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The Role of Openness and Labour Market Institutions for Employment Dynamics during Economic Crises

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Preface

The primary goal of the ILO is to contribute, with member States, to achieve full and productive employment and decent work for all, including women and young people, a goal embedded in the ILO Declaration 2008 on *Social Justice for a Fair Globalization*,[1] and which has now been widely adopted by the international community.

In order to support member States and the social partners to reach the goal, the ILO pursues a Decent Work Agenda which comprises four interrelated areas: Respect for fundamental worker's rights and international labour standards, employment promotion, social protection and social dialogue. Explanations of this integrated approach and related challenges are contained in a number of key documents: in those explaining and elaborating the concept of decent work[2], in the Employment Policy Convention, 1964 (No. 122), and in the Global Employment Agenda.

The Global Employment Agenda was developed by the ILO through tripartite consensus of its Governing Body's Employment and Social Policy Committee. Since its adoption in 2003 it has been further articulated and made more operational and today it constitutes the basic framework through which the ILO pursues the objective of placing employment at the centre of economic and social policies.[3]

The Employment Sector is fully engaged in the implementation of the Global Employment Agenda, and is doing so through a large range of technical support and capacity building activities, advisory services and policy research. As part of its research and publications programme, the Employment Sector promotes knowledge-generation around key policy issues and topics conforming to the core elements of the Global Employment Agenda and the Decent Work Agenda. The Sector's publications consist of books, monographs, working papers, employment reports and policy briefs.[4]

The *Employment Working Papers* series is designed to disseminate the main findings of research initiatives undertaken by the various departments and programmes of the Sector. The working papers are intended to encourage exchange of ideas and to stimulate debate. The views expressed are the responsibility of the authors and do not necessarily represent those of the ILO.

José Manuel Salazar-Xirinachs
Executive Director
Employment Sector

[1] See http://www.ilo.org/public/english/bureau/dgo/download/dg_announce_en.pdf

[2] See the successive Reports of the Director-General to the International Labour Conference: *Decent work* (1999); *Reducing the decent work deficit: A global challenge* (2001); *Working out of poverty* (2003).

[3] See http://www.ilo.org/gea. And in particular: *Implementing the Global Employment Agenda: Employment strategies in support of decent work, "Vision" document*, ILO, 2006.

[4] See http://www.ilo.org/employment.

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This paper represents joint work by the authors affiliated to the World Bank's Geneva office (Elisa Gamberoni), the ILO's Trade and Employment Programme (Erik von Uexkull) and the Graduate Institute of International and Development Studies (Sebastian Weber) at the time it was written. The views expressed are solely those of the authors and do not necessarily represent those of the World Bank, its Executive Directors or the governments they represent, or the International Labour Organization.

Abstract

Employment effects of the 2008/9 global economic crisis have differed significantly across countries. As a consequence, an active public debate has emerged on the impact of external shocks and the role of public institutions and policies in mitigating them. We contribute to this debate by analyzing the role of integration into the global economy and different labour market institutions during past phases of global economic downturns as well as domestic banking and debt crises. We find that domestic debt and banking crises were much more severe in terms of their impact on employment than global economic downturns. On average, the reduction in employment growth was more than twice as strong. Openness to trade is found to have initially deepened the contractionary effects on employment, but also allowed for a faster recovery. High severance pay dampened the employment effects of both domestic crises and global economic downturns. High unemployment benefits were associated with stronger reductions in employment growth, but the effect seems to be non-linear and driven mainly by countries in the highest 20th percentile of unemployment benefits.

1. Introduction

In 2009, world GDP contracted by 1.1%. The economic slowdown was truly global in the sense that growth declined in every region of the world in comparison to 2007. While the Developed Economies, Central and Southern Europe, the former Soviet countries, as well as Latin America and the Caribbean experienced actual recessions, the Rest of the World experienced lower, but still positive growth. The highest growth rates were accomplished in East Asia (+6.1%) and South Asia (+5.0%). While global employment growth was still positive in 2009 (+0.7%), it also slowed down substantially in all regions of the world except for the Middle East, and turned negative in the most affected regions (Developed Economies, Central and Southern Europe and CIS).

Table 1: Change in GDP and employment growth during the 2008/9 crisis

	Real GDP growth			Employment growth		
	2007	2009	diff	2007	2009	diff
World	5.2	-1.1	-6.2	1.9	0.7	-1.2
Developed Economies and EU	2.6	-3.5	-6.2	1.4	-2.5	-3.9
Central and South Eastern Europe & CIS	7.6	-6.5	-14.1	2.1	-2.2	-4.3
East Asia	11.2	6.1	-5.1	0.9	0.9	0.0
South East Asia and the Pacific	6.5	0.5	-6.1	2.5	1.7	-0.8
South Asia	8.7	5.0	-3.7	2.4	1.8	-0.6
Latin America and Caribbean	5.7	-2.5	-8.2	2.1	0.2	-1.9
Middle East	6.1	1.4	-4.7	3.0	3.7	0.7
North Africa	5.8	3.7	-2.1	2.7	2.4	-0.3
Sub-Saharan Africa	6.8	1.2	-5.7	3.0	2.8	-0.2

Source: ILO Global Employment Trends Jan. 2010

The latest preliminary estimates for 2009 from the ILO's Global Employment Trends (Jan 2010) suggest an increase in global unemployment by 0.9 percentage points to 6.6%. While the increase is strongest in the Developed Economies (+2.6%) and Central and Southern Europe and CIS (+2.0%), all regions of the world experienced an increase in the unemployment rates due to the slowdown in employment growth.

The 2008/9 crisis clearly had a negative impact on employment, and with growth recovering around the world, a central question to policy makers remains what the recovery process of labour markets is likely to look like and what policies can help to support recovery and buffer future shocks. We attempt to provide some answers to these questions by looking at previous global economic downturns as well as domestic crises and analyze their impact on employment and the following recovery process. We also analyze the impact of a number of institutional variables related to labour markets and the integration of a country into the global economy on employment growth during crises. Specifically, we seek to answer the following questions: What explains the apparent differences in the employment impact of past downturns and crises? Is employment growth in a country integrated into the global economy more sensitive to shocks? Does economic integration lead to a more rapid recovery? And how do different labour market institutions affect the ability of a country to cushion employment growth against external shocks?

2. Literature review

The topic of this paper is related to two strands of literature. The first one deals with the question of how openness to trade affects the strength and depth of a crisis, whether domestic or imported from abroad. The second one deals with the question of how a given

shock affects the labour market and the role of labour market institutions in coping with shocks.

In the context of a global crisis, openness to trade is considered one of the channels for the propagation of the crisis. Several authors, including Eichengreen et al. (1996), Glick and Rose (1998), and Kaminsky and Reinhart (1998) find that trade links are the most important channels of propagation of economic crises. Among the most recent papers in this literature, Kali and Reyes (2005) combine a network approach with data on international trade linkages in order to map the global trading system as an interdependent complex network, with the countries as nodes and trade relationships as links between them. The authors use the structure of the international trade network as a proxy for different types of country ties, including credit arrangements and financial flows. Using the network approach, the authors find that a crisis is amplified to other countries if the epicenter country is better integrated into the trade network. They also find that other countries affected by such a shock are in turn better able to dissipate the impact of the shock if they are well integrated into the network. With respect to the 2008/9 crisis, Rose and Spiegel (2009) analyze the role of three types of linkages with the US as the origin of the crisis: trade linkages, foreign asset exposure, and international credit. They do not find any strong evidence that linkages with the US can be associated with the incidence of the crisis. Instead, Baldwin (2010) argues that the decline in world trade during the 2008/9 crisis was synchronized across almost all important trading countries as global production networks reacted to rising uncertainty and companies around the world postponed whatever investments and purchases they could postpone. Thus, exposure to trade in general, rather than exposure to a certain market, was probably more important for transmission of the crisis.

In the context of a domestic crisis, Berman (2009) looks at two channels through which a crisis affects exports: A change in relative prices, which affects net exports positively, and a financial effect which reduces net exports due to the presence of a fixed cost to exports and foreign currency borrowing. He empirically shows that currency crises affect exports negatively, and it takes around six years for exports to return to their natural level. This is particularly true for firms highly dependent on external finance or facing high entry fixed costs to exporting. Similarly, Iacovone and Zavacka (2009) analyze the impact of financial crises on export growth. They distinguish between a supply and a demand channel. The authors show that banking crises affect export growth negatively in sectors more heavily dependent on external finance or characterized by a lower share of tangible assets. The authors also show that supply side effects are distinct to the effects owing to a drop in demand.

In conclusion, openness to trade seems to play an important but somewhat ambiguous role both during global and domestic crises. A trade-off seems to exist between exposure to trade as a source of vulnerability to external shocks vs. importance of access to world markets for a quick recovery. Similarly, ambiguity may also result from the smoothening of domestic crises through currency depreciation that can boost net exports vs. drying up of external finance that can disproportionately reduce exports. While trade shocks can be specific to a certain market, it appears that in the case of the 2008/9 crisis the trade shock was a global phenomenon.

A number of previous papers have analyzed the impact of different types of crises on employment, but mainly focused on domestic crises. Reinhart and Rogoff (2009), using a sample of thirteen countries, show that as a consequence of a financial crisis, on average, unemployment rises for almost five years, with an increase in the unemployment rate of about 7 percentage points at the peak. Knoteck II and Therry (2009) find that unemployment in the US rose between 1 and 4 percentage points during past crises. After the two most recent recessions (1990-91 and 2001), unemployment did not decline until 16 months after the official end of the 1990-91 and 20 months after the 2001 recession (jobless recovery). Potential reasons provided by the literature are: a) Long expansion in 1980s and

1990s delayed the organizational restructuring of firms b) The fact that mild recessions are followed by weak recoveries, thus firms suspend the hiring process, and c) labour market changes, in particular the fact that temporary layoffs more frequently become permanent layoffs and that just-in-time employment practices (such as using overtime and temporary contracts) have become more prominent. Forceri and Mourougane (2009) find that in OECD countries, past crises had permanent effects on employment by increasing structural unemployment rates. A potential explanation could be hysteresis in unemployment, a concept first raised by Blanchard and Summers (1986) and recently strongly supported by Ball (2009). Among the possible avenues for hysteresis effects they discuss are a) insider-outsider effects where wage-bargaining is dominated by the currently employed and thus wages are set at a higher level than what would allow unemployment workers retrenched during the crisis to be re-hired b) a negative impact of long-term unemployed on workers' skills. To sum up, the literature indicates that crises can have severe, long-lasting, and in some cases even permanent effects on labour markets.

With respect to role of labour market institutions, Blanchard and Wolfers (2000) provide an explanation of the observed increasing, yet heterogeneous patterns of unemployment in European OECD countries by interacting domestic economic shocks (including total factor productivity and real interest rate) and labour market institutions. They find that indicators of labour market institutions such as the replacement rate, the length of unemployment benefits and employment protection all increase the surge in unemployment resulting from a given economic shock. Using a similar approach, Bertola et al. (2001) find that the relative decline in the unemployment rate in the US compared to other OECD countries can be explained by the interaction of shocks and more flexible labour market institutions, especially with respect to the transmission of shocks to real wages. Duval et al. (2007) find that policies and institutions associated with rigidities in labour and product markets dampen the initial impact of shocks but make their effects more persistent. Additionally, Caballero et al. (2004), based on a sample of 60 countries, find that employment protection legislation, if properly enforced, slows down the process of creative destruction and thus the speed of adjustment of employment to shocks. Furceri and Mourougane (2009) argue that institutions increasing labour market rigidity such as employment protection legislation significantly increase the impact of an economic downturn on structural unemployment. However, these studies focus on economic changes such as fluctuations in total factor productivity and the real interest rate which do not constitute short-term, mean-reverting phenomena, but bring upon permanent changes and thus require substantial adjustments in the economy. Thus, they are quite different in nature to a temporary drop in demand resulting from a global economic downturn or the short term impact of a banking or debt crisis. Furthermore, the finding that labour market regulation leads to higher unemployment effects of shocks is not undisputed in the literature. For example, Baccaro and Rei (2007) and Baker et al. (2004) reject a systematic relation between labour market institutions and higher unemployment, while Nunziata (2002) finds a direct impact of labour market institutions on unemployment, but not through interaction with crises. Bassanini and Duval (2006) find that unemployment benefits, tax wedges and anti-competitive product market regulation increase aggregate unemployment, while highly centralized and/or coordinated wage bargaining systems are estimated to be associated with lower unemployment. Abbritti and Weber (2009) emphasize the importance of differentiating between institutions that affect the rigidity of employment and those that affect the rigidity of real wages. They argue that the two have opposite effects in the sense that real wage rigidity increases the unemployment resulting from external shocks such as an oil price increase while institutions that lead to employment rigidity reduce it. Freeman (2007) concludes from a general literature review that labour institutions do not generally impede economic adjustment. All the studies reviewed are for OECD countries only, which is probably mainly due to the fact that until recently, the only panel dataset on labour market institutions with a reasonable time dimension was for OECD countries. These papers are typically based on panel regressions with unemployment as the endogenous variable, different combinations of shock and labour institutions measures as well as their interactions in some cases, and different specifications

with respect to country-fixed effects. The definition of shocks varies substantially, but most studies use some country-specific definition of shocks and thus focus on the impact of a shock once it has reached the domestic economy rather than global shocks.

With respect to the 2008/9 crisis, Eichhorst et al. (2010) argue that employment protection legislation was effective in mitigating the employment losses in a number of OECD countries, but also warn that in some instances this increased the phenomenon of labour market duality because the main burden of adjustment was born by workers with non-standard contracts (such as temporary employment) for which protection does not apply.

On the effects of labour market institutions in non-OECD countries, Botero et al. (2004) investigate the impact of employment laws, collective bargaining and social security laws on a sample of 85 countries and find that heavier regulation of labour is associated with a larger unofficial economy, lower labour force participation, and higher unemployment. Djankov and Ramalho (2008) support this view based on an extensive literature review of recent findings on the impact of labour regulation in developing countries and their effects on employment. On the other hand, Berg and Cazes (2009), based on a literature review on market failures and undesirable social outcomes associated with de-regulated labour markets, contradict the conclusions of Botero et al. (2004). Their analysis rather suggests that a number of labour market regulations, including minimum wages, employment policy, and regulation of maximum working hours, produce beneficial externalities that would lead to market failure if these regulations were to be removed.

Most of the literature on the role of labour market institutions has focused on long-term employment growth or the impact of shocks that are somehow permanent on unemployment. There does not appear to be a consensus at this point. Perhaps the main line of debate is between the ability to adjust to shocks on one hand and the potential social costs associated with very flexible labour markets on the other. We believe that this debate points to the importance of understanding the exact nature of a crisis, in particular whether it induces a permanent shock – which would require adjustment – or temporary effects, in which case the argument for protecting existing employment becomes stronger.

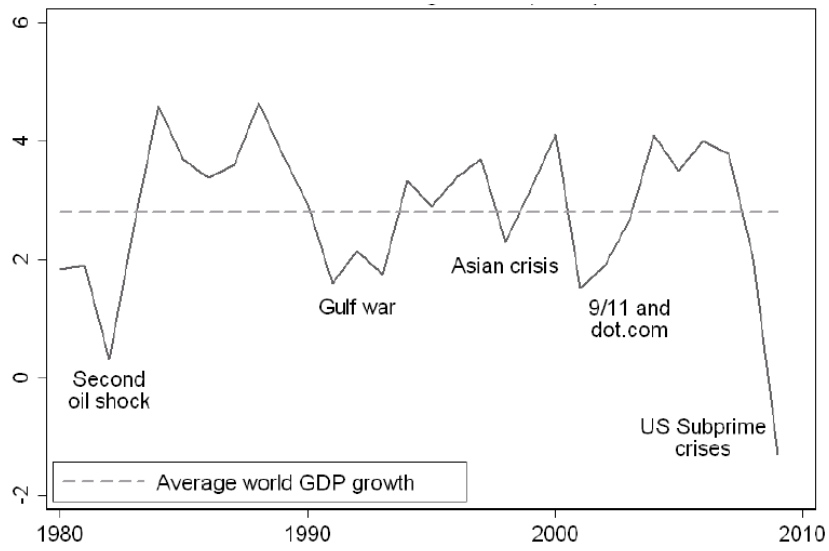
Our study adds to the literature in a number of ways. First, we extend the discussion of the role of labour market institutions in adjusting to economic shocks to developing countries. Second, instead of focusing on the unemployment rate, we use total employment growth as our dependent variable. This has the advantage that it allows us to isolate the direct effect of a crisis or downturn on employment by filtering out the effect on labour force participation which is not feasible when using the unemployment rate. These fluctuations can be sizable during times of crisis. For example, the latest data from the ILO Global Employment Trends (January 2010) indicate that labour force participation declined by up to 1.4% in Sri Lanka while increasing by 0.8% in Estonia during the 2008/9 crisis. Third, we simultaneously investigate the impact of both global downturns and country specific crises. This is highly relevant with regard to the 2008/9 crisis, as the pattern in which the crisis affected some countries combined elements of a global economic downturn and a domestic banking or debt crises.

3. Stylized facts from past global economic downturns and domestic crises

Figure 1 shows annual world GDP growth since 1980 in order to identify past episodes of global economic downturns. One can clearly see slowdowns of GDP growth in 1980-1982 (second oil shock, Volcker deflation), 1991-1993 (Gulf War), 1998 (Asian crisis) and 2001 (.com bubble and 9/11), even though none of them reached the magnitude of the downturn in 2008/9. As discussed in the data section, our employment growth data

reaches from 1980 to 2008. Thus, given that we need at least two years of lagged employment growth to carry out our estimations, the downturn in 1980-82 is not an effective part of our sample.

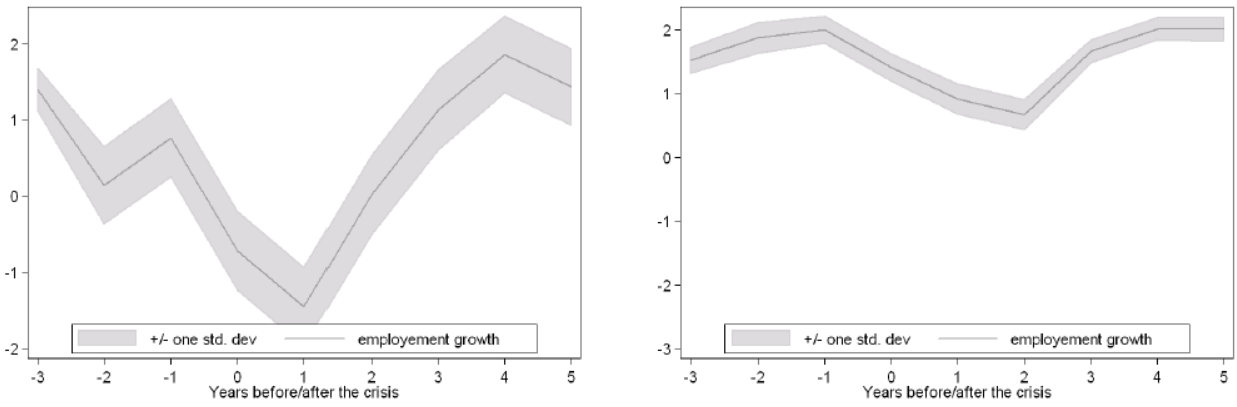
Figure 1: Episodes of global downturns



Source: World Bank, World Development Indicators

The following figures show average employment growth around these past episodes of global economic downturns, as well as for country specific domestic debt and banking crises during the same time period (as defined by Laeven and Valencia 2008). The graphs are based on predictions from a fixed effect regression of employment growth on the respective leads and lags of the two types of crises dummies. Thus, we differentiate between the two different types of events and control for their potential simultaneity as global downturns frequently are the trigger for underlying structural problems in an economy to lead to an acute debt or banking crisis. In the presence of country specific banking and debt crises, employment growth dropped dramatically at the inception of the crisis and took on average three years before returning to the pre-crisis level (Figure 2 left panel). For global downturns, the decline in employment growth was less steep and only reached its low point in the second year before returning to pre-crisis levels in year three (Figure 2 right panel). For domestic crises, there appears to be a catch-up phase of faster employment growth after the crisis, peaking in year four since the beginning of the crisis.

Figure 2: Average employment growth patterns around domestic crises (left) and global downturns (right)

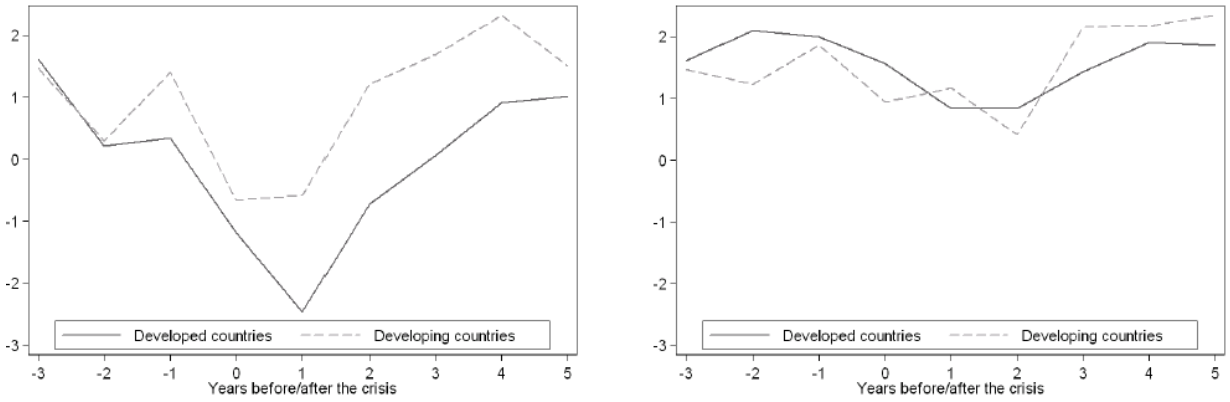


Source: Authors' calculations

Developing countries show a smaller drop and faster recovery after domestic crises in comparison with developed countries (Figure 3 left panel). On the other hand, global downturns generally affected employment growth in developing countries slightly more severely (Figure 3 right panel). Reinhart and Rogoff (2009) suggest that emerging markets generally face lower unemployment owing to financial crises. They argue that this is due to higher wage flexibility. However, the main factor explaining the stronger impact in industrialized countries is likely to be the differences in mechanisms to cope with job losses: In the absence of unemployment benefits and social protection, most people in developing countries can simply not afford to be unemployed and thus revert to self-employed or casual employment activities if they lose their formal job. Thus, during a crisis, the growth rate of informal employment tends to increase in developing countries, compensating for job losses in the formal economy, which leaves the impression of a lower overall impact if one does not differentiate between formal and informal employment.

Across countries of the same income group, the impact of global economic downturns on employment has also varied considerably. For example, during the 1981/2 global economic downturn and the following debt crisis in many developing countries, Chile and Korea, at roughly similar per capita income levels (Chile US$ 2,900, Korea US$ 1,800) went through very different patterns of employment growth. While employment growth in Chile contracted sharply at the onset of the crisis but recovered quickly, Korea's employment growth declined more slowly, but remained low for four years. Among industrialized countries, the United States experienced employment contraction in 1982, but returned to employment growth around 3% p.a. relatively quickly. Italy experienced a less sizable contraction of employment in 1982, but employment growth remained sluggish long after the crisis was over.

Figure 3: Average employment growth patterns in developed vs. developing countries around domestic crises (left) and global downturns (right)



Source: Authors' calculations

A number of factors are likely to affect the impact of a global slowdown or domestic crisis on a country's labour market. Among the most important ones are labour market institutions and the state of a country's integration into the world economy. The literature provides arguments for multiple channels through which trade openness and labour market institutions affect employment growth in times of crisis which are rather complex and in some cases may go in opposite directions. The question which of these channels dominate – and how this perhaps differs at different phases of a crisis – is thus an empirical one which our methodology is designed to address.

4. Data

For the definition of the global downturns we take a similar approach to Freund (2009) who identifies 1982, 1991, and 2001 as episodes of past global economic downturns. We however relax her definition slightly by considering downturns based on a less profound reduction in world GDP, yielding 1998 as an additional global downturn period. The definition of domestic crises is taken from Laeven and Valencia (2008) and refers to whether a country has either a debt or a banking crisis in the respective year. The employment data is taken from the ILO's Laborsta and Key Indicators of the Labour Market databases. We include all countries for which we could construct a consistent and continuous time series of total employment growth for at least 10 consecutive years within our observation period 1980-2008. However, we do not make use of the TREND model simulations in the Key Indicators of the Labour Market database due to the well-known difficulties with estimating empirical models based on data that was itself generated based on a modelling exercise. The openness measure is given by the trade (imports + exports) over GDP ratio taken from the World Development Indicators of the World Bank. Labour market institutions indicators are taken from an extensive new dataset collected by the Fondazione Rodolfo Debenedetti. The labour market institutions measures in this dataset probably have the widest available coverage due to the longer time dimension compared to the EPL restrictiveness index of the Doing Business Report of the World Bank[5] and the wider country coverage compared to the OECD's measures used in most previous studies on the role of labour market institutions. Our particular interest here is in a measure of employment protection which captures the costs of laying off workers and a measure of unemployment benefits. While overall Employment Protection Legislation (EPL) indices are usually a composite of various dimensions of labour regulations, we prefer to focus on the dimension which makes lay-offs costly, since this is likely to impact employment adjustment directly in times of crises. Several overall EPL measures also include the difficulty of implementing overtime work. To the extent that this is positively correlated with the general flexibility of adjusting working time, restrictiveness along this aspect is more likely to lead to job losses rather than helping to preserve jobs. The measure we employ is the severance pay in terms of months of salary an employer has to pay in case of dismissal. This data exists for workers that have been employed since nine months, four years or 20 years. To use all the information of the three maturities we take the principal component of the three employment lengths. The resulting measure (and the single dimensions) of lay-off costs are highly correlated with the measure (for employees that have been working since three years for a company) constructed by Botero et al. (2004) and several other sub-indices of their EPL measure, including the administrative difficulty of dismissal. It is however negatively correlated with the difficulty of implementing overtime work, which explains the lower positive correlation with their overall EPL index. The measure of unemployment benefits also comes from the Fondazione Rodolfo Debenedetti and reflects the Gross Replacement Rates, defined as levels of statutory entitlements over average wages after the first year of unemployment. The calculation closely follows the methodology of the OECD, which provides the same measure for a smaller sample of countries.

The analysis has some clear limitations. One limitation is the availability of employment data with a sufficient time dimension. Our sample contains 50 countries that fulfil the above described criterion of minimum employment data availability (at least ten

[5] Note also that the "Employing Workers" indicator of the Doing Business Report is currently undergoing revisions in response to criticism related to its definition and application in policy dialogue (see for instance Berg and Cazes (2007) and Lee et al. (2008)).

consecutive years within the observation period). The availability of labour market indicators reduces this number further to 42 countries. While this limits the generality of the results, the remaining sample has a fair regional coverage with 7 American (including all three Northern American countries), 10 Asian, 7 Eastern European and 15 West European countries and Israel, New Zealand and Australia. However, we do not have complete data for any African country. The coverage with respect to the level of development is given by 20 out of 42 countries having high real income above $20,000 (in PPP), 8 countries between $10,000 and $20,000 and 14 below $10,000. The effective sample covers 3 global downturn events in 1991 1998 and 2001[6] and a total of 25 domestic crises, 10 in OECD members and 15 in other countries.

Our analysis is focused on the effects of a crisis or global downturn on employment growth and the dynamic adjustment to it. Therefore results are confined to this case and can neither be generalized to a positive shock nor can any statements about the effect on the equilibrium level of employment growth be derived from this analysis. We also do not differentiate the size or extent of a given crisis or downturn, and our estimations do not take into account differences in terms of the decline or recovery of GDP growth. Furthermore, given the relatively small sample size, we restrict our estimation process to two lags of the crisis dummies. Relevant conclusions on the role of policies can therefore only be drawn for the immediate impact of the crisis and the first two years of recovery. Given the observed patterns of adjustment, this still captures the main fluctuations in employment growth caused by a crisis.

5. Estimation approach

We make use of a dynamic model of employment growth. Our focus here is on the short run adjustment to crises and global downturns and how the impact differs due to country characteristics, in this case, openness to trade and labour market institutions. In comparison to a static analysis, this approach has not only the advantage that it explicitly takes the dynamic nature of employment growth into account, but it is also well suited to make statements about the speed of the adjustment process and the persistence in the deviation from trend growth. The general form of the estimation equation is as follows:

Equation 1: Model

Specification

$$E_{i,t} = \alpha_i + \rho E_{i,t-1} + \sum_{c=G,D} \sum_{l=0}^{2} \beta_l^c CR_{i,t-l}^c + \sum_{c=G,D} \sum_{l=0}^{2} \gamma_l^c CR_{i,t-l}^c \cdot OPEN_{i,\tilde{t}} \sum_{c=G,D} \sum_{l=0}^{2} \gamma_l^c CR_{i,t-l}^c \cdot POLY_{i,\tilde{t}} + u_{i,t}$$

where E stands for employment growth, CR for the crisis dummy, with c=G,D reflecting whether the country experienced in the respective year a global downturn and/or domestic crisis, OPEN for an indicator of openness, POLY stands for the variables describing labour market institutions, α for country fixed effects, and the error term is given by u. All variables carry country (i) and time period (t) subscripts.

[6] The 1980-82 downturn is not an effective part of the sample as our estimation method requires lagged employment data for at least two years before the crisis.

The combination of a lagged endogenous variable and country fixed effects causes OLS estimates to be biased (for a detailed treatment see Nickell (1981) and Arellano and Bond (1991)). A possible way to address the panel endogeneity bias is to transform the equation by taking the first difference and apply instrumental variable technique, which is essentially the Arellano and Bond (1991) estimator. Arellano-Bover (1995) and Blundell-Bond (1998) improve on the former by using additionally the level equation and a different set of instruments to form a system GMM estimator. We use the latter method to trace out the dynamic response of employment to a crisis and to determine how long the economy takes to revert to trend growth. We also conduct robustness checks based on a simple OLS and fixed effect estimators, which suffer from the endogeneity bias (which is however declining in T) but are not sensitive to the choice of the instruments and thus not subject to potential biases arising from the use of inadequate instruments. The results do not differ significantly from those estimated with our preferred specification.

6. Results

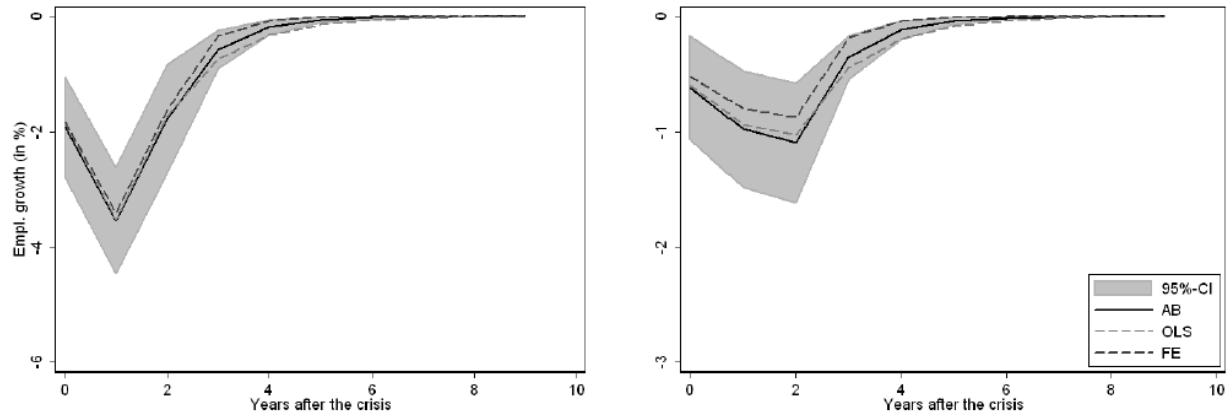
In the following we proceed by assessing first the average response of employment growth to different types of crises. In a second step we shed some light on the differential responses depending on the underlying domestic conditions. To this end we re-estimate equation 1 allowing for OPEN and POLY to affect the pattern of employment growth, respectively. The AR test of autocorrelation indicates that there is generally no second order autocorrelation which makes the use of instruments from the second lag onwards feasible. Generally we restrict the number of instruments to the set of exogenous variables and lags of the dependent variable from order two to maximal five. It turns out that no lagged dependent variable beyond the first lag is significant. Similarly, irrespective of the crisis definition choice, no lagged crisis dummy is significant beyond the second lag. We thus decide for an autoregressive distributed lag model of order ADL(1,2).

6.1 The average crisis effect

As a baseline specification, we estimate the model setting $\gamma l = 0$ $\delta l = 0$ for all $l=0,1,2$. This gives us the unconditional average response of employment growth to both global downturns and domestic crises.[7] The right panel of Figure 4 depicts the average pattern for a global downturn while the left panel shows the response of employment to a domestic banking or debt crisis. The solid line is the estimated effect from the Arellano-Bover estimator while the dashed line reflects the implied dynamics from the fixed effect estimator and the dotted line from the OLS estimation. Confidence bands are computed using the delta method.

[7] The results are based on a regression including both global downturns and domestic crises. Including one set of dummies at a time yields close to identical results. We also tested whether there is significant interaction between the two by including a third dummy which is the product of the domestic crisis and global downturn dummy. It turns out that the latter is insignificant. This implies that if a domestic crisis and a global downturn coincide the total drop in employment growth is the sum of the drop under a global downturn and a domestic crisis.

Figure 4: Average percentage point deviation of employment growth from its long term trend after domestic crises (left) and global downturns (right)



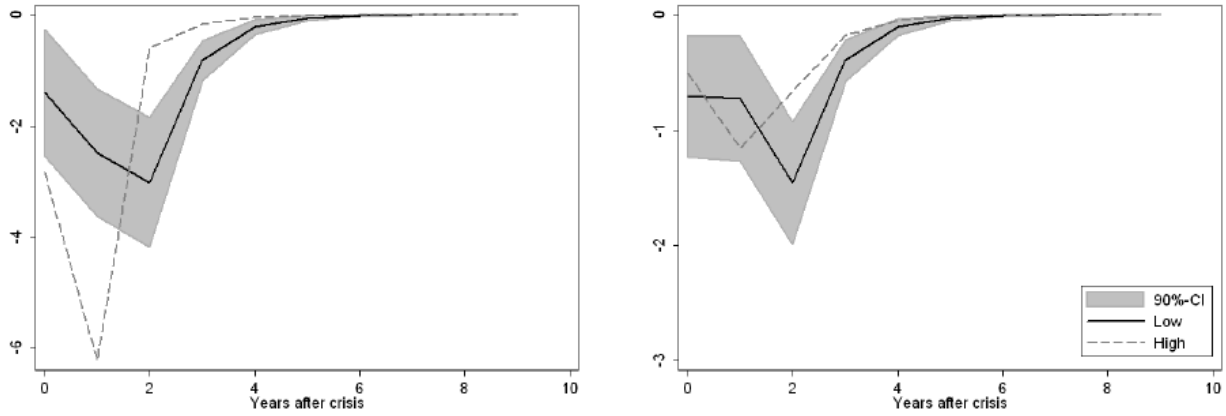
Source: Authors' calculations

The results point at two major differences between the domestic crises and the global downturns. Not surprisingly, the reduction in employment growth is more pronounced during a domestic crisis than under a global downturn, more than two times the extent. The effect of the global downturn persists longer on average, with the second lag still having a significant negative impact on employment growth, while employment reverts faster after a domestic crisis. The similarity between the dynamics under Arellano-Bond estimates and fixed effect as well as OLS estimate suggest that the bias of the latter estimator is rather small.

6.2 The role of openness

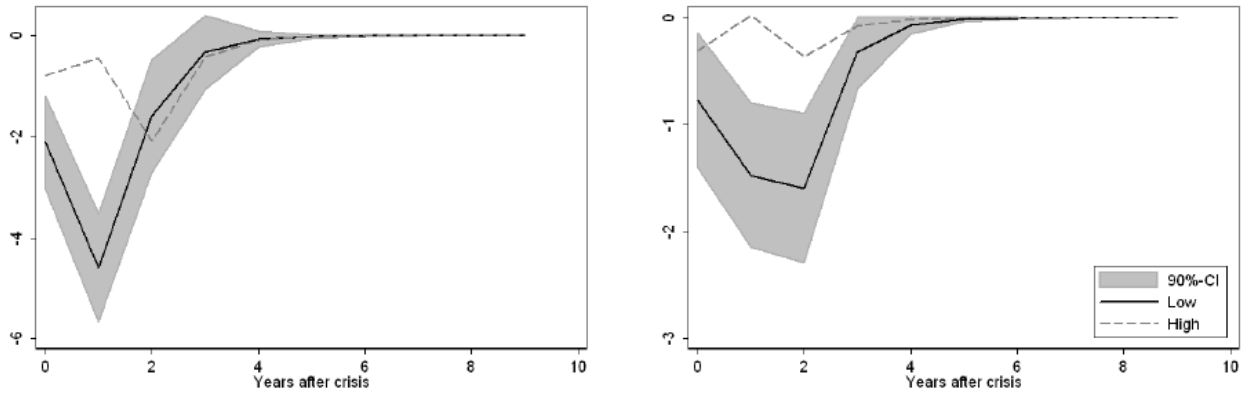
To analyze the role of openness we evaluate the response for a low level of trade (imports + exports) to GDP of 25% and a high openness level, corresponding to 130%. The respective values are the mean openness level in our sample less one standard deviation or plus one standard deviation which corresponds roughly to the average openness value for the US or Pakistan in the low openness case and to the value for the Netherlands or Bulgaria in the high openness case. We find that in particular during domestic crises, higher openness at first leads to a stronger reduction in employment growth, but also allows for a faster recovery. The initial negative response in the case of a debt and banking crisis is consistent with findings on the importance of access to finance for exporters (See Iacovone and Zavacka (2009) or Berman (2009)). Unlike global downturns, bank and debt crises have a direct impact on the availability of credit for firms. Since exporters are more sensitive to changes in external finance conditions, the higher the openness to GDP rate, the stronger is the importance of the financial constraint, and the more pronounced the impact on employment. Once the constraints are less binding and the real depreciation allows net exports to rebound, more open economies can recover more quickly. This channel is also supported by the different dynamics of export growth in domestic crises vs. global downturns. In the former the reduction is more pronounced but shows also a more profound rebound in the following year. Having higher foreign assets (as measured by foreign assets to GDP) allows countries to generally curb better with domestic crises since it implies a lower drain on the financial resources, avoiding an investment reduction and thus dampening the employment reducing effect.

Figure 5: Percentage point deviation of employment growth from its long term trend for countries with high vs. low trade openness after domestic crises (left) and global downturns (right)



Source: Authors' calculations

Figure 6: Percentage point deviation of employment growth from its long term trend for countries with high vs. low foreign assets after domestic crises (left) and global downturns (right)



Source: Authors' calculations

6.3 The role of labour market institutions

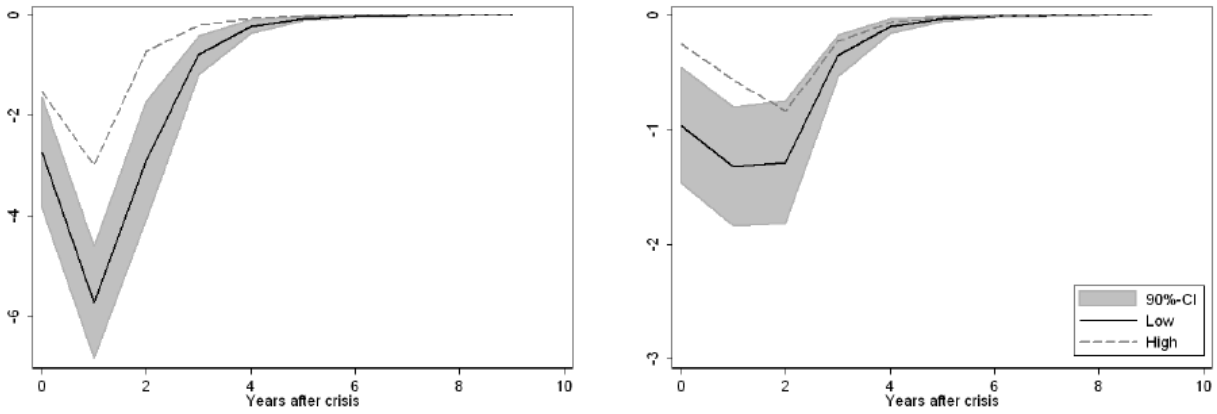
In a first step we analyze the impact of our measure for severance pay on the effect of a crisis. Again, we compare the response if severance pay is one standard deviation below the mean with the case in which it is one standard deviation above the mean, holding the value of openness at its mean.

There is a clear positive association of severance pay with a less pronounced drop in employment growth.[8] This is the case for both global downturns and domestic crises. Countries with a severance pay one standard deviation lower than the average suffer on average twice as large a drop in employment growth than countries with a severance pay one standard deviation above the average. Apparently, firms find it more profitable to

[8] See chapter 1 of the IMF World Economic Outlook (2009) for a similar finding for the 2008/09 crisis.

adjust to a negative shock through lay-offs when severance pay is low. If severance pay is high, firms find it more costly to adjust through lay-offs, and revert to other means of adjustment. These could include reductions in wages or working time. Limited availability of data does not allow us to test this hypothesis for the entire dataset, but for the sub-sample of countries for which we have data on real wages we do indeed find that these drop more markedly during a crisis if severance pay is high.

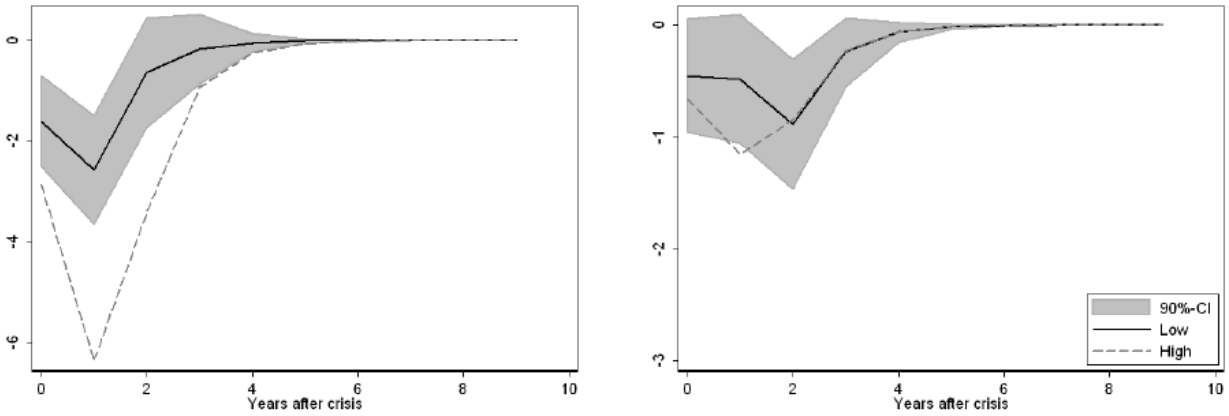
Figure 7: Percentage point deviation of employment growth from its long term trend for countries with high vs. low severance pay after domestic crises (left) and global downturns (right)



Source: Authors' calculations

In a second step, we investigate to which extent unemployment benefits alter the response of employment to a crisis by replacing POLY with the share of the previous wage that unemployment entitlements cover in the first year after losing a job. It turns out that countries which have higher unemployment benefits suffered on average a more severe reduction in employment growth during both domestic crises and global downturns. A potential reason for this finding is that unemployment benefits can act as downward real wage rigidities (see Campolmi and Faia (2005) or Zanetti (2010) for a theoretical foundation). If unemployment benefits are high workers resist a downward correction of wages because they have an outside option and firms faced with high real wages need to adjust along the extensive margin by reducing the working force. This finding is also related to the issue of informal employment; workers who do not have access to any type of social protection or unemployment benefits can simply not afford to be unemployed and thus have to take up informal employment. Boeri et al. (2008), based on a review of the literature, point out that this may lead to non-ideal job matches, especially during times of transformation. Thus, it is possible that unemployment benefits, while increasing unemployment in the short run, actually contribute to a more efficient labour allocation and are thus welfare enhancing (Bertola 2009).

Figure 8: Percentage point deviation of employment growth from its long term trend for countries with high vs. low unemployment benefits after domestic crises (left) and global downturns (right)



Source: Authors' calculations

Our results are also in line with findings by Boeri and Macis (2010), both for unemployment benefits and severance pay. The authors find that the introduction of benefit schemes led to higher job turnover rates primarily driven by higher job destruction. They also find this to be the case particularly in countries where employment protection legislation is weak.

6.4 Robustness checks

In order to better understand the effects of unemployment benefits and severance pay, we perform some robustness checks. We exclude once the lower 20th percentile and once the upper 20th percentile of the distribution to determine whether results are non linear in the sense that they are driven by countries with either very high or very low unemployment benefits or severance pay. As Figure 9 in Annex 1 illustrates, results for severance pay are hardly affected when either excluding the top or the lowest 20th percentile of the distribution and thus do not appear to be driven by extreme values. For unemployment benefits, the case is somewhat different. Results are unchanged when excluding the countries with the lowest benefits, but become insignificant when excluding the countries with the highest unemployment benefits. Thus it appears that there is a non-linear relationship between unemployment benefits and their role for cushioning employment. In particular, unemployment benefits in the top 20^{th} percentile seem to exacerbate the negative response of employment to a crisis while no significant effect on employment growth is detected for unemployment benefits in the rest of the distribution.

Finally, we re-estimate the relationships excluding rich countries from the sample by eliminating any observation for countries with a real GDP per capita income in PPP above $20,000 (results are reported in Figure 10 in Annex 1). Although this reduces the sample significantly, to about half the size, we find results to be entirely in line with the results from the complete sample, although confidence intervals are slightly wider.

7. Application to the 2008/9 crisis

With the estimation coefficients for both global downturns and domestic crises at hand we can simulate the path of employment growth during the 2008/9 crises for any country with sufficient data availability based on its openness and labour market institutions. While this approach is certainly insufficient for a comprehensive employment forecast, it is a useful way to test the applicability of our results to the 2008/9 crisis and to demonstrate the economic relevance of labour markets institutions and openness in determining the impact of the crisis. We believe that both the domestic crisis and the global downturn coefficients are relevant in order to understand the impact of the global economic downturn of 2008/9. The whole world experienced a decline in global demand, larger in size but comparable in nature to previous global economic downturns. In addition, in a number of countries, mainly among the OECD members and former Soviet countries, the financial shock of 2008/9 triggered domestic banking or debt crises. Typically, these countries were affected more severely in terms of employment growth than countries that "only" experienced the global demand collapse.

In line with this observation, we make the following assumption to set up our projection (a summary of the assumptions is given in Annex 2, Table 2): The global downturn dummy is dated to 2008. Domestic crises came in various shapes in the period from 2008-2010, including (private external) debt related balance of payment crises with strong correction in the housing market (Lithuania, Estonia 2008), bank failures or major stress in the banking sector with the need for bailouts coupled with stress in the housing market (Ireland, UK, USA in 2008, Germany, Belgium 2009) or severe increases in the financing of government debt (Portugal, Ireland, Spain 2009) or a quasi default (Greece 2009). While some of these crises are not exactly in line with the definition by Laeven and Valencia (2008), they are roughly comparable, and we set our domestic crisis dummy accordingly.

For some countries it is not exactly clear which scenario is more appropriate. These countries include Germany, Belgium, Italy and Hungary and to some extent Turkey. Italy, Hungary and Turkey experienced a strong increase in the interest spread on their sovereign bonds; however, serious refinancing problems arose only in Hungary that also negotiated a loan from the IMF. Additionally, the Hungarian central bank entered in a swap agreement with the ECB and the Swiss National Bank to prevent further problems arising from the rather high debt in Swiss francs of the private sector. Thus, we provide two estimates for Hungary, one based on only a global downturn and one based on a global downturn and a simultaneous domestic crisis. Belgium and Germany experienced bank failures. However, banks were bailed out and thus a domestic banking crisis in the traditional sense was prevented. It is thus not entirely clear whether the two countries suffered a domestic crisis or not. We provide estimations based on both scenarios. As expected, the actual development of employment growth is in between these two responses, which may form a reasonable upper and lower bound for the further development.

For Austria, France and Sweden, there has also been considerable pressure on the banking sector. However, we believe that in comparison with the Anglo-Saxon countries this has been less severe and thus we do not consider these countries to have suffered a domestic banking crisis. The same applies to Italy. The estimates are thus potentially more favourable (in fact it turns out that actual employment growth in 2009 for Italy, France and Sweden turned out worse than what we predict).

Furthermore, we need to make an assumption regarding the medium term employment growth rate for each country. We use the average growth rate of employment in the available period until 2006. For the countries which underwent a transformation process in the 90s, we use the more recent years from 2003 to 2006 as a basis (otherwise growth rates would be strongly negative). These countries include Estonia, Lithuania, Poland and

Hungary. All of these countries were undergoing a long period of employment decline in the 90s and early 2000s with employment falling more than 1% in several years.[9] Finally, for Turkey and Korea, we also use the average over the period from 2003 to 2006 due to the various crises preceding this period.[10] While the numbers are in line with the general presumption that employment in emerging markets will grow faster than in developed economies, the values for Ireland and in particular Spain may be over optimistic, yielding a somewhat less severe reduction than a more conservative medium-run employment growth value would yield.

We use only information up to 2007 to derive the entire path until 2012 and contrast the predictions to the actual numbers which are available for 2008 and 2009. The simulations are based on the model which includes openness and severance pay as explanatory variables. Figure 11 (Annex 3) shows the path of employment growth for several countries after 2007 under the described assumptions. The solid line shows the actual value based on ILO data, the dotted line is the prediction starting in 2008.

Our predictions perform reasonably well in nearly all cases were we assume no domestic crisis. Canada may be regarded as the exception; here, the simulation is more favourable than the actual growth in 2009. The failure to capture the more serious drop is probably due to the fact that our approach does not take account of the closeness to and dependence of Canada on the United States. This implies that despite the enormous trade collapse and the rather strong world GDP drop, the effect on employment is on average comparable with what we would expect from historical data.

Simulation results for countries which also experienced a domestic crisis vary in accuracy. For the United States, Ireland and Lithuania, results are close to the actual data. While Ireland is predicted to recover faster, the simulations for the US suggest continuously low employment growth in 2010. The difference in our prediction is caused by the fact that the US is a rather closed economy while Ireland is highly open and should receive a boost from net exports. Actual employment growth in the UK declined more moderately than predicted while for Spain, the actual decline was larger than the prediction. The rather low predicted decline for Spain is linked to the fact that the official severance pay is rather high. However, a big share of employment consists of less protected workers in the construction industry. Thus, the indicator fails to account appropriately for the rather low severance pay in this particular sector where jobs were shed at significant levels. The over-prediction of the employment reaction for the UK is potentially due to the failure of our model to account for all the policy actions that have been taken to counter the impact of the crisis. For Greece, according to the simulation, 2010 will be the toughest year in terms of employment growth.

Germany is a particular interesting case with employment growth being much more resilient to the crisis than most people predicted. In fact, our simulations imply a more severe employment drop than what can be observed for 2008 and 2009. There are two reasons which may cause our simulation to deviate from the actual data. The first reason is that the bailing out of banks and the multitude of stimulus packages are likely to have reduced the impact of the domestic crisis. If we simulate the employment drop for Germany assuming only a global downturn and no domestic crisis, we do in fact get much closer to

[9] For Estonia we exclude also 2006 since it was an outlier with employment growth of more than 6%

[10] While Turkey suffered a prolonged period of employment decline for 4 years starting in 2000, Korea suffered the most severe employment shock in the Asian region in 1998 with a decline of more than 6%.

the actual data. Alternatively, it may be argued that the policies implemented by the German government had a direct impact on the preferred adjustment margin of firms. Companies reduced working hours and accordingly pay, while the government subsidized salaries of workers. This made it cheaper for firms to keep the workers and have them work fewer hours, since firing some (and having the others work fulltime) would have implied increased costs of searching for qualified new workers once the crisis is over. Similar to higher severance pay, this policy thus favours the adjustment via wages and hours rather than quantity of employment. However, this policy measure is not captured in our severance pay variable. If we simulate the employment growth path under an increased value of our indicator (assuming that a subsidy to keeping workers has a similar effect to imposing a cost on laying them off), we can in fact match the employment growth path of Germany.

Although we believe that the simulation results render support to the hypothesis of the relevance of openness and labour market institutions for the adjustment path of employment growth to shocks, some caveats remain: The method is very simplistic and should not be taken as a forecast, which would have to be based on much more information than what is available in our framework. In particular, no information on the path of recovery of the global economy is contained in the predictions. We also do not include the ad-hoc policy measures that have been taken during the crisis, and thus estimate a ceteris paribus response had the crisis gone unmitigated rather than a prediction of what can actually be expected to happen.

8. Conclusions

The global economic crisis of 2008/09 has had severe repercussions for global output. While employment responses have been similarly dramatic, they did not necessarily mirror the divergence in output declines one-for-one. Our research provides some explanations for this divergence that are of relevance for policymaking during crises. First, domestic crises have a much larger impact on employment growth than global downturns. This emphasizes that the first and perhaps most important line of defence for countries is to protect themselves against contagion of financial crises. Sound macroeconomic policies should be at the core of the defence strategy.

Second, deeper integration into the world economy leads to a deeper and faster initial slowdown of employment growth, particularly during domestic crises, but also to faster and sharper recovery. Adopting protectionist policies as a crisis unfolds thus seems like very bad advice. At the same time, this confirms that trade openness can contribute to higher volatility in the labour market and thus increases the need for an effective system of social protection.

In terms of labour market policies, high severance pay seems to have been effective in encouraging companies to adjust to crises through means other than lay-offs. While not explicitly tested in our research, we believe that our findings can be generalized to say that policies that affect the cost-benefit calculation associated with laying off workers can be quite effective during crises. Apart from severance pay, another example for such a policy that is often quoted as a success story is the German scheme for “Kurzarbeit”. Under this program, the government temporarily subsidized schemes for reduced working hours and thus creates an incentive to keep workers on payroll despite lower demand.

With respect to unemployment benefits, our results are somewhat mixed. Our research does not call into question the importance of unemployment benefits as a means to protect workers against the social impact of a crisis. However, it points to a potential trade-off between maintaining high unemployment benefits and the goal to minimize employment losses during a crisis. Our results also indicate that the relationship between unemployment benefits and employment during crises seems to be non-linear with the potentially negative

effects on driven by the countries with the highest unemployment benefits in the sample. Additional research on this topic, in particular taking into account the role of informal employment and potential efficiency losses from sub-optimal job matching in the absence of unemployment benefits, is highly desirable.

Unfortunately, further research on the topic of this paper remains difficult due to data limitations. This prevents more accurate research into a number of important questions in this context, such as the effect of other labour market policies, the impact of crises on wages, working hours, and informality, and the differences in the employment impact by industrial sectors. This underlines the need for the international community to continue and strengthen its efforts to collect and provide high quality data on employment and labour markets.

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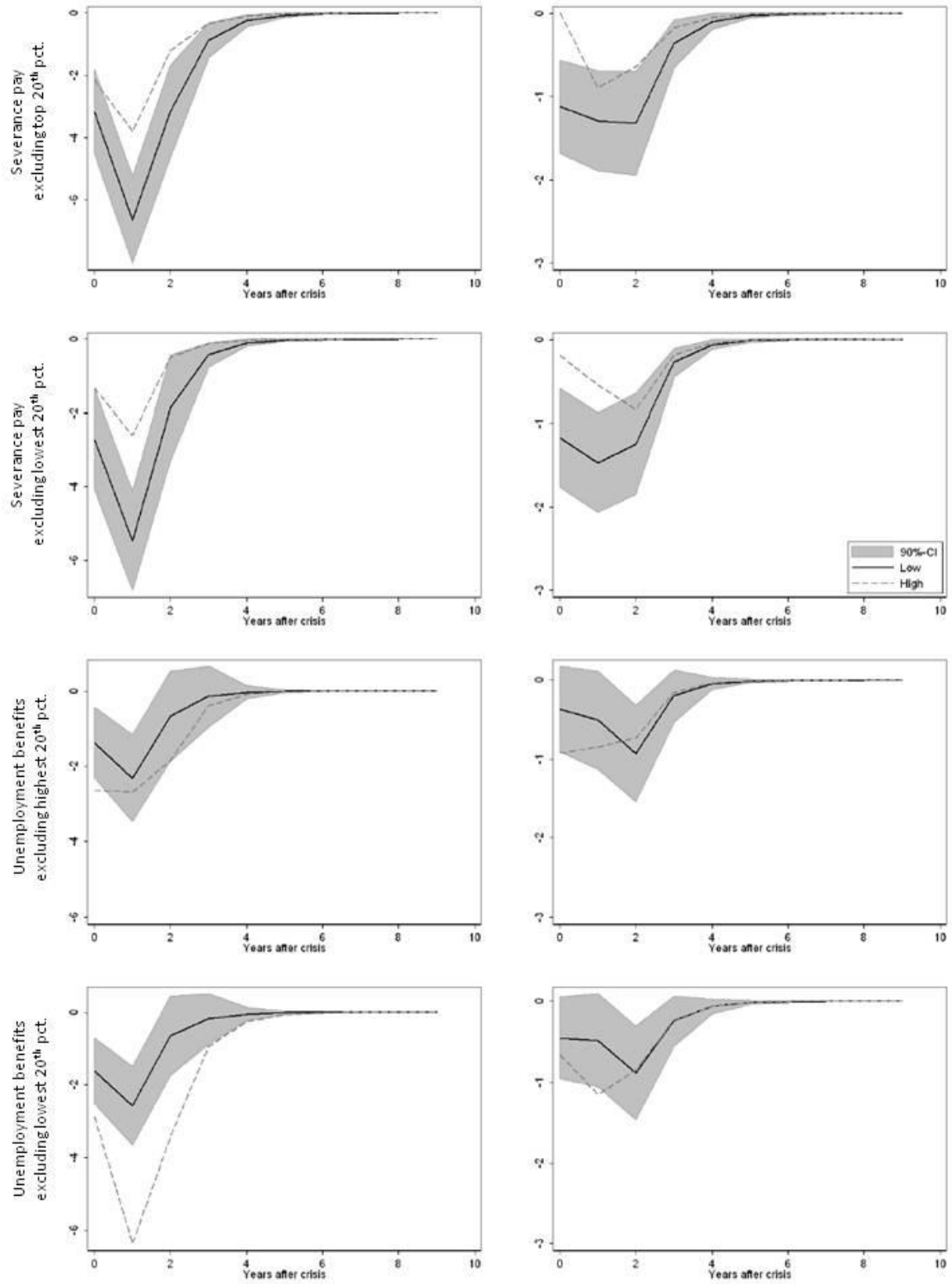
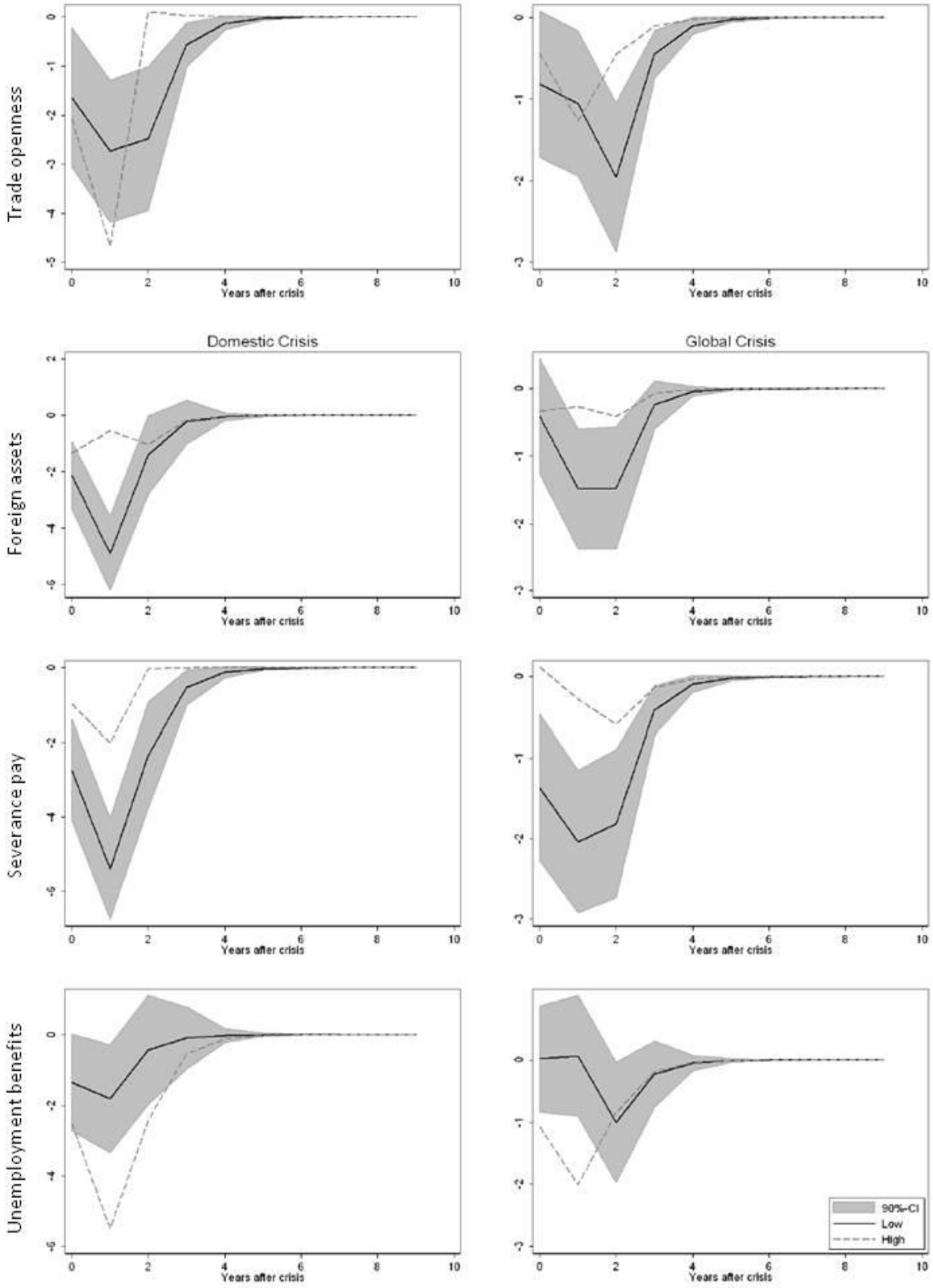
Annex 1

Figure 9: Percentage point deviation of employment growth from its long term trend after domestic crises (left) and global downturns (right), excluding highest or lowest 20th percentile for policy variables



Source: Authors' calculations

Figure 10: Percentage point deviation of employment growth from its long term trend after domestic crises (left) and global downturns (right), developing countries only



Source:Authors'calculation

Annex 2

Table 2: Assumptions for application of estimations to the global crisis of 2008/9

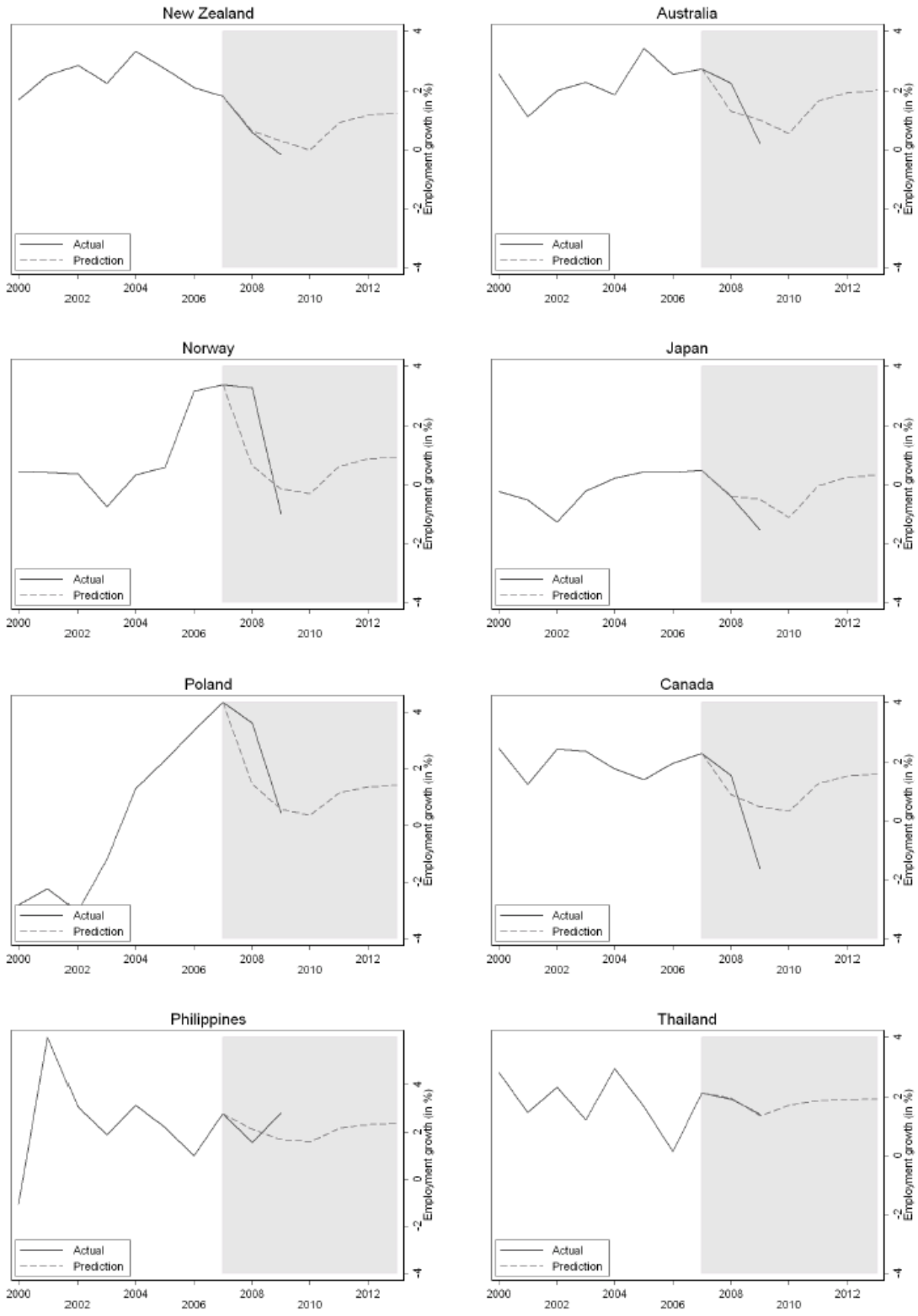
Country	Medium-run growth	Domestic crisis
Australia	2.03	
Austria	0.93	
Belgium	0.98	(2009)
Canada	1.60	
Estonia	1.22	2008
France	0.68	
Greece	0.98	2009
Germany	1.59	(2009)
Hungary	0.38	(2008)
Indonesia	2.16	
Ireland	2.23	2008, 2009
Italy	0.44	
Japan	0.35	
Korea	1.06	
Lithuania	1.50	2008
Norway	0.95	
New Zealand	1.25	
Poland	1.43	
Portugal	0.73	2009
Philippines	2.37	
Spain	2.26	2008, 2009
Sweden	0.22	
Thailand	1.91	
Turkey	1.12	
United States	1.15	2008
United Kingdom	0.78	2008

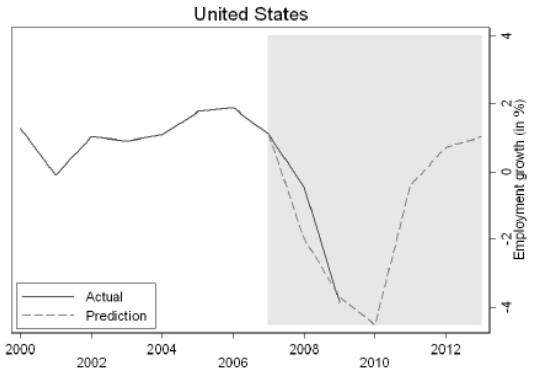
All countries are assumed to have experienced a global downturn in 2008.

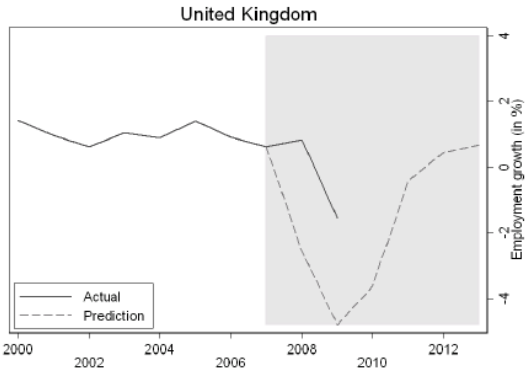
Source: Medium run growth is defined as the average annual growth rate over the entire sample period, except for former Soviet and Warsaw pact countries, for which the average is calculated over the period 2003-06 only.

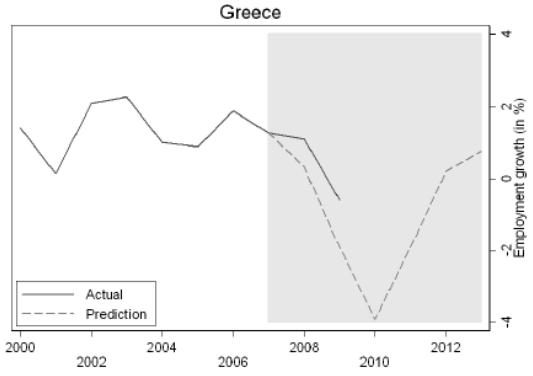
Annex 3

Figure 11: Employment growth actual vs. projected based on the estimated model, various countries




United States
Actual
Prediction
Employment growth (in %)
2000
2002
2004
2006
2008
2010
2012


United Kingdom
Actual
Prediction
Employment growth (in %)
2000
2002
2004
2006
2008
2010
2012


Greece
Actual
Prediction
Employment growth (in %)
2000
2002
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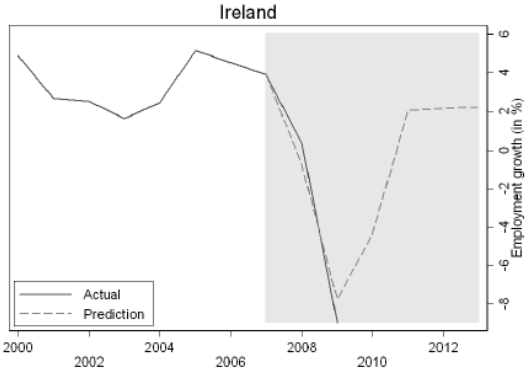
2010
2012


Ireland
Actual
Prediction
Employment growth (in %)
2000
2002
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2008
2010
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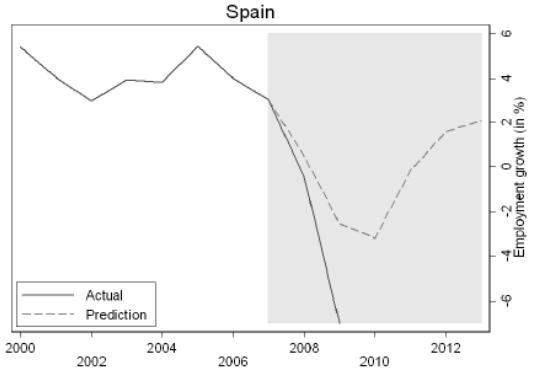
Spain
Actual
Prediction
Employment growth (in %)
2000
2002
2004
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2008
2010
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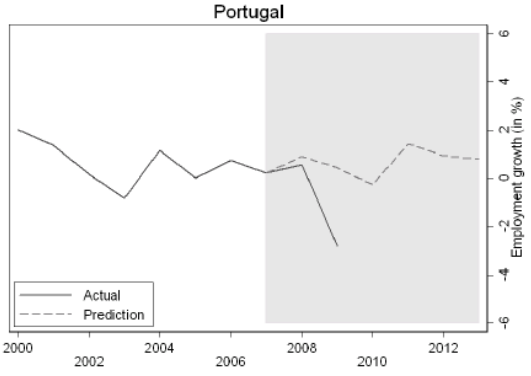
Portugal
Actual
Prediction
Employment growth (in %)
2000
2002
2004
2006
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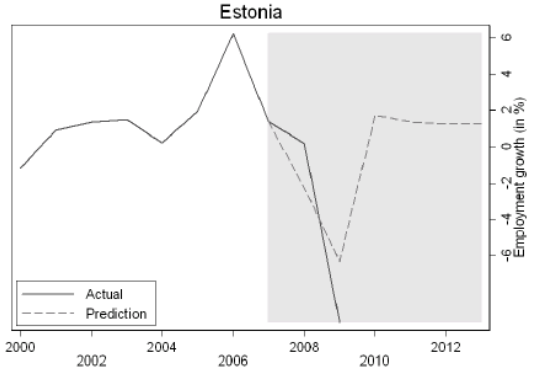
Estonia
Actual
Prediction
Employment growth (in %)
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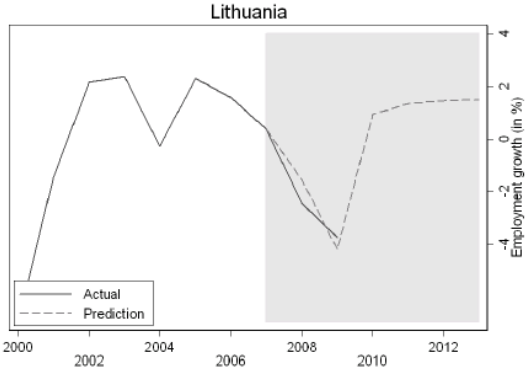
Lithuania
Actual
Prediction
Employment growth (in %)
2000
2002
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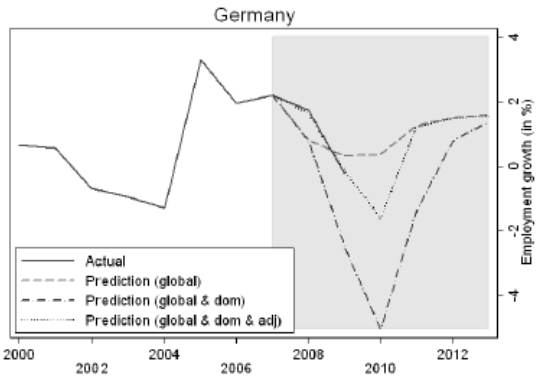
2006
2008
2010
2012


Germany
Actual
Prediction (global)
Prediction (global & dom)
Prediction (global & dom & adj)
Employment growth (in %)
2000
2002
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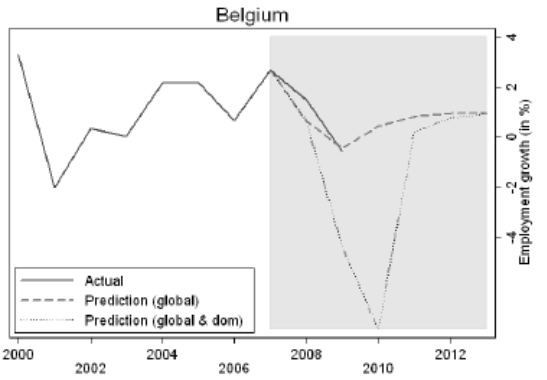
2010
2012


Belgium
Actual
Prediction (global)
Prediction (global & dom)
Employment growth (in %)
2000
2002
2004
2006
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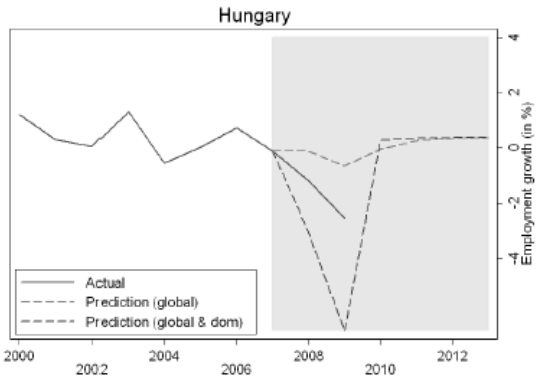
Hungary
Actual
Prediction (global)
Prediction (global & dom)
Employment growth (in %)
2000
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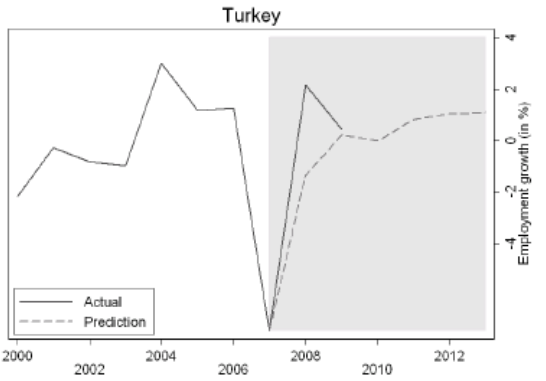
Turkey
Actual
Prediction
Employment growth (in %)
2000
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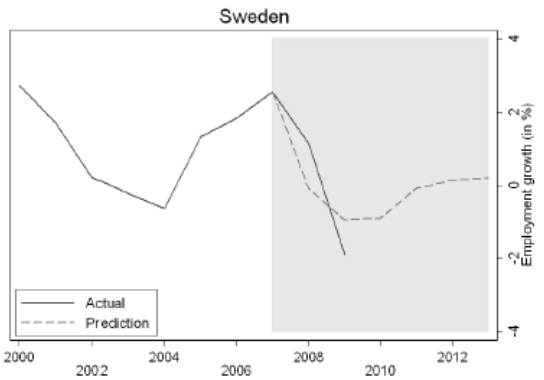
Sweden
Actual
Prediction
Employment growth (in %)
2000
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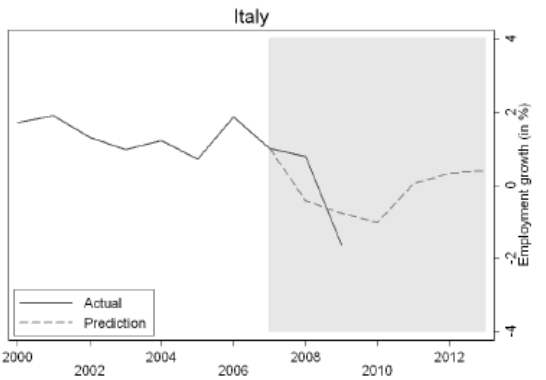
Italy
Actual
Prediction
Employment growth (in %)
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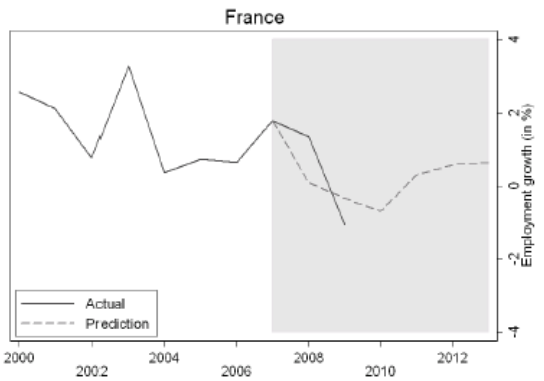
France
Actual
Prediction
Employment growth (in %)
2000
2002
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2008
2010
2012


Austria
Actual
Prediction
Employment growth (in %)
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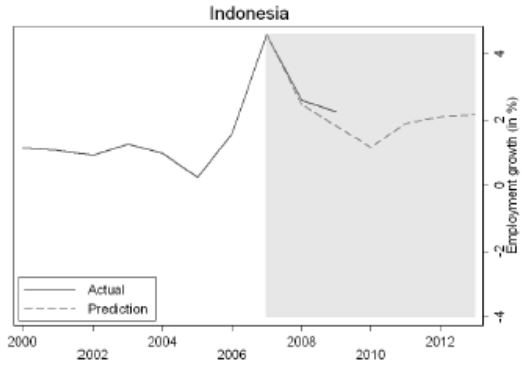
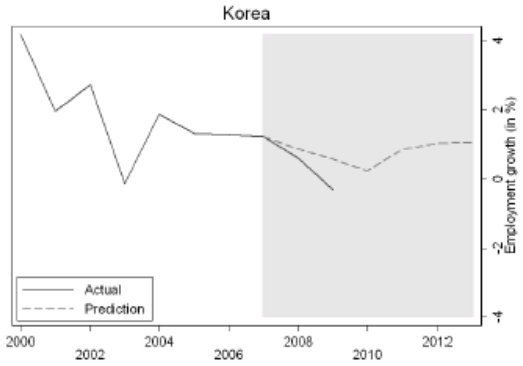
2012





Source: Actual employment data from ILO. Predictions by authors.

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