

# Theoretical, empirical and policy analyses of the European labour markets: insights from the ISIGrowth project

## Abstract

The H2020 ISIGrowth<sup>1</sup> project addresses the topic “EURO-2-2014: The European growth agenda” and in particular the dimensions 2 (“Innovation-based growth strategy for Europe”) and 3 (“Global production and innovation networks – costs and benefits for Europe”) of its scope. The main goal is twofold: first, it aims to provide novel and comprehensive diagnostics of the relationships between innovation, employment dynamics and growth in an increasingly globalized and financialized world economy. Second, on the grounds of such diagnostics, it aims to elaborate policy scenarios delivering a coherent policy toolkit to achieve the Europe 2020 objectives of smart, sustainable and inclusive growth.

A major focus of the project has been the broad realm of industrial relations, particularly in the domain of labour market flexibility and its impact upon firm, sectoral and macro dynamics. The aim of the session is to present ISIG theoretical, empirical and policy results studying the functioning of European labour markets.

The first paper “**Demand or supply labour market policies? Insights from the K+S Agent-Based model**” presents an Agent-Based Model (ABM) of the labour market declined under two variants, a “Fordist” and a “Competitive” type of labour relations, focusing in understanding whether for the macro-economy would be more beneficial to provide ALMPs or PLMPs.

Moving toward the empirics, the second paper “**Innovation and temporary employment: diverging patterns across Europe?**” will dig inside into the relationship between alternative types of labour contracts, i.e. different degrees of flexibility of the labour markets, and patterns of (i) innovation and (ii) specialization of the industrial structure. The paper provides a cross-country European perspective, focusing on the diverging patterns of the continental vs the Mediterranean Europe.

Carrying on a cross-country European analysis, the third paper “**Do firm-level pay agreements affect within-firm wage inequalities? Evidence across Europe**” provides a firm-level perspective on the empirical relationships between degree of centralization/decentralization of the wage bargaining process in affecting within wage dispersion between high and low paid occupations.

Finally, looking at UK, the fourth paper “**The Local Distribution of Productivity Gains: Heterogeneous Effects**” we seek to understand: a) The effect of an increase in firm labour productivity on individuals’ wages in the UK, using employer/employee matched data, and distinguishing between low-paid and high-paid occupations; b) The effect of local labour productivity growth on local wages in the UK for low-paid occupations and low skilled workers, in areas with different degrees of labour routinisation and market concentration.

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<sup>1</sup><http://www.isigrowth.eu/>

# Demand or supply labour market policies? Insights from the K+S Agent-Based model

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## Abstract

In this work we develop an ABM of the labour market which is declined under two institutional variants, the “Fordist” and the “Competitive” set-ups. Under the Fordist regime, wages are insensitive to the labour market conditions and indexed to the productivity gains of the firms. There is a sort of covenant between firms and workers concerning “long term” employment: firms fire only when their profits become negative, while workers are loyal to employers and do not seek for alternative jobs. When hiring/firing, firms aim to keep the more skilled workers. Labour market institutions contemplate a minimum wage fully indexed to aggregated economy productivity and unemployment benefits financed by taxes on profits.

Conversely, in the Competitive regime, flexible wages respond to unemployment and decentralised market dynamics, and are set by means of an asymmetric bargaining process where firms have the last say. Employed workers search for better paid jobs with some positive probability and firms freely adjust (fire) their excess workforce according to their planned production. Hiring/firing workers by firms are based on a balance between skills and wages, using a simple payback comparison rule. The Competitive regime is also characterized by different labour institutions: minimum wage is only partially indexed to productivity and unemployment benefits – and the associated taxes on profits – are relatively lower.

Inside this theoretical framework we want to study the different effects of ALMPs (supply) vs PLMPs (demand) to foster and improve the macroeconomic dynamic. Policies aimed at fostering efficiency and equity outcomes in labour market might be classified into passive labour market policies (PLMPs), usually including unemployment insurance and welfare benefits, defined passive because they do not require any activation mechanism in order to be received by the beneficiaries, and active labour market policies (ALMPs) which include (I) assistance in the job-search activity with the aim of enhancing the matching process in the labour market, (ii) training programs with the aim of supporting the process of skills

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maintenance of unemployed people and, (iii) public sectors job opportunities or alternatively, subsidized job opportunities in the private sectors.

What remained still an open question is how much can societies rely on ALMPs during phases of severe downturn, or equivalently, how labour markets characterized by a structural, weak labour demand (e.g. Mediterranean countries) can benefit from policies aimed at reducing market mismatch or at encouraging labour participation and search intensity. Those issues are addressed by some empirical studies, e.g. Caroleo and Pastore (2001) which document how participation to ALMPs and training programs do not increase the employability opportunities of young workers but only the probability to participate to an other training program (“training trap” according to Caroleo and Pastore, 2007). The latter phenomenon was recorded to be particularly true for Southern regions where the lack of labour demand might hardly be solved by training programs.

Our focus will be in understanding whether for the macro-economy would be more beneficial to provide PLMPs (e.g. unemployment benefits) to generically foster aggregate demand or ALMPs (in terms of training scheme), trying to selectively act on labour supply, testing the effectiveness of these policy schemes in terms of gdp and productivity growth, volatility and crises, hiring and firing rates. We will additionally perform a cost-benefit analysis comparing the two alternative or eventually, complementary policy schemes.

# Innovation and temporary employment: diverging patterns across Europe?

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During the last two decades, national and international policy debates focused on the need of reducing labour protections as a way to spur employment and productivity growth. From the mid-nineties onwards, all OECD economies acted on labour market *rigidities* – i.e. easing the use of temporary and part-time contracts, lowering firing restrictions and reducing trade unions bargaining power - so to foster efficiency in this market. Moreover, the “flexibilization” of labour markets stayed at the forefront of structural reform programs adopted - particularly in Southern Europe - after the 2008 crisis. Despite a large policy consensus, such push towards more flexible labour markets does not translate into significant employment and productivity improvements (Kleinknecht et al., 2009; Fana et al., 2016). This is particularly true for Southern EU economies where, over the last decade, a sluggish productivity performance prevented the expected convergence with the “core” - Germany and the other Central-Northern EU economies (Landesmann, 2015). In presence of structural weaknesses - intended as the prevalence of low-tech sectors and low-skilled employment - and feeble aggregate demand, lowering workers protection can negatively affect employment and productivity dynamics. In this respect, the linkage between productivity and the use of temporary employment has to do with the development of innovations – i.e. the introduction of new product. As largely argued by Kleinknecht and Naastepad (2005); Kleinknecht et al. (2009), labour flexibility can restrain productivity smothering the “creative accumulation” of innovation. Such creative accumulation - in line with the “Schumpeter Mark II” hypothesis – is at the roots of knowledge-intensive and complex products and services development. These products and services, in turn, crucially benefit from workers creativity and from the knowledge accumulated (over time) in firms’ organizational framework. Given the emergence of temporary employment as a relevant trait of European labour markets, it is worth to explore how (and if) it has impinged on the industrial and innovative structure of EU economies. This work addresses the following research questions. First, we test whether a relatively more intense use of temporary contracts affects the development of new products in European industries between 2000 and 2012. Second, we verify if the relationship between temporary employment and innovation performance displays different patterns in Central-Northern (France, Germany and the Netherlands) and Southern Europe (Italy and Spain). In this way, we check to what extent differences in the use of temporary contracts - i.e. in the degree of labour market “flexibilization” - are associated to the divergent trajectories - in terms of industrial specialization and innovativeness - characterizing these two areas (Simonazzi et al., 2013; Cirillo and Guarascio, 2015; Guarascio and Simonazzi, 2016). Third, we test whether industries technological characteristics – captured by revised Pavitt categories, Peneder classification and Schumpeter’s regimes – tend to reshape the investigated relationship.<sup>1</sup> In order to answer the questions spelled out above, we focus on the sectoral dimension without losing track of national specificities and institutional settings. The analysis will be enriched with data collected at two levels of aggregation for the period 2000-2012: i) national level - for a first descriptive analysis - in order to take into account institutional varieties (Hall and Soskice, 2001); and industry-level - for the econometric model - to highlight sectoral specificities (Pavitt, 1984; Malerba, 2002), geographical heterogeneity and to take also into account different technological paradigms (Dosi et al., 1988).

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<sup>1</sup>Following Kleinknecht et al. (2014), we distinguish an ‘entrepreneurial’ (or garage business) model and a ‘routinised’ model of innovation. The latter are sometimes called Schumpeter mark I (Schumpeter, 1913) and Schumpeter mark II models (Schumpeter, 2013).

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# Do firm-level pay agreements affect within-firm wage inequalities ? Evidence across Europe

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The level at which collective wage bargaining between firms and employees takes place – decentralized at the level of individual firms (sometimes called “single-employer agreements”) as opposed to centralised at national or sectoral level (both instances of “multi-employer agreements”) – has been repeatedly advocated as an important dimension explaining the distribution of wages. Policy and regulatory changes promoting the diffusion of company-level agreements have been part of the process of labour market liberalization that took place in the 1990s and 2000s, as a way to provide more flexibility and a better match than centralised contracts with the specific conditions and needs arising in the firms. In most countries, and in Europe in particular, the different levels coexist, and the company-level agreements, such as resulting from performance-related or other compensation schemes, usually (though not always) regard pay components improving upon those negotiated at centralised levels. In this paper we take advantage of the matched employer-employee information recorded in the *European Structure of Earnings Survey* (SES) maintained by EUROSTAT to examine the effect of firm-level bargaining on within-firm wage inequality in six European countries

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– Belgium, Spain, France, Germany, the Czech Republic and the United Kingdom – in the years 2006 and 2010. We provide several contributions to the literature. Our first and major departure from previous studies pertains to the specific focus that we place on the occupation-related content of wage differentials within firms. While all existing analysis offer a purely statistical characterization of within-firm wage inequalities, we complement the analysis of the wage distance between high-paid and low-paid employees within the same firm (measured as the 90<sup>th</sup>-to-10<sup>th</sup> percentile wage-gap) with an estimate of the effect that firm-level bargaining exerts on the wage-gap between the wages of apical positions (managers) and low-layers occupations (manual workers and elementary occupations). The first measure relates to the more standard question whether company-level agreements are used selectively across differently paid workers, resulting into more egalitarian vs. diverging dynamics according to the position of workers in the within-firm wage structure. The second measure, instead, allows us to capture whether firm-level negotiations favor or reduce inter-occupational wage differences in relation to the hierarchical job structure within the enterprise.

Secondly, while the data we use are from the same European survey that was used in most empirical studies that trace the role of bargaining levels in the 1990s, we cover relatively more recent years as compared to previous studies, thus providing an updated picture of the evolution of the role of firm-level bargaining. Beyond that, by accessing two consecutive waves of the SES data, we can follow changes in the use and effect of firm-level bargaining over time. This is interesting *per se*, but it obviously also matter in relation to the global crisis hitting exactly in between the two survey-years available.

Third, and finally, we also expand on the number of countries analysed at the same time in the same paper, as compared to existing studies. This allows to explore the variation of the role of firm-level bargaining across heterogeneous bargaining regimes.

# The Local Distribution of Productivity Gains: Heterogeneous Effects

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## Abstract

In this paper we seek to understand: a) The effect of an increase in firm labour productivity on individuals' wages in the UK, using employer/employee matched data, and distinguishing between low-paid and high-paid occupations; b) The effect of local labour productivity growth on local wages in the UK for low-paid occupations and low skilled workers, in areas with different degrees of labour routinisation and market concentration.

Standard theory suggests a correlation between labour productivity and wages. However, wage determination differs across sectors, occupations, workers' characteristics and institutions (i.e. unionisation). First, although the co-movements of output, employment, Total Factor Productivity (TFP), and wages follow to some extent theory predictions, there are significant variations between countries (Clymo, 2017). Second, the link between wage and labour productivity also changes over time: since the 70s, wage and productivity growth rates diverged (Lazonick, 2014, e.g.). Third, the composition of labour changed dramatically over the last three decades (Acemoglu and Autor, 2011). New technologies changed the composition of tasks, access to employment, and the distribution of wages (Autor and Dorn, 2013; Brynjolfsson and McAfee, 2014), reducing on average the share of labour in output (Karabarbounis and Neiman, 2013). Fourth, recent evidence emerging from our current ESRC project shows that innovation reduces the likelihood that workers in low paid occupations move to a better-paid occupation, and that wage and employment dynamics largely differ across local labour markets.

Our framework is based on the work of Carlsson et al. (2016) and Hornbeck and Moretti (2015). We extend the framework by introducing heterogeneous effects across individuals in different occupations and age groups – as they respond differently to labour market incentives and constraints in terms of training and mobility, and to study how local productivity shocks alter the structure of the market, particularly low-wages occupations (ranked by skills and wage quantiles). We will study how wages changes depend on employment composition (in terms of skills and occupations). By extending the analysis from the firm to the local labour market, we address several limitations of the partial standard equilibrium framework: we (i) look at aggregate productivity shocks, that are more important than firm-specific productivity shocks at explaining wage changes; (ii) move beyond the effect within single sectors to investigate the role of the sectoral composition; (iii) include spillovers, and centripetal and centrifugal forces of local labour markets; (iv) control for specific areas effect; (v) study changes in the composition of the labour market.

Using plant-level data from IDBR and ABS we will first estimate labour productivity and TFP at the plant level, and aggregating at the Travel-To-Work-Area (TTWA) level. We next estimate the relation between wages (of an individual living in a given area) for different wage quintiles, and labour productivity in the firm where the individual works, and the area in which she lives (aim (a)). Finally, we estimate the impact of changes in productivity in a given area on the changes in wages of a given category of workers (by skill or occupation ranked by wage) in the same area.

We add two policy relevant contributions to the extant theory and evidence: 1) extending analysis of the effect of productivity from the firm to local labour markets; 2) investigating hetero-

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geneous effects across occupations, age, and characteristics of local labour markets (particularly routinisation and firm concentration).

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