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Unemployment and finance: how do financial and labour market factors interact?

Donatella Gatti*and Anne-Gaël Vaubourg†

Abstract

Using data for 18 OECD countries over the period 1980-2004, we investigate how labour and financial factors interact to determine unemployment. We show that the impact of financial variables depends strongly on the labour market context. Increased market capitalization as well as decreased banking concentration reduce unemployment if the level of labour market regulation, union density and coordination in wage bargaining is low. The above financial variables have no effect otherwise. Increasing intermediated credit worsens unemployment when the labour market is weakly regulated and coordinated, whereas it reduces unemployment otherwise. These results suggest that the respective virtues of bank-based and market-based finance are crucially tied to the strength of labour regulation.

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1 Introduction

For a long time, the diversity of unemployment rates among countries has fuelled the debate concerning the role of labour market institutions. A rich literature has developed, depicting strong labour legislation, unemployment protection, wage taxation and union action as sources of rigidity. In general, they are thought to lead to a low equilibrium rate of employment (Nickell (1997), Siebert (1997) and Layard & Nickell (1999))[1].

This literature has recently been reinforced by studies on the interactions between institutional arrangements within labour markets. For instance, Nickell, Nunziata, Ochel & Quintini (2002) show, for instance, that the harmful effect of the gross replacement rate on unemployment is amplified when the duration of unemployment benefit is long. Similarly, Nickell, Nunziata & Ochel (2005) argue that the tax wedge increases unemployment all the more when the degree of coordination in wage bargaining is high. In a similar vein, the literature on institutional complementarities and substitutability has devoted special attention to the interactions between labour market institutions (notably employment protection legislation or union density) and product market regulations[2].

Labour and product market institutions are not the only factors determining unemployment. The empirical literature on 'growth and finance' shows that investment and growth are strongly related to financial development[3]. It is also well known that the size of financial markets, the role of financial intermediation, the degree of banking concentration etc. differ dramatically among countries (Allen & Gale (1995, 2000)). This has given rise to an abundant literature on the opposition between bank-based and marked-based financial systems. This literature investigates the respective virtues of banks and financial markets in terms of a reduction of information asymmetry reduction and corporate financing. While banks allow to finance small and risky businesses as well as firms with lesser reputation and intangible assets, arm's length financing (through financial markets or multiple banking relationships) is more suitable for large and creditworthy firms, with solid reputation and tangible assets (Berlin & Loeys (1988), Diamond (1991), Berlin & Mester (1992) and Rajan (1992)).

These issues are all the more interesting considering recent developments within the political economy literature, which stress the interdependence between labour and financial market devices. According to Pagano & Volpin (2005), finance and labour contribute jointly to design the opposition between the so-called corporatist and non-corporatist economies. Contrary to the latter, corporatist economies are characterized by a proportional (rather than majority) voting system, weak shareholder protection as well as strong employment protection. In a similar vein, some contributions suggest that the emergence of bank-based finance and tight labour regulation

[1]For a survey of the literature on the links between labour market institutions and employment performances, see Arpai & Mourre (2005).

[2]The theoretical aspects of this literature are explored by Blanchard & Giavazzi (2003), Hebell & Haefke (2003), Amable & Gatti (2004) and Amable & Gatti (2006). Empirical analysis has been advanced by Nicoletti & Scarpetta (2005), Griffith, Harrison & Macartney (2006), Berger & Danninger (2007), Amable, Demmou & Gatti (2007), Fiori, Nicoletti, Scarpetta & Schiantarelli (2007) and Kugler & Pica (2008).

[3]See, among others, Levine & Zervos (1998), Beck & Levine (2002), Beck, Levine & Loayza (2002), Carlin & Mayer (2003) and Djankov (2008).

are both associated with civil law rather than with common-law (Egrungor (2004), Botero et al. (2005)) as well as with concentrated financial wealth (Perroti & Von Thadden (2006)). Taken together, these arguments suggest that a correlation might exist between tight institutions on labour and financial markets.

The theoretical literature has recently emphasized the idea that the interactions between labour and financial market institutions may have important consequences for aggregate employment. In fact, financial market imperfections create a bias in decisions concerning the creation of firms, job vacancies etc. According to the literature, the sign and extent of the bias would depend on the structure of the labour market (Rendon (2000), Belke & Fehn (2002), Koskela & Stenbacka (2002) and Wasmer & Weil (2004)). Nevertheless empirical studies addressing the issue are infrequent. A few empirical papers focus on the determinants of labour demand and provide evidence on the role of financial factors based on micro-data (Nickell & Wadhwani (1991), Sharpe (1994), Nickell & Nicolitsas (1999), Belke & Fehn (2002), Belke, Fehn & Foster (2004), Caggese (2006) and Benito & Hernando (2008)). However, empirical contributions adressing the macroeconomic effects of interactions between institutions on labour and financial markets and focusing on aggregate employment are missing. The goal of this paper is to fill this gap.

We make use of a panel of 18 OECD countries over the period 1980-2004 in order to study how labour and financial market features jointly affect the unemployment rate. We estimate a time-series cross-sectional model including country fixed effects and interaction terms in order to investigate the interdependence across several institutional devices on labour and financial markets. Our primary goal is to check whether financial factors matter in determining unemployment. Second, we aim to understand whether the effects of financial arrangements depend on the labour market context, as the theoretical literature suggests. Finally, we investigate whether the empirical evidence on employment can be interpreted in the light of the distinction frequently made between market-based and bank-based finance.

The paper is organized as follows. Section 2 sets up the theoretical and empirical background for our research. Data, empirical model and econometric results are presented in Section 3. In order to ensure that our results are robust to changes in regressors, we consider several financial market indicators and alternative labour market characteristics. labour, Section 4 provides additional robustness checks and discusses the policy consequences of our analysis. Section 5 concludes.

2 Theoretical and empirical background

The rationale for our analysis lies at the intersection of two streams of the literature. The first one deals with the financial determinants of labour demand. The second one refers to the interactions between financial and labour market institutions.

2.1 Financial determinants of labour demand

According to the new-Keynesian view, market imperfections (such as adjustment costs and information asymmetries) play a crucial role in business fluctuations. This explains why firms' labour demand depends on financial factors. Greenwald & Stiglitz (1993) and Arnold (2002) show that financial constraints induced by information asymmetries make firms' labour demand dependent on their balance-sheet position. As a consequence, employment fluctuates according to the financial pressures that firms face.

Relatively few empirical studies have been devoted to the financial determinants of labour demand[4]. Existing papers are mainly based on firm-level econometric investigations. Sharpe (1994) find that the sensitivity of American firms' labour demand to sales increases with their leverage ratio. Using a set of British firms, Nickell & Wadhwani (1991) show that employment decreases with firms' leverage ratio and increases with their market capitalization. Nickell & Nicolitsas (1999) establish that employment falls with the ratio of interest payment to cash-flow. Benito & Hernando (2008) obtain the same outcome for Spanish firms. Caggese (2006) establishes that taking account of both capital and labour demand in the estimation of financial constraint is more relevant than estimating the traditional Q model of fixed capital.

Other studies examine how financial factors affect employment through their impact on firms' creation. According to Acemoglu (2001), financial constraint harms employment because it hinders the emergence of new innovating firms, which create jobs. He observes that, since the 60ies, the employment rates of firms dependent on external finance has been higher in Europe than in the United States, arguing that this is due to the stronger regulation of European financial systems. Finally, Belke & Fehn (2002), Fechs & Fuchs (2003) and Belke & al. (2004) focus on venture capital. Resorting to theoretical formalizations and empirical investigations using macroeconomic data, they demonstrate that an insufficient development of venture capital prevents the emergence of new firms, thus penalizing employment.

2.2 Interactions between financial and labour markets regulation

An important theoretical debate within the economic literature concerns the sign and effects of interactions between financial arrangements and labour market institutions.

A first stream of literature focuses on the common determinants of financial arrangements and labour market institutions. On the one hand, Egrungor (2004) suggests that the opposition between bank-based and market-based finance is linked to a country's legal origins. Whereas banks act as effective contract enforcers in response to the rigidity of civil law-based economies, financial markets emerge in common law-based countries, where rules are enforced by legal institutions. On the other hand, Botero et al. (2005) and Pagano & Volpin (2005) argue that the regulation of labour is generally more stringent in countries with proportional electoral systems; these systems are also associated with weak shareholders protection and financial markets

[4]The financial determinants of capital demand and the sensitivity of investment to cash-flow have received much more attention. On this issue, see the seminal papers by Fazzari, Hubbard & Petersen (1988), Gertler & Gilchrist (1994) and Bond & Meghir (1994).

development. Taken together, these arguments establish an objective link between finance and labour market institutions. Countries who have inherited civil law legal systems should associate bank dominance with tight labour market regulation while common law countries should exhibit highly developed financial markets and flexible labour market regulation. Using a model where financial structure and labour market regulation are determined by the distribution of financial wealth, Perroti & Von Thadden (2006) reach the same conclusion. They show that economies exhibiting diffused financial wealth are characterized by highly developed financial markets and weak worker protection while economies with concentrated financial wealth should feature bank-based financial systems and strong labour regulation.

Another series of contributions investigates the implications of the interactions between financial arrangements and labour market institutions on unemployment. In a first set of papers, financial deregulation and labour market flexibilization are regarded as substitutes. In Rendon (2000), the removal of firing and hiring costs favours employment. Financial development also promotes job creation since it allows firms to finance labour adjustment costs by security issuance. As their hiring policy becomes less dependent on their internal resources, firms adjust their employment level more rapidly. Therefore, if financial development is high, the removal of labour market adjustment costs loses its effectiveness since costs can be financed by the issuance of securities. Symmetrically, if the labour market is made perfectly flexible, the access to external finance has less of an impact on employment. In Belke & Fehn (2002), a strong labour protection allows workers to partly capture the rent stemming from the entrepreneur's project. This decreases the project's rate of return below the minimum threshold defined by funders. Hence, the firm can not emerge and no labour is hired, thus generating unemployment. However, the rise in unemployment yields a decline in labour protection and a subsequent rise in the project's return above the founders' threshold. Nevertheless, if the firm is financially constrained, the adjustment is slower and the return to higher employment is delayed. When the labour market is flexible, there is no unemployment and financial deregulation becomes useless. When the financial system is frictionless, the return to employment is immediate and the deregulation of labour market loses interest.

In a second set of papers, financial deregulation and labour market flexibility are seen as complementary. Wasmer & Weil (2004) provide a model where the liberalization of labour and/or financial markets improves markets liquidity and reduces agents' matching costs: firms and workers match more easily on the labour market, as well as firms and banks on the credit market. This yields positive effects on employment. Koskela & Stenbacka (2002) model the effects of a reduction of bank competition in an economy where workers are remunerated by a bargained base wage and a share of firms' profit. Because the firms' hiring policy is financed by borrowing, an increase in the interest rate implied by a reduction of bank competition hinders employment. But workers internalize the rise in hiring costs and bargain less harshly concerning their base wage. The moderating effectsdominates when unions are powerful. Otherwise, the former effect prevails. Hence, the introduction of imperfections in the banking sector curbs the negative impact of labour market frictions. In other words, financial deregulation favours employment only if the labour market is very flexible. Deregulation becomes counter-productive if the labour market is highly regulated. Labour and financial market institutions are also seen as

complementary in the literature on human capital investment. Acemoglu & Pischke (1999) show that tight labour market institutions and credit rationing favour firms' investment in human capital yielding improvements in labour productivity. This result suggests that deregulation on both labour and financial markets may trigger productivity losses and adverse effects on employment. Unfortunately, this aspect is not formally addressed in existing theoretical models.

3 Estimations

The theoretical literature reviewed in the previous section suggests that financial factors matter in determining unemployment. Moreover, the effects of financial arrangements may depend o the structure of the labour market. In this respect, the distinction between market-based and bank-based finance appears crucial.

In this section, we turn to the econometric analysis and outline the details of the empirical model and the data used in our regressions. Main econometric results are commented and presented in the tables provided in the Appendix.

3.1 Data and methodology

Our panel includes 18 OECD countries (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom and United States) and covers the period 1980-2004. We consider a time-series cross-sectional model that includes country fixed effects as well as a few interaction terms allowing us to investigate the interdependence across several institutional devices. The general specification of our empirical model is as follows:

$$U_{i,t} = \alpha_i + \beta \cdot U_{i,t-1} + \chi \cdot LABOUR_{i,t} + \delta \cdot FIN_{i,t} + \gamma \cdot LABOUR_{i,t} \cdot FIN_{i,t} + \phi \cdot CV_{i,t} + \epsilon_{i,t} \quad (1)$$

α_i is the country i fixed effect. $U_{i,t}$ is the standardized rate of unemployment obtained from the OECD. $U_{i,t-1}$ is the lagged rate of unemployment. This variable captures the inertia in the unemployment dynamics.

The model features a number of regressors capturing the institutional and macroeconomic characteristics of the investigated economies. Recent studies have underlined problems related to the inclusion of time-invariant variables within fixed-effect models (Amable, Demmou & Gatti (2007)) . To avoid those problems, we pay particular attention to the institutional variables included in our regressions. Time-series institutional variables (instead of time-invariant indicators) are preferred whenever they are available.

$LABOUR_{i,t}$ is a set of 3 variables accounting for labour market institutions. $LMREG_{i,t}$ is the measure of employment protection legislation built by Amable, Demmou & Gatti (2007)[5].

[5]This time-series indicator is based on EPL scores provided by Nickell, Nunziata & Ochel (2005) as well as on measures of structural reforms obtained from the FRDB Database. We use the following variables from FRDB database: the number of reforms passed each year in each country, whether they are directed towards more flexibility (by decreasing restrictions in domains such as wage setting, firing restriction, working time regulation etc.) as well as whether they apply to all, or a large majority of professional categories, contract typologies etc.

Contrary to the standard OECD indicator, $LMREG_{i,t}$ is a time-series variable between 0 (for the lowest level of employment protection) to 3 (for the highest level of protection). $COORD_{i,t}$ evaluates the degree of coordination in wage bargaining. Taken from Nickell, Nunziata & Ochel (2005), this variable ranges from 0 to 3 with higher scores corresponding to higher coordination. $UNION_{i,t}$ is the degree of union density, calculated by the OECD as the proportion of union members among workers.

$FIN_{i,t}$ denotes a set of three financial indicators. Currently used in the finance and growth literature, they come from the Demircüç-Kunt & Levine (2001) data set. $CAPI_{i,t}$ is a ratio of stock market capitalisation to GDP. $CREDIT_{i,t}$ is a ratio of the claims to the private sector by financial intermediaries (deposit money banks, insurance companies, private pensions, pooled investment schemes and development banks) to GDP. Both variables capture the effect of financial constraint on unemployment, as described in Rendon (2000), Acemoglu (2001) and Belke & Fehn (2002)[6]. However, the two variables can be included in the regressions simultaneously since, as explained above, intermediated and arm's length finance constitute alternative funding channels. $CONC_{i,t}$, which is the ratio of the three largest banks' asset to total banking sector assets, evaluates the concentration of the banking sector. This measure, suggested by Koskela & Stenbacka (2002), is only available over the period 1980-2004. Therefore, when $CONC_{i,t}$ is included in the model, the number of observations is reduced.

$CV_{i,t}$ is a set of six control variables, all provided by the OECD. In reference to the literature on the institutional determinants of unemployment, we include $WEDGE_{i,t}$ and $REPLACE_{i,t}$ (the tax wedge and the replacement rate for unemployment benefit respectively) as well as $PMREG_{i,t}$, an indicator of regulatory reform on product markets. This indicator is based on the REGREFF indicator from the OECD database and summarizes regulatory provisions in seven non-manufacturing sectors: telecom, electricity, gas, post, rail, air passenger transport, and road freight. The indicator, which has been estimated by OECD over the period 1975 to 2003, ranges from 0 (for the lowest level of regulation) to 6 (for the highest level of regulation). The fourth control variable, $EXCHANGE_{i,t}$, is the real exchange rate. It accounts for the competitiveness of national products. The fifth, $GDP_{i,t}$, stands for the GDP per employee. Finally, the last control variable is $CYCLE_{i,t}$, the ratio of the flow of credit in the economy to GDP, which accounts for the impact of the credit cycle[7]. It is introduced in the estimation only when $CREDIT_{i,t}$ is not already included.

The list of dependent and independent variables described above is given by Table 1 in the Appendix. Table 2, also presented in the Appendix, provides summary statistics for each of them.

It is worth noting that our empirical model includes several interaction terms allowing us to capture the interdependence between financial and labour market devices. We examine whether the consequences of financial market arrangements depend on the regulatory environment on

[6]Following the empirical studies by Belke & Fehn (2002), Belke & al. (2004) and Fechs & Fuchs (2003), we also could have considered the level of venture capital financing. But many venture capital data are missing for the period and the countries covered by our panel.

[7]$CREDIT_{i,t}$ is a stock variable that accounts for the structural aspects of the financial system whereas $CYCLE_{i,t}$ is a flow variable that captures conjonctural effects.

the labour market, and vice versa. A specific STATA procedure evaluates the effects of each relevant variable for different levels of the interacted variables. This amounts to calculating the marginal effects of each variable, as well as all statistics concerning the significance of those marginal effects. In the presence of interaction terms, the overall impact of $LABOUR$ and FIN indicators on unemployment equals the marginal effect conditional on specific values of the interacted variables. From model (1), one has:

$$\begin{aligned} \frac{\partial U}{\partial LABOUR} &= \chi + \gamma \cdot \widetilde{FIN} \\ \frac{\partial U}{\partial FIN} &= \delta + \gamma \cdot \widetilde{LABOUR} \end{aligned} \tag{2}$$

where $\widetilde{FIN}$ and $\widetilde{LABOUR}$ correspond to specific levels of labour and financial indicators that have been selected to give a clear picture of the importance and evolution of marginal coefficients. The specific levels that we have retained are minimum value, mean value minus one standard error, mean, mean plus one standard error and maximum value.

3.2 Results

As we have seen, the theoretical literature on unemployment determinants generally focuses on the degree of rigidity of labour market institutions in relation to financial characteristics. Hence, in the first place we restrict our attention to labour market variables capturing the rigidity of labour regulation, that is $UNION$ and $LMREG$[8]. To ensure that our results are robust, we consider several variants of our empirical model. We proceed as follows: leaving the specification with the two labour regulation variables ($UNION$ and $LMREG$) and the six control variables unchanged, we consider our financial variables one by one. We subsequently estimate an encompassing model including all labour and financial indicators. Doing this, we pay particular attention to the interaction terms included in our regressions. Considering interactions with one labour market variable at a time allows us to check for the robustness of the estimated coefficients across alternative specifications. We are thus able to make sure that the signs of those coefficients are not too sensitive to changes in the interacted variables.

Before turning to regressions, we check the stationarity of our time-series by running unit root tests. We find thatthe variables included in our regressions are stationary with a drift (see Table 3 in the Appendix). Moreover, resorting to the tests proposed by Nickell, Nunziata & Ochel (2005) as well as to the STATA Wooldridge test (xserial), we check for the presence of heteroskedasticity and autocorrelation in the regression residuals. We cannot reject the hypothesis that our residuals are heteroskedastic and autocorrelated. Hence, we make use of robust estimators and assume the presence of panel-specific rhos to cope with residual autocorrelation in the error terms (STATA option "psar1").

To obtain our results, we proceed in two steps. We first estimate our model, using the GLS method and correcting for panel heteroskedasticity and autocorrelation in the residuals. Then,

[8]However, in the next section we will add one additional labour market dimension by taking the impact of wage coordination into account.

we determine the marginal effects of financial (respectively labour market) variables according to given selected levels of the $LABOUR$ indicators (respectively the FIN indicators): minimum, mean minus one standard error, mean, mean plus one standard error and maximum.

The econometric results are fully reported in Table 4 whereas Table 5 shows the marginal coefficients of $LABOUR$ and FIN indicators for given levels of the interacted variables. Both tables are presented in the Appendix.

In Table 4 (columns [1]-[2]) we present results for a specification including $CAPI$ (ratio of stock market development to GDP) as a unique financial indicator. In columns [3]-[4] we consider $CREDIT$ (ratio of the claims to the private sector by financial intermediaries to GDP), while in columns [5]-[6] we investigate the effects of $CONC$ (concentration of the banking sector). For each of the above specification, we interact our selected financial indicator with one labour market variable at a time ($LMREG$ or $UNION$). Finally, columns [7]-[8] presentthe regression results based on the encompassing model featuring all financial indicators together. Once again, we interact those indicators with $LMREG$ (column [7]) or $UNION$ (column [8]) alternatively. We comment on our results on labour market and control variables below. We then analyse the econometric evidence concerning the financial factors.

Table 5 reports marginal coefficients estimated by STATA on the basis of regression results presented in Table 4. Column [1] in Part A of Table 5 provides marginal coefficients for the CAPI indicator corresponding to five different levels of the interacted labour variable as specified in column [1] of Table 4 (i.e. LMREG). Symmetrically, column [1] in Part B of Table 5 reports the marginal coefficients of the LMREG variable for given levels of the interacted financial indicator (i.e. CAPI). We apply the same procedure to all other columns of Table 5. However, one should note that no marginal coefficient can be calculated for labour market variables (specifications [7]-[8] in Part A of Table 5). The reason is that those variants of the model include three interactions terms for each labour indicator. Hence, we cannot isolate pertinent reference values of interacted variables enabling us to calculate marginal coefficients properly. Nevertheless, we can calculate the marginal coefficients for the financial variables. These coefficients are presented in columns [7]-[8], Part B of Table 5. We comment on these results below.

To start with, one should note that the coefficient of the lagged rate of unemployment is highly significant and positive in all regressions, highlighting a strong inertia in the evolution of employment performances. Concerning the effects of control variables, our results are generally standard and in line with the existing literature. The signs of coefficients for $EXCHANGE$, GDP and $CYCLE$ are negative, although the real exchange rate appears insignificant in variants [5]-[6]. Hence, as expected, we find that increased competitiveness, productivity and the flow of credit generally imply lower unemployment. Moreover, as expected, we find that an increase in the tax wedge raises unemployment. The same result holds for stronger product market regulation, although the coefficient of PMREG appears much less robust across alternative specifications. Finally, as in other empirical contributions (Nickell (1997), Fiori, Nicoletti, Scarpetta & Schiantarelli (2007), Baccaro & Rei (2007) and Amable & al. (2007)), the coefficient on the replacement rate is generally insignificant.

Turning to the impact of labour market variables, our results indicate that changing labour markets' structure has contrasted effects on unemployment. On the one hand, in line with the

existing literature, we find that union density has a positive coefficient: increased union bargaining power contributes, as expected, to raise unemployment. On the other hand, we find that the coefficient of labour market regulation is negative, which means that increased job protection contributes to lower unemployment. In a previous empirical study, Amable & al. (2007) also obtain a negative sign for labour market regulation, when considering the determinants of inactivity and joblessness rates[9]. This result is in line with theoretical conclusions from efficiency wage models, which show that firing costs help to reduce excess firing and thus limit real wage pressure and improve aggregated employment (Amable & Gatti (2004) and Amable & Gatti (2006)). One should note that the sign and significance of the effects of market regulation and union density do not depend on the level of the interacted financial variable, with the exception of specification [1] where the coefficient on $LMREG$, given in Part B of Table 5, becomes insignificant for values of $CAPI$ above the mean level.

Let us now focus on results concerning financial indicators. Our findings globally support the idea that unemployment has financial determinants and that these determinants interact with labour market institutions.

Regressions [1]-[2] and [7]-[8] in Table 4 investigate the consequences of increased market capitalization (variable $CAPI$). This variable generally appears to promote employment: the coefficients of $CAPI$ is negative and significant in all specifications. This result is consistent with conclusions from the theoretical literature, suggesting that financial market development have a positive bearing on employment in terms of released financial constraints. It also confirms Nickell & Wadhwani (1991)'s result that increased market capitalization has a positive impact on firms' labour demand. The result is partially confirmed by the analysis of the marginal effects of $CAPI$, provided in part A of Table 5. .The sign on marginal effects is generally negative, but not always significant for all specifications. In particular, in variants [1]-[2], we find that increased $CAPI$ reduces unemployment only if labour market regulation and union density are low (i.e. not higher than the mean level). It has no significant effects otherwise.

If the $CAPI$ variable measures the size and importance of financial markets, the alternative $CREDIT$ indicator allows us to investigate the effects of intermediated credit. The results provided in Table 4 show that this variable turns out to be significant both alone and interacted with labour market indicators (expect in specification [3]). We can interpret the regression results by looking at the sign and significance of marginal coefficients presented in Table 5. Our main results are twofold. On the one hand, we find that increased intermediated credit reduces unemployment if the labour market is highly regulated, whereas it increases the unemployment rate if the labour market is weakly regulated (regression [7], Part A of Table 5). However, the coefficients are insignificant in the alternative specification [3]. The result can be interpreted according to the theoretical literature on the interactions between labour and financial markets factors: when workers are well-protected by legislation, firms are pushed to increase their productivity and monitoring by financial intermediaries becomes profitable, thus making intermediated credit favourable to employment; conversely, a low degree of labour regulation is associated with lesser

[9]The following papers find an insignificant coefficient for labour market regulation: Nickell (1997), Layard & Nickell (1999), Belot & Ours (2001), Nickell, Nunziata & Ochel (2005), Fiori, Nicoletti, Scarpetta & Schiantarelli (2007), Baccaro & Rei (2007) and Amable & al. (2007).

financial intermediaries' monitoring effort, implying that credit financing harms employment. On the other hand, our regressions provide robust evidence that an increase in intermediated credit reduces unemployment when associated with a low level of union density (i.e. not higher than the mean level), as shown in specifications [4] and [8]. Symmetrically, columns [4] and [8] also indicate that increased $CREDIT$ raises unemployment for high levels of union density (i.e. the maximum level). These results suggest that strong unions may profit from increased credit supply. They may be better able to renegotiate higher wages, thus yielding a negative effect on employment. Unions' low bargaining power allows to moderate this effect.

Finally, we turn to the consequences of increased banking concentration (variable $CONC$). As already noted, this variable as been available for a shorter period of time, so the number of observations is more limited. Nevertheless, the results presented in Table 4 suggest that in all variants of our model, concentration in the banking sector has a negative direct effect on employment, in all variants of our model. However, once again, the interaction terms are generally significant. Our results are better understood by looking at the marginal effects presented in Table 5. Results provided in this table show that increased $CONC$ harms employment if the labour market is weakly regulated, i.e. if $LMREG$ is not higher than the mean level (specifications [5] and [7]), or when union density is low, i.e. if $UNION$ is not higher than mean level (columns [6] and [8]). In all other cases, $CONC$ has no significant impact. As suggested by the theoretical literature, the rationale of these results is that two opposite mechanisms are at play. On the one hand, credit rationing associated with low bank competition hinders employment. On the other hand, organized workers internalize the rise in hiring costs and bargain less harshly concerning their base wage. This moderating effect is stronger when unions are powerful and workers are more protected.

Taken together, these results suggest that intermediated credit plays an alternative role with respect to arm's length finance. When labour market regulation is low, an increase in arm's length finance (i.e. increased market capitalization and reduced banking concentration) yields positive effects on employment while increased intermediated credit pushes employment down. However, when labour market regulation is high, the positive impact of arm's length finance is less robust while increased bank-based finance favours employment. This provides the first evidence showing a trade-off between bank-based and arm's length finance in promoting employment, and that this trade-off is mediated by the labour market structure.

Hence, our results indicate that the effects of financial variables on unemployment are dependent on the labour markets context. However, it is important to note that these interdependence are not symmetric. The impact of labour market institutions appears largely independent of the features of financial markets: whatever the level of financial indicators, reducing employment protection always raises unemployment, while reducing union density always reduces it.

4 Extentions

In this section, we presents two extentions to our empirical analysis. First, we check for the robustness of empirical results by running regressions including wage coordination as an alternative

labour market device. Second, we analyse the policy implications of our empirical evidence.

4.1 Robustness check: wage coordination

Many empirical contributions have shown that the degree of coordination in wage bargaining is an important determinant of unemployment. Moreover, wage coordination is admittedly one crucial factor shaping the distinction between corporatist and non-corporatist countries (Calmsfors & Driffill (1988)). This section aims to check whether coordination still matters, when considered in interaction with financial variables. Hence, we introduce the variable $COORD$ in all our regression specifications. Results are presented in Tables 6 and 7 in the Appendix. Table 6 reports regressions coefficients for four variants of the empirical model: in columns [1] to [3] we interact the labour market variable $COORD$ with each financial factor in turn. Column [4] presents the results from the comprehensive model including all financial indicators and interaction terms. In Table 7, we provide marginal coefficients' values and statistics relative to the four specifications of the empirical model. As in the previous section, we are unable to compute sensible marginal coefficients for $COORD$ in variant [4], since the size of the marginal effect depends on the interactions of three different variables.

From Table 6 one can see that the regression results are conssitent with those presented in the previous section, concerning the control and labour market variables, in particular. Concerning the wage coordination variable $COORD$, we are unable to find robust and significant effects on employment: marginal coefficients provided in Part B of Table 7 are, at best, weakly significant for low levels of interacted financial variables. This suggests that coordination does not contribute to wage moderation, contrary to the current view (Calmsfors & Driffill (1988)). The result is in the line with evidence provided by Fiori, Nicoletti, Scarpetta & Schiantarelli (2007) and Baccaro & Rei (2007). As explained by the authors, weak coordination yields low bargaining power for workers, which may allow firms to avoid an excessive rise in wages. Our evidence indicates that this effect prevails in contexts where financial markets are highly deregulated (with weak levels of banking concentration and intermediated credit).

Turning to financial variables, our regression results show that the degree of wage coordination is not neutral with respect to the way financial determinants affect unemployment. In particular, the marginal coefficients presented in Part A of Table 7 suggest that, for degrees of coordination below the mean level, stronger market capitalization favours a decrease in unemployment (specification [1]) while an increase in intermediated credit and banking concentration push unemployment upward (specifications [2] and [3]). All financial indicators have no significant effect otherwise. Moreover, the regression results from the comprehensive model featuring all financial indicators (specification [4]) indicate that an increase in intermediated credit contributes to reduced unemployment for degrees of coordination above the mean level. Compared with findings reported in Tables 4 and 5, these results indicate that the wage coordination variable behaves as the labour regulation indicator. This is consistent with the view that wage bargaining coordination works as a form of labour protection rather than as a device ensuring real wage moderation.

More generally, the evidence presented in Tables 6 and 7 confirms our previous findings:

boosting financial markets development while reducing banking concentration and intermediated credit appear to effectively reduce unemployment, as long as the labour market has a weakly coordinated structure. However, with highly coordinated labour markets, fostering bank-based finance becomes a more appropriate tool for reducing unemployment. This confirms the existence of a trade-off between bank-based and market-based finance in promoting employment, which is mediated by the labour market structure.

4.2 Policy consequences

Our empirical evidence indicates that the effects of financial variables on unemployment are significant and depend on the labour markets structure. Regression results suggest that the respective virtues of bank-based and market-based finance are crucially tied to the nature and strength of labour regulation. Arm's length finance (through increased capitalization, as well as through lesser banking concentration and financial intermediation) is advantageous in terms of employment in the presence of low levels of labour market regulation and wage coordination. Conversely, higher intermediated credit appears to be beneficial for employment in the presence of high levels of labour market regulation and coordination. Importantly, financial market development and bank-based financing exhibit a common feature: both are more effective in curbing unemployment when they are combined with a low level of union density. These results provide evidence supporting the idea that a correlation exists betweeen tight institutional devices on labour and financial markets (Rajan & Zingales (1995), Egrungor (2004), Botero et al. (2005)).

In this section, we tackle the issue of the importance and size of the 'real' effects of finance. Based on our regression results, we present a few examples evaluating the employment consequences associated with given changes in financial indicators.

Let us first consider the marginal coefficients presented in Table 5. Regression results obtained on the basis of our comprehensive model specification yield marginal coefficients listed in columns [7] and [8]. Those coefficients indicate that the financial variables have sizeable effects on unemployment. Increasing market capitalization by one standard deviation (0.4) yields a decrease in the unemployment rate comprised between 0.8 - 1%, depending on the level of labour regulation (column [7]). The tighter is labour regulation, thr stronger the effect. This becomes even more important when one considers high degrees of unionization (column [8]). Hence, lower capitalization of financial markets can lead to substantial employment losses. Concerning bank-based finance, we obtaind significant effects regarding levels of labour regulation that are above the mean: increasing credit intermediation by one standard deviation (0.37) reduces unemployment by 0.5 up to 1% when considering high levels of regulation or union density. As a consequence, a decrease in intermediated credit can yield an important decline in employment in countries with tight labour regulation. The reverse effect is found for banking concentration: increasing concentration by one standard deviation (0.2) pushes employment up by 0.3 - 0.5% according to the level of labour regulation and union density. In this case, stronger regulation makes the effects of banking concentration weaker. Hence, countries with relatively weak regulation are put under greater pressure following an increase in banking concentration. The same type of results can be obtained concerning the marginal coefficients presented in Table 7.

These results suggest that financial turmoils may have significant real effects on employment. More specifically, a decrease in market capitalization has widespread effects for all levels of labour regulation, while reduced intermediated credit (resp. banking concentration) only affects highly (resp. weakly) regulated economies. As a consequence, providing conditions for an increasing market capitalization (with respect to GDP) is one general policy recommandation. However, we find that highly regulated countries are well-advised to implement policies that aim to promote credit intermediation while weakly regulated countries should focus on limiting banking concentration.

We also investigate how changes in financial variables impact unemployment in each country of our dataset. We compute simulations on the basis of the encompassing model, presented in Table 4 (columns [7] and [8]) and Table 6 (column [4]). We select one of the three financial variables ($CAPI$, $CREDIT$ or $CONC$) and, for each year, we set it equal to its 'high level', defined as its observed level plus one standard deviation. The labour variable and the two other financial variables are kept equal to their observed value. Using our econometric estimates of the encompassing model, we compute the rate of unemployment compatible with the 'high level' of the selected financial variable. We then compare the value of the estimated unemployment rate with the observed unemployment rate.

Figures 1 and 2, in the Appendix, are two clear-cut examples of simulations. In Figure 1, the selected financial variable (set equal to its 'high level') is $CAPI$ and the interaction labour variable is $COORD$ while in Figure 2, the selected financial variable is $CREDIT$ and the interaction labour variable is $LMREG$. In Figure 1, the estimated unemployment rate is lower than the observed unemployment rate for nearly all countries. This suggests that in almost all countries, employment performance would have been improved with a higher level of market capitalisation. This is consistent with the result mentioned above: the positive effects of financial markets do not depend on labour institutions. The conclusion is very different in Figure 2. In Autralia, Canada, the United States and the United Kingdom, a high level of intermediated credit raises the unemployment rate compared to its observed level while reducing it in Austria, France, Germany, Italy, the Netherlands, Norway, Portugal and Spain. This supports the view that boosting credit intermediation is a relevant policy when the labour market is strongly regulated whereas it worsens employment when the labour market is weakly regulated.

5 Conclusion

The paper aims to examine how financial market arrangements interact with labour regulation to determine unemployment. Our econometric estimates show that the development of arms' length finance (through increased capitalization, as well as lower banking concentration and financial intermediation) favours employment in the presence of low levels of labour market regulation and wage bargaining coordination. At the same time, improving intermediated credit is beneficial for employment in the presence of high levels of labour market regulation and coordination. Importantly, the development of both financial market and intermediated financing is more effective when combined with low levels of union density.

Our findings suggest that financial variables impact unemployment in a way that crucially depends on the labour market context. In the presence of weakly regulated and coordinated labour markets, policies boosting market-based finance prove to be effective in enhancing employment. However, with strongly regulated and coordinated labour markets, sustaining and promoting intermediated credit has positive consequences on employment. These estimated effects of finance appear to be significant and sizeable.

Our paper also advocates care in analyzing the effectiveness of changes on financial and labour markets. The effects of deregulation policies are not linear. For instance, while reducing labour protection directly increases unemployment, it also leads to a new context in which increasing market-based finance favours employment.

To conclude, we find no evidence corroborating the existence of a simple complementarity (or substitution) across financial and labour market structures. in fact, our results suggest that a more complex interdependence exists across financial and labour determinants of unemployment. This calls for further investigations and opens up a rich research agenda.

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Appendix

Dependant variable	
U	Standardize rate of unemployment (OECD)
Independant variables	
$LMREG$ (0-3)	Indicator of labour market regulation, Amable & al. (2007) from Nickell, Nunziata & Ochel (2005) and the FRDB Database
$COORD$ (0-3)	Index of coordination in wage bargaining, Nickell, Nunziata & Ochel (2005)
$UNION$	Number of union members as percent of total workers, OECD
$CAPI$	Stock market capitalisation to GDP, Demircüç-Kunt & Levine (2001)
$CREDIT$	Ratio of the claims to the private sector by financial intermediaries, Demircüç-Kunt & Levine (2001)
$CONC$	Ratio of the three largest banks' asset to total banking sector assets, Demircüç-Kunt & Levine (2001)
$WEDGE$	Taw wedge, OECD
$REPLACE$	Net replacement rates on unemployment benefit, OECD
$PMREG$ (0-6)	Product market regulation indicator, OECD
$EXCHANGE$	Real exchange rate, OECD
GDP	GDP per employee, OECD
$CYCLE$	Flow of credit to economy to GDP, OCDE

Table 1: List of dependent and independent variables

Variables	Mean	Max	Min	Nonmissing obs.
U	7.447	19.5	1.5	441
	(3.504)			
$LMREG$	1.140	0.558	0.1	410
	(0.558)			
$COORD$	2.051	3	1	378
	(0.578)			
$UNION$	41.996	87.4	7.4	403
	(21.068)			
$CAPI$	0.492	2.7	0.003	430
	(0.404)			
$CREDIT$	0.878	2.168	0.220	248
	(0.378)			
$CONC$	0.678	1	0.226	432
	(0.203)			
$WEDGE$	28.693	46.962	12.944	450
	(8.081)			
$REPLACE$	0.356	28	0	450
	(1.312)			
$PMREG$	4.033	6	1.108	414
	(1.285)			
$EXCHANGE$	0.002	0.266	-0.203	450
	(0.058)			
GDP	53 912.02	80 659.9	26 558.71	450
	(9 983.803)			
$CYCLE$	10.13	46.79	-19.17	357
	(7.73)			

Standard deviations are in parentheses.

Table 2: Summary Statistics

Variables	Lags	Drift	F-Stat	Conclusion
U	2	yes	110.8758***	I(0)
$UNION$	2	yes	83.6080***	I(0)
$CAPI$	2	yes	50.0357*	I(0)
$CREDIT$	2	yes	63.5895***	I(0)
$CONC$	2	yes	114.0264***	I(0)
$WEDGE$	2	yes	112.8392***	I(0)
$EXCHANGE$	2	yes	183.9557***	I(0)
GDP	2	yes	48.1921*	I(0)
$CYCLE$	2	yes	98.50***	I(0)

Table 3: Unit root tests

Specifications	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$U_{i,t-1}$	0.723***	0.713***	0.651***	0.674***	0.544***	0.572***	0.575***	0.589***
	(0.033)	(0.033)	(0.037)	(0.035)	(0.052)	(0.051)	(0.048)	(0.049)
$LMREG$	-0.945*	-0.184	-1.888	-1.896***	-3.288***	-3.435***	-0.628	-3.229***
	(0.502)	(0.626)	(1.195)	(0.922)	(1.271)	(1.218)	(1.164)	(1.246)
$UNION$	0.027*	0.028**	0.056**	0.035	0.203***	0.235***	0.194***	0.214***
	(0.014)	(0.014)	(0.027)	(0.024)	(0.052)	(0.054)	(0.043)	(0.048)
$CAPI$	-0.778*	-1.222***					-1.983***	-1.377***
	(0.426)	(0.435)					(0.588)	(0.471)
$CREDIT$			0.961	-1.560**			1.591*	-2.406***
			(0.872)	(0.662)			(0.876)	(0.666)
$CONC$					2.285*	2.635***	2.914***	2.716***
					(0.422)	(0.580)	(0.458)	(0.515)
$CAPI.LMREG$	0.164						-0.108	
	(0.362)						(0.438)	
$CAPI.UNION$		0.019*						-0.021
		(0.011)						(0.115)
$CREDIT.LMREG$			-0.618				-2.240***	
			(0.687)				(0.809)	
$CREDIT.UNION$				0.037***				0.044***
				(0.013)				(0.014)
$CONC.LMREG$					-1.031*		-1.251**	
					(0.0604)		(0.541)	
$CONC.UNION$						-0.045*		-0.022
						(0.024)		(0.023)
$WEDGE$	0.030	0.036*	0.056**	0.052**	0.138***	0.124**	0.090**	0.067*
	(0.023)	(0.022)	(0.026)	(0.025)	(0.053)	(0.053)	(0.038)	(0.039)
$REPLACE$	1.314	1.651	-1.395	-0.278	2.978	2.758	2.105	1.825
	(1.147)	(1.138)	(1.680)	(1.671)	(2.105)	(2.029)	(20.029)	(1.973)
$PMREG$	0.176	0.184	0.033	0.083	0.317	0.278	0.470**	0.454**
	(0.145)	(0.145)	(0.167)	(0.155)	(0.254)	(0.255)	(0.183)	(0.206)
$EXCHANGE$	-1.417***	-1.534***	-1.325***	-1.577***	-0.552	-0.724	-2.623***	-1.940***
	(0.541)	(0.539)	(0.499)	(0.493)	(0.654)	(0.632)	(0.589)	(0.585)
GDP	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(-0.000)	(0.000)
$CYCLE$	-0.051***	-0.052***			-0.053***	-0.061***		
	(0.007)	(0.007)			(0.011)	(0.011)		
Number of observations	314	314	330	355	162	162	188	188
Year dummies	yes	yes	yes	yes	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes	yes	yes	yes	yes
Country trend	no	no	yes	yes	yes	yes	yes	yes

Standard errors are in parentheses.

***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 4: Econometric results with $LMREG$ or $UNION$ in interaction terms

Specifications	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Part A	**Marginal effects of CAPI**							
	interacted with		interacted with		interacted with		interacted with	
	LMREG	UNION	LMREG	UNION	LMREG	UNION	LMREG	UNION
$LABOUR_{min}$	-0.762*	-1.081***					-1.994***	-1.574***
	(0.402)	(0.386)					(0.553)	(0.382)
$LABOUR_{mean-se}$	-0.680**	-0.843**					-2.042***	-1.730***
	(0.320)	(0.330)					(0.422)	(0.339)
$LABOUR_{mean}$	-0.588*	-0.430					-2.101***	-2.123***
	(0.339)	(0.348)					(0.355)	(0.384)
$LABOUR_{mean+se}$	-0.495	-0.018					-2.161***	-2.516***
	(0.460)	(0.496)					(0.434)	(0.583)
$LABOUR_{max}$	-0.445	0.451					-2.193***	-3.115***
	(0.546)	(0.702)					(0.520)	(0.969)
	Marginal effects of CREDIT							
	interacted with		interacted with		interacted with		interacted with	
	LMREG	UNION	LMREG	UNION	LMREG	UNION	LMREG	UNION
$LABOUR_{min}$			0.899	-1.283**			1.367*	-1.988***
			(0.809)	(0.581)			(0.802)	(0.560)
$LABOUR_{mean-se}$			0.613	-0.802*			0.368	-1.657***
			(0.539)	(0.453)			(0.501)	(0.485)
$LABOUR_{mean}$			0.263	0.001			-0.857**	-0.824**
			(0.347)	(0.320)			(0.355)	(0.364)
$LABOUR_{mean+se}$			-0.087	0.803**			-2.082***	0.009
			(0.503)	(0.384)			(0.626)	(0.405)
$LABOUR_{max}$			-0.299	1.711***			-2.745***	1.279*
			(0.693)	(0.614)			(0.836)	(0.686)
	Marginal effects of CONC							
	interacted with		interacted with		interacted with		interacted with	
	LMREG	UNION	LMREG	UNION	LMREG	UNION	LMREG	UNION
$LABOUR_{min}$					2.182***	2.202***	2.789***	2.505***
					(0.390)	(0.424)	(0.425)	(0.374)
$LABOUR_{mean-se}$					1.719***	1.840***	2.231***	2.336***
					(0.351)	(0.359)	(0.347)	(0.333)
$LABOUR_{mean}$					1.150**	1.001*	1.546***	1.914***
					(0.537)	(0.543)	(0.454)	(0.561)
$LABOUR_{mean+se}$					0.582	0.162	0.862	1.492
					(0.822)	(0.925)	(0.683)	(0.955)
$LABOUR_{max}$					0.289	-1.146	0.491	0.849
					(0.981)	(1.587)	(0.825)	(1.608)
Part B	**Marginal effects of LMREG**							
	interacted with $CAPI$		interacted with $CREDIT$		interacted with $CONC$			
FIN_{min}	-0.944*		-2.029*		-3.521***			
	(0.501)		(1.110)		(1.242)			
$FIN_{mean-se}$	-0.931*		-2.180**		-3.796***			
	(0.496)		(1.040)		(1.226)			
FIN_{mean}	-0.875*		-2.409**		-4.000***			
	(0.492)		(0.978)		(1.229)			
$FIN_{mean+se}$	- 0.819		2.639*		-4.205***			
	(0.519)		(0.981)		(1.242)			
FIN_{max}	-0.629		-3.193***		-4.319***			
	(0.768)		(1.231)		(1.255)			
	Marginal effects of UNION							
	interacted with $CAPI$		interacted with $CREDIT$		interacted with $CONC$			
FIN_{min}		0.027**		0.043*		0.225***		
		(0.013)		(0.023)		(0.052)		
$FIN_{mean-se}$		0.029**		0.053**		0.213***		
		(0.013)		(0.022)		(0.051)		
FIN_{mean}		0.035**		0.067***		0.204***		
		(0.014)		(0.022)		(0.051)		
$FIN_{mean+se}$		0.042***		0.081***		0.195***		
		(0.015)		(0.023)		(0.051)		
FIN_{max}		0.064***		0.114***		0.190		
		(0.024)		(0.029)		(0.052)		

Standard errors are in parentheses.

***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 5: Econometric results with $LMREG$ or $UNION$ in interaction terms: marginal effects of financial and labour market variables

Specifications	(1)	(2)	(3)	(4)
$U_{i,t-1}$	0.726***	0.643***	0.531***	0.563***
	(0.032)	(0.036)	(0.053)	(0.047)
$LMREG$	-0.833*	-2.515***	-3.955***	-2.203**
	(0.500)	(0.961)	(1.212)	(1.088)
$COORD$	-0.082	1.071**	1.178*	3.805***
	(0.217)	(0.439)	(0.629)	(0.768)
$UNION$	0.026*	0.046*	0.208***	0.228***
	(0.014)	(0.026)	(0.053)	(0.048)
$CAPI$	-0.974*			-3.002***
	(0.565)			(0.0929)
$CREDIT$		2.423**		4.559**
		(1.045)		(1.919)
$CONC$			3.457***	4.643
			(0.893)	(0.965)
$CAPI.COORD$	0.210			0.209
	(0.286)			(0.447)
$CREDIT.COORD$		-0.995**		-2.130***
		(0.451)		(0.754)
$CONC.COORD$			-1.285*	-1.922***
			(0.663)	(0.621)
$WEDGE$	0.029	0.065**	0.148***	0.154***
	(0.022)	(0.026)	(0.054)	(0.043)
$REPLACE$	1.371	-0.663	3.270	2.627
	(1.173)	(1.696)	(2.039)	(1.880)
$PMREG$	0.188	0.071	0.365	0.483**
	(0.146)	(0.163)	(0.262)	(0.224)
$EXCHANGE$	-1.369**	-1.368***	-0.712	-2.306***
	(0.541)	(0.499)	(0.634)	(0.553)
GDP	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
$CYCLE$	-0.052***		-0.057***	
	(0.007)		(0.011)	
Number of observations	314	330	162	162
Year dummies	yes	yes	yes	yes
Country dummies	yes	yes	yes	yes
Country trend	no	yes	yes	yes

Standard errors are in parentheses.

***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 6: Econometric results with *COORD* in interaction terms

Specifications	(1)	(2)	(3)	(4)
Part A	**Marginal effects of CAPI**			
	Interacted with	Interacted with	Interacted with	Interacted with
	COORD	*COORD*	*COORD*	*COORD*
$LABOUR_{Min}$	-0.764**			-2.793***
	(0.363)			(0.560)
$LABOUR_{mean-se}$	-0.674**			-2.716***
	(0.320)			(0.460)
$LABOUR_{mean}$	-0.552*			-2.586***
	(0.331)			(0.403)
$LABOUR_{mean+se}$	-0.429			-2.457***
	(0.415)			(0.516)
$LABOUR_{max}$	-0.343			-2.374***
	(0.499)			(0.642)
	Marginal effects of CREDIT			
	Interacted with	Interacted with	Interacted with	Interacted with
	COORD	*COORD*	*COORD*	*COORD*
$LABOUR_{min}$		1.429**		2.429**
		(0.636)		(1.201)
$LABOUR_{mean-se}$		0.985**		1.643*
		(0.478)		(0.950)
$LABOUR_{mean}$		0.397		0.327
		(0.347)		(0.587)
$LABOUR_{mean+se}$		-0.190		-0.989**
		(0.393)		(0.470)
$LABOUR_{max}$		-0.561		-1.832***
		(0.499)		(0.609)
	Marginal effects of CONC			
	Interacted with	Interacted with	Interacted with	Interacted with
	COORD	*COORD*	*COORD*	*COORD*
$LABOUR_{min}$			2.172***	2.720***
			(0.377)	(0.431)
$LABOUR_{mean-se}$			1.700***	2.012***
			(0.349)	(0.323)
$LABOUR_{mean}$			0.916	0.824*
			(0.592)	(0.452)
$LABOUR_{mean+se}$			0.132	-0.363
			(0.952)	(0.773)
$LABOUR_{max}$			-0.399	-1.124
			(1.211)	(1.002)
Part B	**Marginal effects of COORD**			
	Interacted with	Interacted with	Interacted with	
	CAPI	*CREDIT*	*CONC*	
FIN_{min}	-.081	.886*	0.842**	
	(0.216)	(0.505)	(0.362)	
$FIN_{mean-se}$	-0.064	0.544	0.599**	
	(0.210)	(0.384)	(0.399)	
FIN_{mean}	0.007	0.289	.230	
	(0.214)	(0.329)	(0.270)	
$FIN_{mean+se}$	.079	.035	-0.139	
	(0.257)	(0.321)	(0.336)	
FIN_{max}	.323	-.106	-1.031	
	(0.528)	(0.339)	(0.633)	

Standard errors are in parentheses.

***: significant at 1%, **: significant at 5%, *: significant at 10%.

Table 7: Econometric results with *COORD* in interaction terms: marginal effects of financial and labour market variables

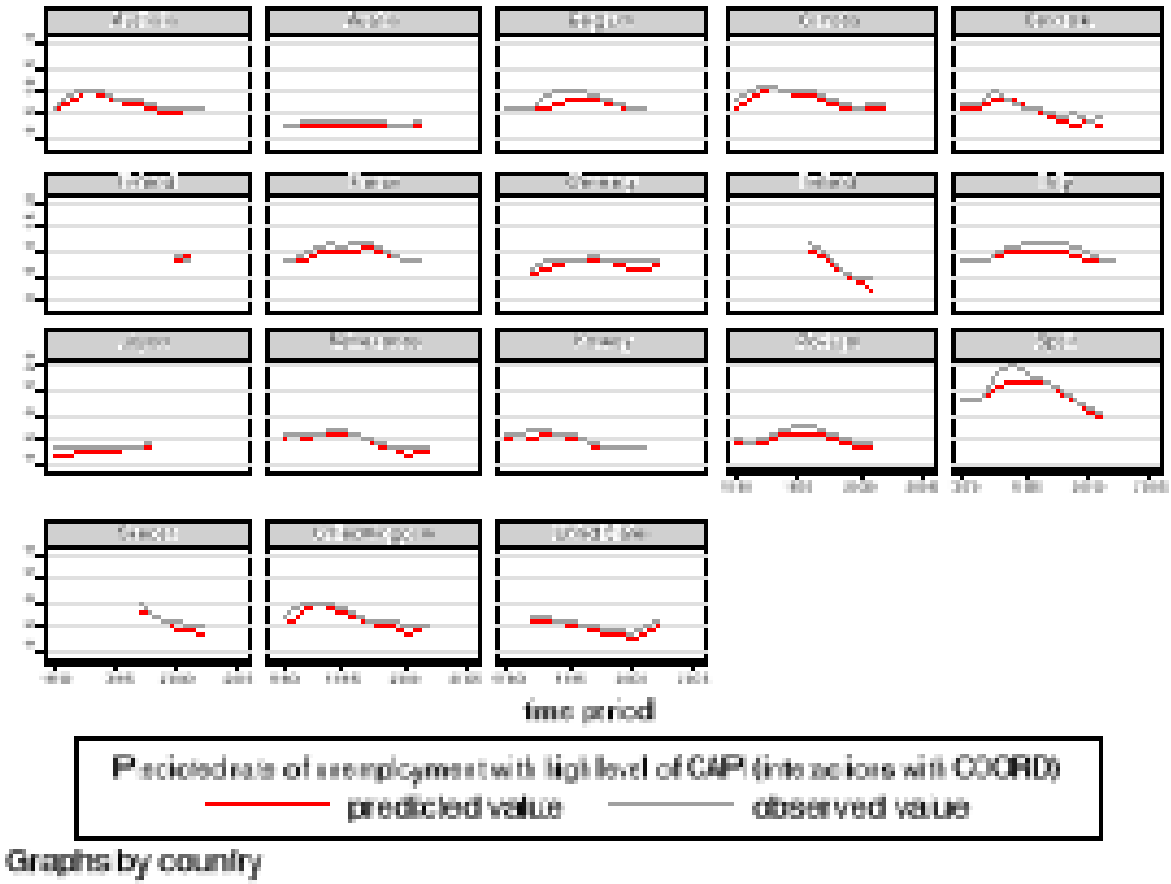
time period
predicted value
observed value
Graphs by country

Figure 1.

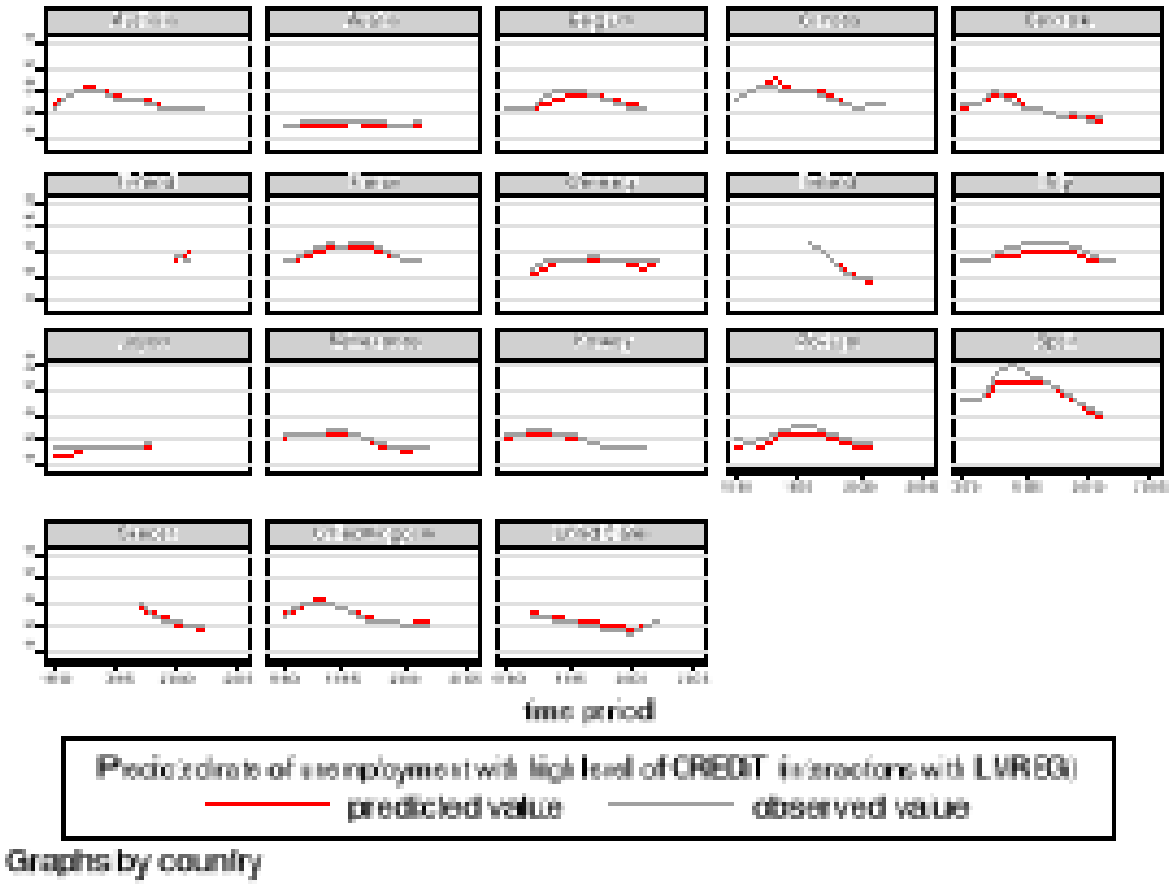
time period
predicted value
observed value
Graphs by country

Figure 2.