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A Meta-analysis on Labour Market Deregulations and Employment Performance: No Consensus Around the IMF-OECD Consensus

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ABSTRACT
The so-called 'IMF-OECD consensus' suggests that labour market deregulations increase employment and reduce unemployment. This paper presents a meta-analysis of research on this topic based on MAER-NET guidelines. We examine the relation between Employment Protection Legislation indexes on one hand, and employment and unemployment on the other. Among 53 academic papers published between 1990 and 2019, only 28 per cent support the consensus view, while the remaining 72 per cent report results that are ambiguous (21 per cent) or contrary to the consensus (51 per cent). The decline in support for the consensus view is particularly evident in the last decade. Our results are independent of the citations of papers examined, the impact factor of journals and the techniques used. A FAT-PET meta-regression model confirms these outcomes.

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1. Introduction

The idea that employment protection leads to inefficiencies, which then increase unemployment and damage economic growth, has dominated the international political debate for over thirty years. It still seems prevalent among policymakers today. The proposed policy solution usually consists of labour market deregulation to stimulate the growth of employment, production and incomes (Donges 1985; Giersch 1985; Davis and Minford 1986; Gavin 1986; Emerson 1988; Lazear 1988; Siebert 1997; Howell et al. 2007; Berg 2015). This prevailing view has been referred to as the 'OECD-IMF orthodoxy' or 'consensus' (Howell 2005), 'Transatlantic Consensus' or 'Berlin-Washington Consensus' (Fitoussi and Saraceno 2013). After the Great Recession, there has been an even stronger political support in favour of this consensus (Avdagic 2013; Adascalitei and Pignatti Morano 2016), especially in the European Union (Escande Varniol, Laulom, and Mazuyer 2012).

Quantitative evidence regarding the impact of labour market reforms can be drawn from the Employment Protection Legislation (EPL) indices, the best known of which is calculated by the OECD. This EPL index measures the rules, procedures, and costs

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governing hiring and firing workers. The EPL contains 21 items that result in three sub-indicators. The first sub-indicator incorporates three main aspects of protection from individual dismissal– the procedural restrictions employers face at the start of a dismissal process, such as notification and communication; severance pay; and the circumstances under which dismissal is legitimate. The second sub-indicator includes regulations regarding temporary employment, rules regarding the type of work for which such contracts are allowed, the number of possible renewals, and the maximum cumulative duration. The third sub-indicator involves specific requirements for collective dismissals, and includes all additional costs that go beyond those applicable for individual dismissal. The combination of these sub-indicators gives rise to the EPL index, a measure that summarizes the country-level rigidity of labour legislation and procedures in a range between 0 (maximum flexibility) and 6 (maximum strictness).

There are several versions of the OECD EPL index; we focus here on the EPL overall index (for a comprehensive description see Venn 2009). The OECD reports an historical series of EPL for 26 countries. Between 1990 and 2013, 62 negative and 22 positive changes in the EPL occurred in the OECD countries examined. The average EPL index decreased by 20.7 per cent and the variance decreased by 59.4 per cent. The decrease of the EPL was even more pronounced in Europe. Of the first 11 countries that joined the Euro Area– (except for Luxembourg because of lack of data), there were 40 negative and 11 positive changes of EPL between 1990 and 2013, with a reduction of the average EPL index of 25 per cent and a decrease of its variance of almost 75 per cent. EPL indicators developed by scholars or other institutions give similar results.

The tendency to deregulate labour markets is widespread, with protection clearly declining in each country. The crucial question is whether labour markets benefited from such a fall in EPL indicators. In particular, has greater flexibility promoted employment? The prevailing academic literature on the subject seems to provide changing results over time.

The main research from the 1990s supported the IMF-OECD consensus: it found that stringent employment protection laws harm labour market performance and then suggested more flexibility (see Lazear 1990; Addison and Grosso 1996; Scarpetta 1996; Elmeskov, Martin, and Scarpetta 1998; Blanchard and Wolfers 2000). However, these first-generation results have been subsequently toned down (OECD 2004; Bassanini and Duval 2006) and challenged in subsequent work (Belot and van Ours 2004; Baker et al. 2005; Nickell, Nunziata, and Ochel 2005; Amable, Demmou, and Gatti 2011; Avdagic and Salardi 2013; Brancaccio, Garbellini, and Giammetti 2018). Several doubts about the impact of EPL on employment and unemployment emerged in the academic community (Bassanini and Duval 2009), which led to questions about the case for structural labour market reforms (Glyn, Howell, and Schmitt 2006; Baccaro and Rei 2007; Howell et al. 2007). This shift in perspectives also appears in recent statements by institutions that have typically supported labour deregulation policies. The OECD (2016), the IMF (2016), and the World Bank (2013) have acknowledged that the empirical evidence available does not confirm that higher flexibility improves labour market performance. A similar change of view is detectable in the work of several leading members of the academic community. The IMF's former chief economist Olivier Blanchard in 2000 argued that 'higher employment protection leads to a larger effect of shocks on unemployment' (Blanchard and Wolfers 2000, p. 20). However, six years later he stated that 'differences

in employment protection seem largely unrelated to differences in unemployment rates across countries' (Blanchard 2006, p. 30). James Heckman in 2000 stated that job security 'reduces employment and promotes inequality' (Heckman and Pages-Serra 2000, p. 110); a few years later he admitted that 'the evidence currently in play in this literature is weak' (Heckman 2007, p. 4).

All these remarks raise a question: are we witnessing some cracks in the old consensus on the effectiveness of labour market deregulations? The only way to answer this question is to carry out a systematic review of the empirical research dedicated to the relationships between EPL and labour market outcomes. Some attempts have already been made on this subject (Howell et al. 2007; Boeri and van Ours 2008; Djankov and Ramalho 2009; Skedinger 2010; Kemper 2016). To our knowledge, however, there exist no studies providing a rigorous meta-analysis of the impact of EPL on labour market performance and that follow recognized criteria such as the MAER-NET guidelines. The present paper aims to fill this gap in the literature with a meta-analysis using 53 papers selected from the Web of Science based on the MAER-NET guidelines. To support the results of our meta-analysis, we also present a FAT-PET meta-regression model (Funnel Asymmetry Test and Precision Effect Test).

The remainder of the paper is organized as follows. Section Two provides a short literature review in order to demonstrate the lack of meta-analyses on the subject. Section Three describes the meta-analysis. In section four a meta-regression confirms the results of the meta-analysis. Section Five summarizes the debate concerning the role of EPL by international institutions. Section Six concludes. The Appendix reports all the papers examined in the meta-analysis and the meta-regression.

2. The Literature on EPL and Macroeconomic Performance: a Lack of Meta-analyses

Howell et al. (2007) provides a summary of the implied effects of changes in eight typical labour market institutions measures. This work is based on eleven panel data regression studies published from 1996 to 2006. Regarding the relationship between EPL and unemployment, eight studies out of eleven show no statistically significant relationship. Boeri and van Ours (2008) review 14 cross-country studies on the effects of employment protection on employment and unemployment and find the results are inconclusive. In particular, eight works on job flows find that higher flexibility reduces unemployment flows; however, three studies indicate that the impact of EPL on employment flows is unclear and other two contain a negative sign between the two variables. Analyzing employment and unemployment stocks in 13 studies, Boeri and van Ours find that nine display insignificant coefficients, three find that a more rigid labour market is associated with higher unemployment, and one work suggests that labour market flexibility is associated with higher unemployment. Djankov and Ramalho (2009) survey studies on labour regulations in developing countries using 30 papers published between 2004 and 2009. These studies find benefits in introducing labour deregulation with the exception of Latin America, where findings are mixed. Skedinger (2010) provides the most detailed survey on the impact of EPL on micro and macro variables. He reviews 26 cross-country and six within-country studies on the relationship between EPLs and overall employment and unemployment. The results in this literature are inconclusive. Among the cross-country

analyses, nine studies find a negative effect of EPLs on labour market outcome, 12 find a statistically insignificant relationship or a positive relationship, and five show mixed results in which, for example, EPL is positively related to both employment and unemployment. The within-country studies yield a similar indeterminacy: three works find that stringent EPL worsens labour market performance while three studies suggest an insignificant or positive relationship between EPLs and labour market outcome.

It must be said that these surveys, although detailed, are non-systematic narrative reviews of the literature. The studies they examine were selected without following specific guidelines, so a comparison of the different studies and results could be misleading (Stanley et al. 2013). To circumvent such problems it is necessary to undertake a rigorous meta-analysis, a research methodology used to bring together in a systematic way all the findings from previous studies undertaken by different researchers on a given issue. Kemper (2016) tries to follow this method by proposing a meta-analysis on the effects of EPL on unemployment and employment levels. Drawing on evidence from 72 studies the author finds that EPL has no statistically significant effect on the unemployment level, whereas based on 42 studies, she finds that EPL decreases the employment level. This work constitutes the only meta-analysis on the subject, but it does not refer to MAER-NET guidelines or similar selection criteria rules (see Stanley et al. 2013). Therefore, paper selection is rather arbitrary and the meta-analysis is not reproducible. Further, in her meta-analysis Kemper (2016) includes published papers, working papers, and even a PhD dissertation.

This work follows a different approach. We undertake a meta-analysis of the impact of EPL on labour market performance using MAER-NET guidelines and based only on papers published in peer reviewed journals and reported in the Web of Science.

3. A Meta-analysis on EPL, Employment and Unemployment

This section employs a meta-analysis on the relationships between employment protection indexes on one hand and employment and unemployment levels or rates on the other. The research selection process is based on MAER-NET guidelines (see Stanley et al. 2013).

We made our initial selection of studies through a comprehensive search in the *Web of Science* database using combinations of the following general keywords: 'employment protection', 'institutions' and 'job security'. We then refined our sample by selecting the following fields among those reported in the *Web of Science*: 'Economics', 'Sociology', 'Industrial Relations Labor' and 'Political Science'. We considered only articles published in refereed journals for the period 1990–2019. The outcome of this search was 5,235 articles, of which 2,673 were published in economics journals, 1,052 in sociology journals, 1,026 in industrial relations or labour journals, and 484 in political science journals.

Among these, we excluded non-international journals. We further refined the sample by selecting only empirical papers exploring the relationship between EPL on one hand and macroeconomic measures of employment or unemployment on the other hand. This excluded all theoretical works, all empirical analyses based on disaggregated data, all empirical analyses of the micro consequences of EPL, and even excluded analyses that aggregate into a single indicator employment protections with other labour institutions. This means that the papers selected for the meta-analysis include only macro-level studies on employment and unemployment based on overall EPL measures. Thus,

they do not explore findings on the impact of labour regulation on the employment dynamics of specific groups (male or female workers; young or old workers; skilled or unskilled, etc.), on specific sectors, or on variables such as GDP growth or productivity.

We did not distinguish between cross-country or within-country studies. We included papers that employ the OECD EPL as the explanatory variable as well as other employment protection measures, such as the one provided by the ILO, the CBR-LRI (Adams, Bishop, and Deakin 2016). We considered only studies investigating the impact of labour regulation on labour market performance. Our search ended in August 2019, giving us 53 papers out of all the available articles: these papers are reported in the Appendix. Our result here does not change if we modify the keywords used for the selection of the papers.

The first step of our meta-analysis consisted in classifying the articles according to their research outcome. For this purpose, we adopted the following strict definition of the IMF-OECD consensus: labour deregulations aimed to reduce EPL indexes, improve the efficiency of labour markets, and thereby contribute to increased employment and lower unemployment rates (this definition is in line with Howell 2005 and Fitoussi and Saraceno 2013). We initially opted to review the material by a vote count review. Light and Smith (1971) proposed a vote count procedure to calculate study results, giving each study one of three outcomes based on statistically significant results: positive, negative, or no relationship. As such, we identified three types of contributions. First, empirical works in which higher employment protection is found to have a negative impact on employment or a positive impact on unemployment are assigned to the category of papers that *support the consensus*. Second, articles where EPL is found to have a positive impact on employment, a negative impact on unemployment, or no statistically significant impact on employment and unemployment are categorized as not supporting the consensus. Third, papers where EPL is found to have mixed and even contradictory economic effects on different measures of employment and unemployment – by suggesting, for example, that EPL increases both employment and unemployment – are classified among works that provide *mixed or controversial results*. This categorization is based on what is reported as a conclusion by the author(s) of each article, relying on the conventional statistical significance thresholds and a statistical significance of less than 10 per cent. A more analytical way of dealing with the statistical significance of estimated effects will be adopted in the meta-regression analysis presented in Section Four.

The results of the meta-analysis are as follows: 15 articles support the consensus, 27 articles do not support the consensus, and 11 articles provide mixed or controversial evidence. This means that *only 28 per cent of the selected articles give empirical support to labour flexibility reforms, while 72 per cent of the papers report results that are either against (51 per cent) the consensus or mixed (21 per cent)*. These percentages do not change if we change the selection of the studies, for example by removing the papers dedicated to flow measures of employment or unemployment or distinguishing short-run and long-period measures of employment and unemployment. Counting of the articles in each group suggests that *there is no academic consensus around the IMF-OECD consensus*.

As a second step of our meta-analysis, we investigated the existence of a possible correlation between the research outcomes and the following three measures: the number of citations, the year of publication, and the impact factor of the journal where the paper is

Table 1. Citations and impact factor in the meta-analysis: descriptive statistics.

	Articles supporting the 'consensus'	Articles not supporting the 'consensus'	Articles with mixed / controversial evidence
Citations number			
Obs	15	27	11
Mean	70.4	70.3	25.7
Std. Dev.	130.67	139.15	47.36
Median	18	20	8
Min	3	0	1
Max	415	624	160
Journal impact factor			
Obs	15	27	11
Mean	2.49	2.14	1.52
Std. Dev.	2.78	1.35	1.23
Median	1.7	1.71	0.97
Min	0.45	0.74	0.43
Max	11.78	6.54	4.1

Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

published.[1] Table 1 reports some descriptive statistics across our three groups of papers. The average number of citations is equal for the first two categories (70.4 for the articles supporting the consensus and 70.3 for the articles not supporting the consensus). The standard deviation is also similar across the first two groups (131 and 139, respectively). We also report median, minimum and maximum values to yield a better picture of the distribution of citations across our three classes. At first glance, mean, standard deviation, median and extreme values are quite similar across the subset of articles supporting the consensus and articles not supporting the consensus. This means that the two groups appear homogeneous with respect to the total number of citations. The same seems to hold for the journal impact factor. The average impact factor is quite similar across the two groups (2.49 for articles supporting the consensus and 2.14 for articles not supporting the consensus); the same holds true for the standard deviation and other descriptive statistics, suggesting that these groups differ only marginally in terms of impact factor of the journals where the articles got published. The results are slightly different with respect to the group of mixed or controversial articles, which shows a smaller average number of citations (25.7) and a smaller average impact factor (1.52). We could conjecture that articles providing mixed or controversial evidence may be less easily published and cited than the ones delivering more clear-cut results. However, we cannot infer too much based on these statistics since this group has only 11 observations and thus more uncertainty due to sampling variability.

Next, we evaluated the existence of a possible correlation between each group of articles examined on one hand and citations, journal impact factor and year of publication on the other hand. In Table 2 we report the correlation coefficients and the associated p-values:

As we can see, citation number and impact factor are never statistically signficant. The only statistically significant relationship is the year of publication for articles supporting the consensus. Interestingly, we find no statistically significant relationship for year of

[1]The choice to carry out a check on the impact factor does not mean that we share the prevailing practice of evaluating publications on the basis of strict bibliometric criteria or journal rankings (on this point see Brancaccio and Garbellini 2018).

Table 2. Pairwise correlation coefficients between articles research outcomes on one hand and citations, impact factor and year of publication on the other hand (significance level in parentheses; significant coefficient in bold).

	Articles supporting the 'consensus'	Articles not supporting the 'consensus'	Articles with mixed/controversial evidence
Citations	0.0482	0.0773	−0.1489
	(0.7317)	(0.5820)	(0.2873)
Impact factor	0.1297	0.0179	−0.1661
	(0.3548)	(0.8986)	(0.2345)
Year of publication	**−0.2759**	0.1028	0.1797
	(0.0455)	(0.4638)	(0.1979)

Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

publication in the other two groups. To further analyze the relationship between time and the research outcomes of the collected articles, Figure 1 plots the cumulative frequency of the groups of papers examined.

In Figure 1, the dotted line shows (at any point in time) the cumulative frequency of papers that provide evidence supporting the consensus on labour deregulations. For example, the value assumed by the dotted line in 2008 is 11; this means that 11 published articles support the consensus through 2008. The solid line represents the cumulative frequency of papers that do not support the consensus or provide mixed/contradictory results. It is easy to see that as time goes by the dotted line becomes progressively flatter while the solid line grows, meaning that in the second half of our sample the empirical evidence supporting the consensus decreases while empirical evidence against it rises.

Table 3 divides the period examined into three decades, and provides further evidence of the change of view about the impact of labour deregulations on employment and

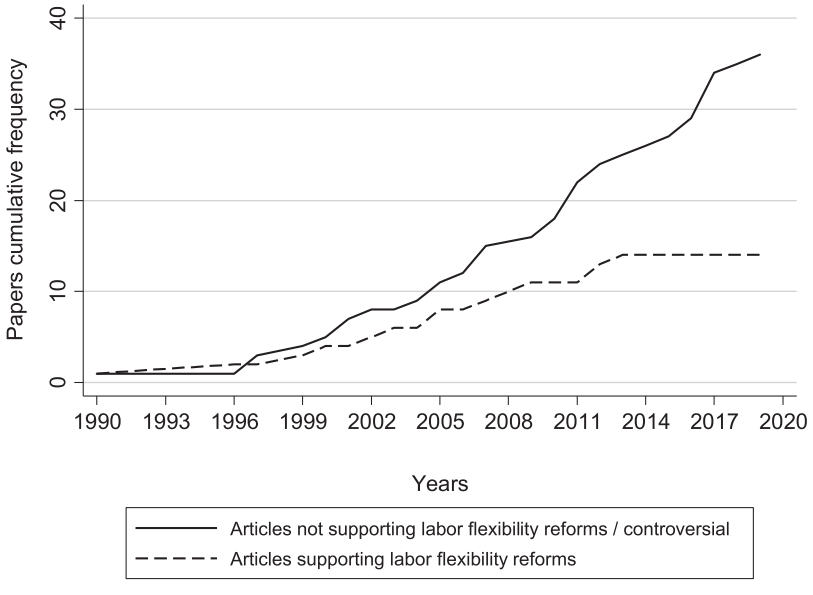

Figure 1. A decline of the 'consensus' (year of publication and meta-analysis results, cumulative frequency curves). Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

Table 3. Meta-analysis outcomes over time (number of articles in parentheses).

	1990–1999	2000–2009	2010–2019	Total
Articles supporting the 'consensus'	43% (3)	41% (9)	12% (3)	28% (15)
Articles not supporting the 'consensus' or controversial	57% (4)	59% (13)	88% (21)	72% (38)
Among which:				
- not supporting	57% (4)	41% (9)	58% (14)	51% (27)
-mixed/ controversial evidence	0% (0)	18% (4)	29% (7)	21% (11)

Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

unemployment performances. It is interesting to note that the biggest decline in papers supporting the consensus is concentrated in the third period; in the first two decades the percentage of papers supporting the consensus slightly declines, but is always above 40 per cent, in the last ten years support falls to 12 per cent.

4. A FAT-PET Meta-regression Model

The previous section employed a meta-analysis based on a vote-counting approach in order to provide some descriptive statistics about our data sample. The three classifications were based on the conclusions reported by the authors of the examined articles. While this method does not adopt any t-statistics or *p*-value thresholds, it allows to us to better understand the multiplicity of estimates that come from different estimation methods, datasets and identification strategies. This vote-counting approach has been criticized because it does not take into account the sample size, which affects statistical power; nor does it give an estimate for the size of the effect (Hedges and Olkin 1985). However, all the papers in our meta-analysis rely on conventional statistical significance of less than 10 per cent. Furthermore, even selecting only papers with the most conservative *p*-value threshold of 1 per cent, results in a huge gap persists between articles supporting the consensus and all the others.

This section adopts a more analytical way to deal with the statistical significance of the estimated effects. We select a sub-sample of papers that allows us to investigate the effects of EPL on labour market outcomes via statistical inference, thereby providing a meta-regression analysis of the relation between EPL and employment rate.

The first concern in a meta-regression framework is possible bias arising from the preference of journals to publish statistically significant or theory-adherent results. We address this issue through the FAT-PET ('Funnel Asymmetry Test' and 'Precision Effect Test') model. This model has been designed by Stanley (2005) and relies on the assumption that in absence of publication bias, the outcomes of the literature should determine a symmetric funnel around the most precise estimates. Therefore, there should be no correlation between an estimates' precision and the size of the effect. In our analysis, EPL indicators are not homogeneous and can have different scales, which makes the effect size not directly comparable; this is why we will use t-statistics[2] as the outcome variable rather than regression coefficients. It should also be stressed that not all the 53 studies in the meta-analysis provide the t-statistics. As a result, only 32 papers have been included in the meta-regression, of which 11 are in the meta-regression on employment and 24 are in the meta-regression on unemployment (see Appendix for the complete papers list).

[2]We will not adjust t-statistics for the degrees of freedom (like Kemper 2016) since our sample is made up of studies analyzing longitudinal data and using a relatively high number of observations (so that the degrees of freedom in the single regression is not a concern).

The estimated model is the following:

$$t_{ij} = \beta_0(1/SE_{ij}) + \beta_1 + \varepsilon_{ij} \quad (1)$$

where t_{ij} is the t-statistics attached to the EPL estimated coefficient of regression i in study j, SE_{ij} its standard error and εij the idiosyncratic term. The FAT tests the hypothesis of no publication bias, that is H_0: $\beta_1 = 0$. Rejection of the null hypothesis implies evidence for a publication selection bias. The PET tests the null hypothesis, H_0: $\beta_0 = 0$, that there is no significant effect of EPL on employment. Rejection of the null, in absence of selection bias, implies a non-zero statistical effect of EPL on the variable of interest.[3] A battery of moderator variables can also be included in order to account for study characteristics. Therefore, the FAT-PET multiple meta-regression model will be the following:

$$t_{ij} = \beta_0 \frac{1}{SE_{ij}} + \beta_1 + \sum_{k=1}^{K} \beta_{ijk} \frac{Z_{ijk}}{SE_{ijk}} + \varepsilon_{ij} \quad (2)$$

The term Z_{ijk} is the vector of k moderator variables. In our case it includes variables commonly used in the literature to control for study's quality (impact factor of the journal on which the article is published, number of citations of the article) and variables that control for study's features (a dummy assuming value 1 for the fixed effect regressions, a dummy taking 1 if the estimation accounts for endogeneity via IV or GMM models, observations number and a dummy assuming 1 if the EPL index used in the study is the one provided by OECD). Stanley and Doucouliagos (2015) recommend using Weighted Least Squares (WLS) for meta-analysis as they outperform Ordinary Least Square (OLS), Fixed Effects and Random Effects estimators in presence of selection (or small sample) bias and between-study heterogeneity. In choosing the weights we stick to the literature and we use $1/SE_{ij}^2$.

Table 4 reports both OLS and WLS estimates of the simple and multiple FAT-PET meta-regressions. The first two columns display the results of the simple FAT-PET regression (equation 1). Primarily, we want to check the FAT hypothesis of publication selection bias; i.e., we want to see if the constant term is statistically different from zero. As Table 4 shows, the intercept is not statistically significant in either the OLS or WLS estimations, meaning that there is no evidence of publication bias. Given the absence of bias, we can interpret the slope represented by the estimated coefficient of $1/SE_{ij}$ as the average effect of EPL on employment. However this effect is null in the investigated sample, which implies that we are not able to reject the PET hypothesis. Analogous results are obtained from the multiple FAT-PET metaregressions (equation 2) reported in columns 3 and 4: both the FAT and the PET hypothesis cannot be rejected, implying that there is no evidence of publication bias and an overall zero effect of EPL on employment. Looking at the WLS estimations in the fourth column, we find a statistically significant effect of the article's identification strategy. In particular, papers that account for cross country heterogeneity tend to find higher and more positive t-statistics for the effect of EPL on employment. Put another way, fixed effects models find results that tend to depart from predictions of the consensus.

[3]In case of a statistically significant publication bias ($\beta_1 \neq 0$), the FAT-PET-PEESE model must be estimated (see Stanley and Doucouliagos 2012). As we shall see, this is not our case. Then, we do not discuss FAT-PET-PEESE model any further.

Table 4. FAT-PET meta-regression model estimation.

FAT-PET				
	OLS	WLS	OLS	WLS
1/SE	−0.001	0.000	−0.006	−0.031
	(0.000)	(0.000)	(0.041)	
				(0.072)
Publication selection				
Constant	−0.400	−2.372	0.419	−3.107
	(0.992)	(1.317)	(1.727)	(3.347)
Study quality				
Journal impact factor			−0.018	0.043
			(0.051)	(0.087)
Total citations			0.000	−0.001
			(0.001)	(0.001)
Study characteristics				
FE estimation			−0.000	0.000***
			(0.001)	(0.000)
IV/GMM estimation			−0.001	0.001
			(0.001)	(0.001)
Sample size			0.000	0.000
			(0.000)	(0.000)
OECD EPL index			0.000	0.007
			(0.010)	(0.015)
# regressions	65	65	65	65
# studies	11	11	11	11
R-squared	0.018	0.063	0.117	0.275

***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.
Clustered standard errors (at study level) in parenthesis.
Ordinary Least Squares (OLS) and Weighted Least Squares (WLS, using $1/SE_{ij}^2$ as weight) estimations.
Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

Analogous outcomes are obtained for the unemployment rate. These results are robust to both short and long-term definitions of the employment and unemployment rates.[4]

As a further exercise, one might be interested in evaluating the time trend of the average t-statistics, and checking if it is consistent with results from the descriptive meta-analysis and the meta-regression. Figure 2 reports time trends of average t-statistics for the relation between EPL and employment rate (left graph) and the relation between EPL and unemployment rate (right graph). Although the graphs only show cross-sectional averages over time, we can draw useful inferences from them. In both graphs, horizontal bands represent the +/−2 interval commonly used as a rule of thumb for statistical significance in t-tests (the implied confidence interval is at 5 per cent while the distribution degrees of freedom are 5). What is noticeable is that the average t-ratio mostly lies inside the +/−2 intervals, implying an overall non statistically significant effect of EPL on employment and unemployment. This result further supports the outcomes from the meta-analysis and meta-regression. Finally, an increasing average t-ratio is detectable in the graph on the relationship between EPL and employment, while a progressively decreasing average t-ratio is found in the graph on the relationship between EPL and unemployment. This evidence is consistent with Figure 1 and with results from meta-analysis that show decreasing support for the consensus.

[4]Results available from the authors upon request.

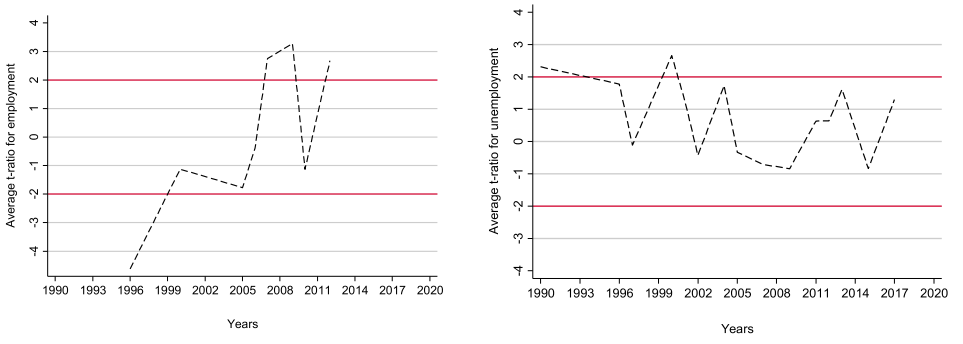

Figure 2. Average t-ratio of the relation between EPL and employment and unemployment rates. Source: Authors' calculations from a selected sample of papers taken from the Web of Science database.

5. Beyond the Meta-analysis: a Crisis of 'Consensus' in the Works Published by International Institutions?

Based on our meta-analysis and the meta-regression, the large majority of studies on the subject find no positive effects of labour deregulation on employment and unemployment. It must be noted that, in order to meet MAER-NET guidelines, our meta-analysis included only refereed papers published in academic journals. All the works published by leading international economic and financial organizations have not been included in our meta-analysis, even though many of them focus the topic and have influenced both the academic community and the political arena. This section takes a close look at these reports and papers. As we shall see, even those organizations that usually support labour deregulation have recently published works that contrast the OECD-IMF consensus.

The OECD has been one the most influential advocates of labour market flexibility since its celebrated Jobs Study (OECD 1994), a series of follow-up reports (OECD 1997, 1999) and country case studies. The Jobs Study argued that the roots of unemployment rest in social institutions and policies such as unions, unemployment benefits, and employment protection legislation. It proposed a Jobs Strategy based on ten recommendations, including: (i) removing restrictions that prevent wages from responding to local conditions; (ii) reform employment protection legislation, abolish legal provisions that inhibit private employment; and (iii) reform Social Security benefits so that equity goals can be reached without impinging the efficient functioning of labour market. Later, the OECD (1997, p. 12) emphasized the significant improvements from following these recommendations: 'Developments in structural unemployment over the 1990s to a large extent reflect the progress made in implementing the OECD Jobs Strategy'. Similarly, a few years later the OECD (1999, p. 54) remarked that countries 'that have been most successful in curbing structural unemployment and improving overall labour market conditions … have been amongst the most determined in implementing the Jobs Strategy'.

The Job Study recommendations were also applauded by subsequent OECD work. In his influential work, Scarpetta (1996, p. 63) found that 'stringent employment protection legislation contributes to high unemployment and non-employment rates'. Elmeskov, Martin, and Scarpetta (1998) find a large significant positive relationship between EPL

and unemployment; in particular, an increase of 4.3 units (one standard deviation) on the EPL index with a possible range from 0 to 18, is associated with a 1.4 percentage-point rise in the unemployment rate. In most countries their findings suggest that changes in the unemployment rate can be attributed to country-specific effects rather than any change in labour market institutions. Elmeskov, Martin, and Scarpetta (1998, p. 219) are aware of this: 'an important fraction of the estimated change in structural unemployment cannot be accounted for by changes in the explanatory variables included in our analysis'. Nevertheless, they conclude that

> there is a natural tendency in many countries to delay needed reforms in certain areas and/or search for alternative, 'sweeter' remedies. It requires strong political will and leadership to convince electorates that it is necessary to swallow all of the medicine and that it will take time before this treatment leads to improved labour market performance and falling unemployment. But the success stories show that it can be done! (Elmeskov, Martin, and Scarpetta 1998, p. 242)

Other leading policy institutions, such as the IMF and the World Bank, have supported labour market flexibility to increase job creation. According to an IMF (1999, p. 106) survey paper, econometric analysis provides considerable support for the view that 'institutional factors (the wage-bargaining framework and job protection legislation) are estimated to have a statistically significant and quantitatively important effect on the structural unemployment rate'. Therefore, to improve labour market performance 'the first-best policy might be to remove the institutional arrangements, such as union monopoly power and job protection legislation' (IMF 1999, p. 116). Similarly, the IMF (2003, p. 129) *World Economic Outlook* stated:

> A wide range of analysts and international organizations – including the European Commission, the OECD, and the IMF – have argued that the causes of high unemployment can be found in labour market institutions. Accordingly, countries with high unemployment have been repeatedly urged to undertake comprehensive structural reforms to reduce 'labour market rigidities' such as generous unemployment insurance schemes; high employment protection, such as high firing costs; high minimum wages; non-competitive wage-setting mechanisms; and severe tax distortions.

On the same page, however, they also write: 'while there are solid theoretical arguments underpinning the call for such [labour] reforms, the empirical evidence is somewhat less developed and, in some cases, unsupportive'.

Despite this, the work concludes: 'reductions in replacement rates, lower tax wedges, liberalized employment protection regulations, and improved active labour market policies remain essential ingredients of a comprehensive labour market strategy geared to reducing Europe's high structural unemployment rate' (IMF 2003, p. 141). Likewise, the World Bank (2008, p. 19) held that 'many countries err on the side of excessive rigidity, to the detriment of businesses and workers alike' because 'laws created to protect workers often hurt them'.

While the leading policy international institutions have long supported labour deregulation, in the last few years some traces of dissent within these institutions can be found. This may reflect inconclusive findings more recently. Building on a literature review (Betcherman 2012), the World Bank (2013, p. 261) held that based on a 'wave of new research, the overall impact of EPL and minimum wages is smaller than the intensity of

the debate would suggest. Most estimates of the impacts on employment levels tend to be insignificant or modest'. Therefore, 'labour policies and institutions are neither the major obstacle nor the magic bullet for creating good jobs for development in most countries' (World Bank 2013, p. 258). Similar conclusions were reached by the OECD (2016, p. 126): 'Most empirical studies investigating medium/long-term effects of flexibility-enhancing EPL reforms suggests that they have no or a limited positive impact on employment levels in the long run'. Likewise, IMF (2016, p. 115) recently contended that 'reforms that ease dismissal regulations with respect to regular workers do not have, on average, statistically significant effects on employment and other macroeconomic variables'.

Along with these sceptical remarks about the effectiveness of labour market reforms, it is possible to find sporadic instances of late where the institutions that have supported the consensus recognize that labour regulations can be necessary in some cases. In 2015, the World Bank (2015, p. 231) reversed its earlier positions by pointing out that 'employment regulations are unquestionably necessary … to protect workers from arbitrary or unfair treatment and to ensure efficient contracting between employers and workers' and thus 'benefit both workers and firms'. In a similar vein, the new OECD (2018, p. 14) *Jobs Strategy* recognises that policies to support flexibility are not sufficient to simultaneously deliver good outcomes in terms of job quantity, job quality and inclusiveness. Rather, it stresses the need for policies that protect workers, foster inclusiveness and allow workers and firms to make the most of ongoing challenges and opportunities. These remarks are based 'on new evidence that shows that countries with policies and institutions that promote job quality, job quantity and greater inclusiveness perform better than countries where the focus of the policy is predominantly on enhancing (or preserving) market flexibility'.

The above statements might be not enough to declare a crisis in the IMF-OECD orthodoxy within these institutions. However, they show the existence of some cracks in the old consensus that are probably influenced by the results of academic research highlighted in our meta-analysis. As far back as the late 20th century, the OECD (1999, p. 82) admitted 'it is difficult to confirm that recent EPL reforms have been associated with changes in employment and unemployment'. In the light of the literature analysed above, the sentence seems quite prophetic: although it refers to late 1990s reforms, the same could also be said about more recent labour market deregulations.

6. Concluding Remarks

This paper presented a meta-analysis built according to the MAER-NET guidelines, which collects academic peer review papers devoted to the relation between EPL indexes on one hand and employment and unemployment rates on the other. Among 53 academic papers published between 1990 and 2019 and contained in the Web of Science, only 28 per cent support the consensus view while the remaining 72 per cent report results that are ambiguous (21 per cent) or contrary to the consensus (51 per cent). The decline in the consensus is particularly evident during the last decade. A FAT-PET meta-regression model confirms these outcomes.

The meta-analysis and the meta-regression presented in this paper do have some limitations. They only examine overall EPL indexes and macroeconomic measures of employment and unemployment. They do not explore the literature on possible changes in disaggregated EPL indexes, the possible impact of labour regulation on the employment

dynamics of specific groups or industries, or on macroeconomic variables such as GDP and productivity. In this regard, Bassanini, Nunziata, and Venn (2009, p. 352) suggest that the recent evolution of economic research could have been guided by the more or less explicit attempt to circumvent the lack of evidence at the macroeconomic level and search in a disaggregated context new evidence in favour of the consensus: 'In the case of employment protection legislation … there is little evidence of an aggregate employment impact. … This could explain the burgeoning interest in other effects of EPL, including those on job turnover, firm dynamics and productivity, as a means of justifying reforms in this area on efficiency grounds'. Future research will verify whether the results of our study are confirmed. For now, it is unquestionable that several studies dispute the IMF-OECD consensus on the benefits of labour deregulation (on disaggregated EPL indicators, see Kahn 2010; Avdagic 2015; on productivity, see Scarpetta and Tressel 2004; Koeniger 2005; Micco and Pages 2006; Cingano et al. 2008).

Given this crisis of the consensus, it is interesting to note a proliferation of new theses regarding the effects of labour deregulation. One contends that labour deregulation can create inequality rather than employment and growth (Freeman 2008; Campos and Nugent 2015 and for a possible application Dosi et al. 2020; Checchi and García-Peñalosa 2008; Guerriero and Sen 2012; Deakin, Malmberg, and Sarkar 2014; Jaumotte and Osorio-Buitron 2015; Parisi 2017; Ciminelli, Duval, and Furceri 2018). A new consensus may arise in the future around these and other alternative theses (see Blanchard and Brancaccio 2019).

Be that as it may, one fact seems well established. When top officials of the major international economic institutions support labour deregulations by claiming that these reforms promote economic growth and employment, they suggest an economic policy line not confirmed by the prevailing empirical research, and in some cases studies published by those same institutions come to a very different policy conclusion. This contrast between diagnosis and prescriptions represents an interesting topic of investigation for further research.

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Appendix

Table A1. Full list of the 53 papers included in the meta-analysis.

Author(s), year	Journal	Times Cited	Support for 'conensus'	Estimation method	Time span
Adams et al. (2019)	International Labour Review	0	Do not support	OLS, FE,GMM, PMG	1990–2013
Adascalitei and Pignatti Morano (2016)	Iza Journal of Labor Policy	1	Do not support	GLS	2008–2014
Addison and Grosso (1996)	**Industrial Relations**	**35**	**Support**	**OLS**	**1956–1984**
Addison, Teixeira, and Grosso (2000)	**Southern Economic Journal**	**14**	**Do not support**	**OLS, FE, RE, FGLS**	**1956–1984**
Amable, Demmou, and Gatti (2011)	**Applied Economics**	**14**	**Do not support**	**FEDV**	**1980–2004**
Avdagic (2010)	**Comparative Political Studies**	**2**	**Do not support**	**OLS-PCSE**	**1980–2009**
Avdagic and Salardi (2013)	**Socio-Economic Review**	**18**	**Do not support**	**FGLS, OLS-PCSE**	**1980–2009**
Ayala, Martínez, and Ruiz-Huerta (2002)	**Applied Economics**	**9**	**Controversial**	**OLS**	**1980–1996**
Baccaro and Rei (2007)	International Organization	72	Do not support	OLS, PWLS, FGLS, OLS-PCSE, RE FE	1960–1998
Barbieri and Cutuli (2016)	European Sociological Review	20	Do not support	FE	1992–2008
Bassanini and Duval (2009)	**Oxford Review of Economic Policy**	**90**	**Do not support**	**FE**	**1982–2003**
Belot and van Ours (2001)	**Journal of The Japanese and International Economies**	**33**	**Do not support**	**OLS, FE**	**1960–1995**
Belot and van Ours (2004)	**Oxford Economic Papers-New Series**	**97**	**Do not support**	**OLS, FE**	**1960–1999**
Bertola (1990)	European Economic Review	242	Do not support	OLS	1960–1987
Bertola (2017)	**Research in Economics**	**0**	**Do not support**	**FE**	**1960–2015**
Blanchard and Portugal (2001)	American Economic Review	160	Controversial	OLS	1985–1994
Blanchard and Wolfers (2000)	**Economic Journal**	**363**	**Support**	**OLS, FE**	**1960–1995**
Boeri (1999)	European Economic Review	52	Do not support	OLS	1983–1993
Boeri and Herbert (2011)	Economic Policy	22	Do not support	OLS, 2SLS-IV	2007–2010
Bradley and Stephens (2007)	Comparative Political Studies	17	Support	PCSE	1974–1999
Bruno and Rovelli (2010)	**JCMS-Journal of Common Market Studies**	**8**	**Controversial**	**OLS, RE**	**1999–2006**
Cuestas, Gil-Alana, and Staehr (2011)	Journal of Comparative Economics	16	Do not support	Unit root tests	1998–2007
De Serres and Murtin (2014)	Economic Policy	3	Do not support	GMM	1985–2010
Di Tella and MacCulloch (2005)	**European Economic Review**	**59**	**Support**	**FE, RE, LSDV, GMM**	**1984–1990**
Dixon, Lim, and van Ours (2017)	Applied Economics	5	Do not support	FE	1985–2013
Djankov and Ramalho (2009)	**Journal of Comparative Economics**	**47**	**Support**	**OLS**	**2004–2008**
Duval and Furceri (2018)	IMF Economic Review	2	Controversial	FE	1980–2000
Estevão (2007)	**IMF Staff Papers**	**7**	**Do not support**	**OLS**	**1985–2000**
Feldmann (2009a)	**Journal of Comparative Economics**	**49**	**Support**	**FE**	**1992–2002**

(*Continued*)

Table A1. Continued.

Author(s), year	Journal	Times Cited	Support for 'conensus'	Estimation method	Time span
Feldmann (2009b)	**Applied Economics**	**8**	**Support**	**RE**	**2000–2003**
Feldmann (2013)	**Applied Economics Letters**	**1**	**Support**	**FE, RE**	**1992–2008**
Fialová and Schneider (2009)	**Eastern European Economics**	**15**	**Support**	**GLS-RE**	**1999–2004**
Fiori et al. (2012)	**Economic Journal**	**30**	**Support**	**GLS-FE**	**1980–2002**
Flaig and Rottmann (2013)	**Empirica**	**8**	**Support**	**FE, RC, MX**	**1960–2000**
Furceri and Mourougane (2012)	Panoeconomicus	3	Support	ARDL	1960–2006
Garibaldi and Mauro (2002)	Economic Policy	21	Support	OLS, FE, RE	1980–2000
Garibaldi and Violante (2005)	**Economic Journal**	**56**	**Controversial**	**FE**	**1960–2000**
Gregg and Manning (1997)	European Economic Review	29	Do not support	OLS	1960–1990
Griffith, Harrison, and Macartney (2007)	**Economic Journal**	**45**	**Do not support**	**OLS, IV**	**1986–2000**
Heimberger, Kapeller, and Schütz (2017)	**Journal of Policy Modeling**	**0**	**Do not support**	**FD, OLS-PCSE**	**1985–2011, 2001–2012**
Holt and Hendrickson (2017)	**Contemporary Economic Policy**	**1**	**Controversial**	**FE, RE**	**1985–2013**
Jiménez-Rodríguez and Russo (2012)	Bulletin of Economic Research	5	Controversial	Unit root test	1980–2008
Lazear (1990)	**Quarterly Journal of Economics**	**415**	**Support**	**OLS, FE**	**1956–1984**
Lehmann and Muravyev (2012)	**Economics of Transition**	**20**	**Controversial**	**FE, NLOLS**	**1995–2008**
Mortensen (2005)	Journal of The European Economic Association	18	Support	OLS	1992–2003
Mourre (2006)	Applied Economics	20	Controversial	OLS	1970–2002
Nickell (1997)	**Journal of Economic Perspectives**	**624**	**Do not support**	**GLSRE**	**1983–1994**
Nickell, Nunziata, and Ochel (2005)	**Economic Journal**	**392**	**Do not support**	**GLSFE**	**1961–1995**
Nunziata (2003)	Labour Economics	12	Support	MLE-RE, OLS, GLS	1975–1997
Nymoen and Sparrman (2015)	**Oxford Bulletin of Economics and Statistics**	**4**	**Do not support**	**FE, GMM**	**1960–2012**
Papapetrou and Tsalaporta (2017)	**Manchester School**	**1**	**Controversial**	**FE**	**1970–2013**
Pissarides (1999)	Scottish Journal of Political Economy	5	Support	OLS	1985–1993
Stockhammer and Klär (2011)	**Cambridge Journal of Economics**	**11**	**Do not support**	**OLS**	**1960–1999**

Note: Papers in bold are included in the meta-regression.