)
Gov. Ideol. Orientation	0.002 (0.002)	0.002 (0.002)	0.001 (0.002)	0.001 (0.002)	0.000 (0.002)	0.000 (0.002)
Unemployment	-0.020** (0.010)	-0.019** (0.010)	-0.005 (0.010)	-0.005 (0.010)	-0.012 (0.014)	-0.012 (0.014)
Growth (log)	0.384*** (0.097)	0.386*** (0.097)	0.329*** (0.096)	0.330*** (0.096)	0.420*** (0.126)	0.421*** (0.126)
Wage Inequality						
stvaltraded	0.001*** (0.000)	-0.000 (0.000)	0.000*** (0.000)	-0.000 (0.000)	0.036*** (0.007)	0.030*** (0.008)
EPL	-0.055*** (0.014)	-0.083*** (0.012)	-0.033*** (0.010)	-0.047*** (0.008)	-0.240 (0.361)	-0.702** (0.306)
stvaltraded × EPL	-0.001*** (0.000)		-0.000*** (0.000)		-0.008** (0.004)	
Workers' Barg. Power	-0.122*** (0.010)	-0.101*** (0.011)	-0.062*** (0.007)	-0.052*** (0.007)	-2.645*** (0.306)	-2.717*** (0.349)
stvaltraded × Workers' Barg. Power		-0.000*** (0.000)		-0.000*** (0.000)		0.000
Trade Openness	0.002*** (0.000)	0.002*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.023** (0.010)	0.022** (0.010)
Unemployment	0.010*** (0.003)	0.011*** (0.003)	0.002 (0.002)	0.002 (0.002)	-0.009 (0.072)	-0.004 (0.072)
Gov. Ideol. Orientation	0.000 (0.001)	0.001 (0.001)	0.000 (0.002)	0.000 (0.002)	-0.004 (0.017)	-0.001 (0.018)
R&D Expenditures	0.084*** (0.016)	0.090*** (0.016)	0.020** (0.010)	0.022** (0.010)	-0.805* (0.435)	-0.855* (0.452)
Growth (log)	-0.010 (0.048)	0.012 (0.048)	0.016 (0.032)	0.025 (0.032)	0.860 (1.451)	0.453 (1.489)
R-squared	0.929	0.931	0.933	0.934	0.915	0.916
Observations	250	250	241	241	225	225

Note: Standard errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Impact of financial reforms on wage inequality conditional to labor market institutions (3SLS estimations)

	Workers' bargaining power			Employ. Prot. Legislation		
	[1]	[3]	[5]	[2]	[4]	[6]
Min	0.0006*** (0.0002)	0.0003** (0.0001)	0.0286*** (0.0068)	0.0006*** (0.0002)	0.0003*** (0.0001)	0.0345*** (0.0069)
Mean_less_1sd	0.0002 (0.0002)	0.0001 (0.0001)	0.0290*** (0.0065)	0.0001 (0.0002)	0.0001 (0.0001)	0.0283*** (0.0064)
Mean	-0.0002 (0.0002)	-0.0001 (0.0001)	0.0296*** (0.0078)	-0.0003 (0.0002)	-0.0001 (0.0001)	0.0204*** (0.0074)
Mean_plus_1sd	-0.0007** (0.0003)	-0.0003 (0.0002)	0.0301*** (0.0102)	-0.0008** (0.0003)	-0.0004* (0.0002)	0.0125 (0.0097)
Max	-0.0011*** (0.0004)	-0.0004* (0.0002)	0.0306** (0.0130)	-0.0013*** (0.0004)	-0.0007** (0.0003)	0.0052 (0.0123)

Note: Standard errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

tutional configurations raises doubt as to its ability of maintaining a compromise in the long run. Boyer (2006) argues that the introduction of a shareholder value maximization strategy represents a noticeable threat for the long term viability of the German productive system based on strong collective bargaining institutions: for this reason, the institutional compatibility between new rules of corporate governance and the traditional system of 'codetermination' as described in Höpner (2007) or Vitols (2004) would be only transitory. A political equilibrium is based on specific institutional configurations that result in an institutional and political compromise. For instance, the Anglo-American political-equilibrium is based on strong deregulated markets in financial and labor sectors. We have shown that this institutional configuration results in high wage inequality whereas traditionally the political-equilibrium in Continental European countries has been based simultaneously on weakly developed financial markets and strong welfare systems and that produced weak wage disparity. Recent changes in financial sector and in labor markets in most of European countries and in Japan suggest that these countries have gradually converged into a new political-equilibrium corresponding to an hybrid version of the Anglo-American one. As a result, the potential break-up of the existing institutional compromise may have major political consequences. Conversely, if we consider labor market institutions as resilient, we can easily analyze the political strategy adopted by some left-wing parties and trade unions. For instance, at the end of the 1990s the French Socialist Party decided to liberalize "*the sectors in the economy that were not considered as central to the sociopolitical base, such as the institutions related to social protection and employment relations appearing at the top of the institutional hierarchy of the Left bloc*" (Amable,

Guillaud and Palombarini, p.50, we translate).

References

- [1] Alvaredo, Facundo, Anthony B. Atkinson, Thomas Piketty and Emmanuel Saez, The World Top Incomes Database, <http://g-mond.parisschoolofeconomics.eu/topincomes>, 01/10/2012
- [2] Amable, Bruno, Lilas Demmou and Donatella Gatti (2011), “The effect of employment protection and product market performance: substitution or complementarity?”, *Applied Economics*, 43(4): 449-464.
- [3] Amable, Bruno, Donatella Gatti (2004), “Product Market Competition, Job Security, and Aggregate Employment”, *Oxford Economic Papers*, 56(4): 667-686.
- [4] Amable, Bruno, Donatella Gatti and Jan Schumacher (2006), “Welfare-State Retrenchment: The Partisan Effect Revisited”, *Oxford Review of Economic Policy*, 22(3), 426-444.
- [5] Amable, Bruno, Ernst Ekkehard, and Stephano Palombarini (2005), “How do financial markets affect industrial relations: an institutional complementarity approach”, *Socio-Economic Review*, 3(2), 311-330.
- [6] Armingeon, Klaus, Panajotis Potosidis, Marlène Gerber and Philipp Leimgruber (2010), Comparative Political Data Set I 1960-2009. Institute of Political Science, University of Berne.
- [7] Barker, Roger M. (2010), *Corporate Governance, Competition, and Political Parties. Explaining Corporate Governance Change in Europe*, Oxford: Oxford University Press.
- [8] Barker, Roger M. and David Rueda (2007), “The Labor Market Determinants of Corporate Governance Reform”, *CLPE Research Paper No. 5/2007*, April.
- [9] Baum, Christopher F., Mark E. Schaffer and Steven Stillman (2007), “Enhanced routines for instrumental variables/GMM estimation and testing”, *Stata Journal*, 7(4), 465-506.
- [10] Beck, Thorsten, Ali Demirgüç-Kunt and Ross Levine (2010), “A new database on financial development and structure”, *World Bank*.
- [11] Beck, Nathaniel, and Jonathan N. Katz (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.

- [12] Bertola, Giuseppe and Andrea Ichino (1995), “Wage Inequality and Unemployment: United States vs. Europe”, in Ben S. Bernanke and Julio J. Rotemberg (eds) *NBER Macroeconomics Annual 1995, Volume 10*, MIT Press, 13-66.
- [13] Black, Bloyd, Howard Gospel and Andrew Pendleton (2007), “Finance, Corporate Governance, and the Employment Relationship”, *Industrial Relations*, 46(3), 643-650.
- [14] Black, Bloyd, Howard Gospel and Andrew Pendleton (2008), “The impact of equity market and corporate governance on labour market flexibility”, *The International Journal of Human Resource Management*, 19(10), 1792-1808.
- [15] Boyer, Robert (2005), “From Shareholder Value to CEO Power: the Paradox of the 1990s”, *Competition and Change*, 9(1), 7-47.
- [16] Boyer, Robert (2006), “What is the Future for Codetermination and Corporate Governance in Germany?”, in Jens Beckert, Bernhard Ebbinghaus, Anke Hessel and Philip Manow (eds) *Transformationen des Kapitalismus*, Frankfurt am Main, Campus.
- [17] Boyer, Robert (2011), *Les financiers détruiront-ils le capitalisme?*, Economica, juillet.
- [18] Bumann, Silke and Robert Lensink (2012), “Financial Liberalization Does Not Benefit Them All. Growing Income Inequality in the Wake of Financial Liberalization”, University of Groningen.
- [19] Checchi, Daniele and Cecilia García-Peñalosa (2008), “Labour market institutions and income inequality”, *Economic Policy*, 23(56), 600-651.
- [20] Doerrenberg, Philipp, and Andreas Peichl (2012), “The Impact of Redistributive Policies on Inequality in OECD Countries”, *IZA Discussion Paper No. 6505*, Institute for the Study of Labor.
- [21] Ernst, Ekkehard (2004), “Financial Systems, Industrial Relations and Industry Specialization: An Econometric Analysis of Institutional Complementarity”, in Oesterreichische 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, 60-95.
- [22] Friedrich, Robert (1982), “In Defense of Multiplicative Terms in Multiple Regression Equations”, *American Journal of Political Science*, 26, 797-833.

- [23] García-Peñalosa, Cecilia (2010), “Income distribution, economic growth and European Integration”, *Journal of Economic Inequality*, 8(3), 277-292.
- [24] Gatti, Donatella, Christophe Rault, and Anne-Gaël Vaubourg (2011), “Unemployment and Finance: How Do Financial and Labour Market Factors Interact?”, *Oxford Economic Papers*, forthcoming.
- [25] Godechot Olivier (2012), “Is finance responsible for the rise in wage inequality in France?”, *Socio-Economic Review*, 10(3), 447-470.
- [26] Gordon, David M. (1994), “Bosses of different stripes: A cross-national perspective on monitoring and supervision”, *American Economic Review*, 64(2), 375-379.
- [27] Gospel, Howard, and Andrew Pendleton (2003), “Finance, Corporate Governance and the Management of Labour: A Conceptual and Comparative Analysis”, *British Journal of Industrial Relations*, 41(3), 557-582.
- [28] Hall, Peter A. and Daniel W. Gingerich (2009), “Varieties of capitalism and institutional complementarities in the political economy”, *British Journal of Political Science*, 39(3), 449-482.
- [29] Hall, Peter A. and David Soskice (2001), “An Introduction to Varieties of Capitalism”, in Peter A. Hall and David Soskice *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, 1-68.
- [30] Höpner, Martin (2007). “Corporate Governance Reform and the German Party Paradox”, *Comparative Politics*. 39(4), 401-420.
- [31] Koeniger W., M. Leonardi and L. Nunziata (2007), “Labor Market Institutions and Wage Differentials”, *Industrial & Labor Relations Review*, 60(3), 340-356.
- [32] La Porta, Rafaël, Florenzio Lopez-de-Silvanes, Andrei Shleifer and Robert Vishny (1998), “Law and Finance”, *Journal of Political Economy*, 106(6): 1013-1155.
- [33] Moss, David (2010), “Comments on Bank Failure/Regulation/Inequality Chart”, Harvard Business School, August.
- [34] Nicoletti, Giuseppe, and Stefano Scarpetta (2002), “Interactions between Product and Labour Market Regulations: Do They Affect Employment? Evidence of the OECD Countries”, Unpublished paper, OECD Economics Department, Paris.

- [35] OECD (2011), *Divided We Stand: Why Inequality Keeps Rising*, OECD Publishing, Paris.
- [36] Philippon, Thomas, and Ariell Reshef (2009), “Human Capital in the U.S. Financial Industry: 1909-2006”, *NBER Worker Paper*, No.14644, Cambridge, MA, National Bureau of Economic Research, available on <http://www.nber.org/papers/w14644.pdf>.
- [37] Roe, Mark J. (2003), *Political Determinants of Corporate Governance. Political Context, Corporate Impact*, Oxford University Press, Oxford.
- [38] Rueda, David, and Jonas Pontusson (2000), “Wage Inequality and Varieties of Capitalism”, *World Politics*, 52: 350-383.
- [39] Saillard, Adeline (2012), “The Role of Complementarity and the Finance Liberalization in the Financial Crisis”, *CES Working Paper*, No. 2012.38
- [40] Sjöberg, Ola (2009), “Corporate Governance and Earnings Inequality in the OECD Countries 1979-2000”, *European Sociological Review*, 25(5): 519-533.
- [41] Spamann, Holger (2009), “The ‘Anti-Director Rights Index’ Revisited”, *The Review of Financial Studies*, 23(2), 467-486.
- [42] Streeck, Wolfgang (2009), *Re-forming Capitalism. Institutional Change in the German Political Economy*, Oxford University Press, Oxford.
- [43] Vernon, Guy (2006), “Does Density Matter? The Significance of Comparative Historical Variation in Unionization”, *European Journal of Industrial Relations*, 12(2): 189-209.
- [44] Visser, Jelle (2011), “Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts, 1960-2010 (ICTWSS)”, *Amsterdam Institute for Advanced Labour Studies AIAS*, University of Amsterdam, Version 3.0
- [45] Vitols, Sigurt (2004). “Negotiated Shareholder Value: the German Variant of an Anglo-American Practice”, *Competition and Change*, 8(4), 357-374.