Different paths towards Flexibility, Deregulated employment protection or temporary employment?

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Different Paths Towards Flexibility:

Deregulated employment protection or temporary employment

[A study of cross-national variance on employment protection legislation and temporary employment in 19 OECD countries]

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Abstract

There are numerous debates on the need to increase flexibility through deregulation of employment protection. Many believe it is essential in generating employment but it is also believed to generate "socially unacceptable" flexible jobs. However, recent studies point to strict regulations on firing permanent workers as the cause of increase in the shares of temporary employment. In other words, stringent protective regulations are not only a source of rigidity, but also force employers to increase flexibility in the labour market through other means. This study explores this hypothesis by examining various aspects of employment protection legislation in concomitance with other competing factors, including structural changes and labour market institutional factors, to explain the cross-national variance of temporary employment across 19 OECD countries using quantitative data. The results show that high cost of firing workers on permanent contracts is the most important factor that explains the high shares of temporary employment. This implies that there are two different ways in which flexibility has been introduced. Either introducing flexibility throughout the labour market using relaxed regulations on firing regular workers, or securing the core workers with high firing cost for regular workers while allowing for flexibility through the use of temporary employment.

Table of Contents

1. Introduction

After the oil shocks in the 1970s, all industrialized countries have been faced with the problem of high levels of persistent unemployment. Numerous approaches have been suggested as a solution to tackle this problem. One major stream of research, which includes the *OECD Jobs Study* report, calls for increase in the numerical flexibility in the labour market (OECD, 1994; OECD, 1997b; Andersen and Halvorsen, 2002:107; Auer and Cazes, 2003a:2). These studies stress the need for deregulation in the market and more specifically deregulation of employment protection measures. Employment protection is seen as "positively underpinning economic and employment growth" (Auer and Cazes, 2003a:2), and is perceived to play a large role in the inability of European markets to create jobs compared to the more deregulated American or Anglo-Saxon markets (Scarpetta, 1996; Pissarides, 2001; Bonoli and Sarfati, 2002:468; Esping-Andersen, 1999:132-4). However, although deregulation of the labour market is seen to create jobs, it is seen to create "socially unacceptable jobs" (Bonoli and Sarfati, 2002:470) and serves as a real danger for working and living standards through "the rise of non-standard work arrangements" (Auer and Cazes, 2003a:2).

However, recent study results show that the outcomes of deregulation might not always be the same. Many studies point to strict regulations on firing permanent workers as the cause of the increase in the shares of temporary contracts (Grubbs and Wells, 1993; Dolado et al., 2001; Booth et al., 2002; OECD, 1999; OECD, 2004a). In other words, stringent protective regulations are not only a source of rigidity, but they also force employers to increase flexibility in the labour market through other ways. The implications are two fold. Countries with high employment protection levels are not necessarily inflexible, since the employers, or the market adapts in different ways to increase flexibility in these conditions. Also, even in countries where there are stringent levels of protection, without deregulations, and more so because of the high regulation levels, "socially unacceptable jobs" can be developed. Employment protection regulation can contradict its purpose of protecting workers against dismissals and providing security, and actually increase insecurities for workers. However in this case, the spread of insecurity will be segmented. A portion of workers, the core workers, will be secured by high protection levels, while there will be an increase of flexibility in the periphery in the labour market. The development of flexibility can therefore be achieved in two different ways. Either flexibility is introduced throughout the labour market through deregulated employment protection levels, or there is a segmented market of flexible and instable jobs on one side and secured jobs through high protection levels on the other.

The aim of this study is to provide concrete empirical evidence for this claim. This is done through examining not only employment protection indices but numerous other factors that can explain the incidence of temporary employment, and also through examining large number of countries. Although the relationship between employment protection and temporary employment has been examined before, there is still a lack of in-depth empirical evidence. Many studies that provide empirical evidence based on a large number of country cases, limit their investigation to the bi-variate effect of EPL. Although a small number of studies use variables other than EPL, they do not incorporate variables based on the theoretical basis of their effect on temporary employment. These types of approaches cannot account for the numerous other factors that might be the actual determinants for the shares of temporary work. By incorporating other factors into the study, we are able to draw a more complex picture of how various labour market institutions and structural changes affect the relationship between employment protection levels and temporary employment. Also to provide grounds for further generalization, large number of country cases is investigated. The studies that have examined more in-depth factors to explain for the levels of temporary employment have mostly been limited to single-country case studies which prevent generalization of their results. To overcome these shortcomings, we use 19 OECD country cases in our model which provides us with a broader outlook on the comparative situations of the countries. Another limitation to the previous studies on the effect of EPL on temporary employment is that most have focused only on the overall EPL or the EPL for regular workers. Most studies do not examine the effect of EPL for temporary employment or the effect of its different disaggregated indices on the incidences of temporary employment. They also do not examine the effects of the combinations of different regulatory factors, such as strict EPL for regular workers with relaxed EPL for temporary workers. Here, disaggregated indicators and different combinations of employment protection regulations are examined combined with other factors.

The structure of this paper is as follows. In the next section, we examine the notion of flexibility and the definitions of temporary work and employment protection. This is followed by a summary of earlier studies of the relationship between the level of temporary work and EPL. We then go on to examine the literature to find other competing theories concerning the factors influencing the cross-national variance of temporary employment. Afterwards, the best-fit model to explain the shares of temporary employment will be presented. Another aspect investigated here is how various independent variables affect EPL levels and their indirect effects on the shares of temporary employment. Using the best-fit model derived from the earlier sections, different aspects of EPL are examined to determine their effect on shares of temporary employment. Lastly, the implications of the outcomes are considered and then

we arrive at some conclusions on what are the real factors that explain for the variance in the incidence of temporary employment. Also the notion of flexible labour markets and different paths countries took to achieve this is examined.

2. Previous studies on temporary employment

2-1. Labour market flexibility

Flexibility is the ability to change according to situations. Referring to the labour market, flexibility is "the extent and speed of adaptation to market shocks" which entails that "institutional and behavioural rigidities in labour markets and enterprises slow price and quantity adjustments" (Standing, 1999: 49). In this sense "a totally flexible labour market is one where no financial, institutional, linguistic, political and cultural impediments are present" (Monastiriotis, 2003: 3). Although deregulation and flexibility are often used interchangeably, deregulation and flexibility do not always entail the same meaning, for one can occur without the other (Monastiriotis, 2003:5; Robinson, 1999:84). This will be discussed further in the later sections. Flexibility can be achieved in many ways but usually categorized by where the flexibility takes place, inside the firm or outside, and how it is developed, functionally or numerically (for more see Atkinson, 1984; Monastiriotis, 2003). Functional flexibility entails changing the production system, or technology used to enhance flexibility, while numerical flexibility entails adjustment of the number of workers or the hours they work. Most refer to external numerical flexibility when addressing the issues of flexibility. External numerical flexibility consists of adjusting the labour intake from the external market and is related to increase in the use of atypical employment including, temporary, part-time employment and deregulation of restriction on hiring and firing workers (Monastiriotis, 2003:6). It is this type of flexibility that has been acknowledged as the key component to tackle the problems of structural unemployment that have risen in the past couple of decades (for example, OECD 1994; 1997; EC, 2003).

The most common way to measure external numerical flexibility is by examining a country's Employment Protection Legislation levels, use of temporary work and part-time work, by looking at average tenure for workers or their mobility in the labour market and so on. Although all indicate labour market flexibility in the macro level, they measure different aspects. EPL index is a governance indicator reflecting provisions by law or policies, while share of 'non-stable' employment is more a contractual indicator, reflecting the actual contracts used in the labour market. Average tenure is a behavioural indicator measuring the

actual behaviour, may it be voluntary or involuntary, of the workers in the market (See Standing, 1999:170; Dasgupta, 2001). Although all indicate the same type of flexibility in the labour market in different aspects, they do not always coincide with each other. We will examine this in more detail by looking at the relationship between temporary employment and EPL, and the effect of the two on tenure.

2-2. Temporary employment

According to the OECD, temporary jobs are "forms of dependant employment[1] which do not offer workers the prospect of a long-lasting employment relationship" (OECD, 2002a: 132). The key aspect to this definition, compared to the open-ended permanent contracts, is the limited time length of the contract which may derive from employers' need to adjust to the economic cycles or from the characteristics of the job. Although fix-term contracts are the biggest share of this type of employment, it also includes temporary agency workers, contracts for a specific task, replacement contracts, seasonal work, on-call work, daily workers, trainees, persons in government job creation schemes and so on (OECD, 2002a). Booth et al. (2002) identify two different types of temporary employment by referring to one as seasonal/casual temporary jobs, those that are by nature temporary, and fixed-term contract employment where the temporal character derives from the contract under which the worker is hired (Booth et al., 2002:182). The latter type of temporary work can also be distinguished by the way in which it is used. It can be used for probation reasons, where the employer offers the worker a temporary job in the initial period of employment before offering a permanent contract. This allows employers to dismiss the workers without high termination cost if the worker proves to be unsatisfactory. Another way temporary workers can be used is as replacements for permanent workers on different types of leaves, including maternity and sickness. The third type of temporary work is used to adjust to the rapidly changing economic environment where employers find it easier to hire and fire workers on short-term/fixed term contracts (Booth et al., 2002:182). The first and the third type of temporary work, the use of temporary work to avoid high firing cost of regular or permanent contracts, bring us to the question of employment regulations and temporary work usage. How do different employment regulations, more specifically employment protection legislation for regular workers, affect the overall shares of temporary work in a country? In the following sections,

[1] Here dependant employment entails employment that is employed through an employee, which excludes self-employment.

we will examine this question and the relationship between EPL and temporary work in greater detail.

2-3. Employment protection legislation

Employment protection refers to the protection workers have against unfair or unjustified dismissal. There are many ways in which this can be provided, such as collective bargaining and individual contract agreements. However this paper uses the OECD employment protection legislation (EPL) index which measures the legislative aspect of employment protection, for this indicator enables us to compare the regulation standards among large number of countries and also to compare the results to previous studies. EPL refers to the regulations that concern hiring and firing of workers on both permanent and temporary contracts (OECD, 1999:50). EPL index for regular workers is measured by strictness in the regulations for regular procedural inconveniences, notice and severance pay for no-fault individual dismissals, and difficulty of dismissals. The strictness of EPL for temporary workers is measured according to which contracts are considered acceptable, number of successive contracts or renewals and based on the maximum accumulated durations of contracts. This is measured for the fixed-term contracts and also for temporary agency workers (TWA: Temporary Work Agencies)[2]. As we can see, EPL for regular workers concerns the costs for employers of firing workers on regular contracts, while EPL for temporary workers refers to the regulations concerning hiring practices.

2-4. EPL and the level of temporary work

Two hypotheses can be derived based on the previous studies on the relationship of employment protection and temporary work. If the employment protection level of regular workers is high, firing regular workers will be costly and employers will choose to adjust their work force to the economic cycles by using temporary contracts. Similarly, in countries with low protection for regular workers, employers will not have a need to use temporary workers because costs that arise when dismissing regular workers will be low. On the other hand, if the regulations on hiring temporary workers are strict there will be lower usage of temporary work (OECD, 1999; OECD, 2002a; Booth et al., 2002; Dolado et al. 2001; Cahuc and Postal-

[2] For further information on specific scoring and weighting of the indices see Annex 2.

Vinay 2001). Especially when temporary contracts are restricted to particular jobs, such as seasonal jobs, employers are not able to substitute regular contracts with temporary contract. Reforms that allow a wider use of temporary contracts for a broad range of jobs have been seen to increase the levels of temporary jobs in country cases (Güell and Petrongolo, 2000; Güell, 2003). Most empirical study results confirm this theory although some studies show conflicting results.

In various bi-variate analyses, EPL for regular workers does seem to have a positive relationship with the overall incidence of temporary employment and for different groups of the labour market, although this relationship is not always significant (see Grubb and Wells, 1993; Dolado et al. 2001; Booth et al., 2002; OECD, 1999; OECD, 2004a). However, multi-variate regression analyses do not always show results that correspond to the hypothesis. The regression analyses done by the OECD incorporate different EPL measures and their effect on the shares of temporary employment. The results show that EPL for regular workers significantly reduces temporary employment, while EPL for temporary workers increases the shares of temporary workers although this relationship is insignificant (OECD, 1999). In a more complex model, Nunziata and Staffolani (2001; 2005) incorporate various wage pressure institutions such as wage setting institutions, unemployment benefit measures and the tax wedge to assess the impact of employment protection measures on the incidence of temporary employment. The results from their 2001 study also show results that contradict the theory. Less stringent employment regulations for regular workers have a significant positive impact on temporary employment, less stringent fixed-term contract regulations have significant positive impact on temporary employment in good economic conditions, and less stringent TWA regulations have an incremental effect on temporary employment (Nunziata and Staffolani, 2001). The results from the 2005 study are different. Strict EPL for permanent workers is seen to increase temporary employment, looser fixed term contract regulations to increase permanent contracts and looser temporary work agency regulations to increase temporary employment (Nunziata and Staffolani, 2005).

The combination of strict employment protection for regular workers with the liberalisation of regulation for temporary workers has also been seen as the reason for the increased use of temporary contracts (Grubb and Wells, 1993; OECD, 2002a). This combination is pointed to as the main reason for the sharp increase of temporary employment in countries such as Spain and France (Dolado et al., 2001; Blanchard and Landier, 2001). Using a large number of country cases, Nunziata and Staffolani (2005) explain that there are "complementary effects" (Nunziata and Staffolani, 2005:17) where different combinations of regulations for different workers increase their effect on employment. They show that the

effect temporary work agency regulations have on temporary employment becomes stronger when employment protection for regular workers is strict. When fixed term contract regulations are strict with loose temporary work agency regulations, the effect of EPL for regular workers becomes stronger on temporary employment levels, while this is not the case when there is strict TWA with loose fixed term regulations (Nunziata and Staffolani, 2005). The OECD (2004a) examines how the relative difference between regulations for regular and temporary contracts[3] might act as an incentive to hire temporary contracts. Using a regression model incorporating other labour market institutions[4], this relative difference is shown to have a significant effect on the incidence of temporary employment for the total workforce, youths and low-skilled workers (OECD, 2004a).

2-5. Competing theories on levels of temporary employment

Although we can assume from the literature that EPL indicators will have an effect on the share of temporary employment in a country, this effect is questionable if we do not control for the other variables that might also be influential. By looking at other factors we can compare the effects of EPL and of other determinants to find which factor contributes more explanatory power. Although some of the studies reviewed above do incorporate several other factors in their analysis of the effect of employment regulation measures, they limit these variables to labour market institutions that affect wage levels. Based on preliminary studies, it is clear that these variables are not sufficient to understand the exactly why there are differences in the shares of temporary employment between countries. Even in the studies that incorporate variables other than EPL indices, the explanatory power does not reach even the 50 percent range. In this section, we consider structural changes such as globalization, recession, deindustrialization and other labour market structure, and labour market institutions such as bargaining structures, union strength, unemployment benefit systems, active labour market policy expenditure, and the impact of the tax wedge as factors that might account for cross-national variance of temporary employment.

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[3] This is measured here by dividing the gap between the EPL for regular workers and EPL for temporary workers by EPL for temporary workers. Relative difference of EPL = (EPL regular workers – EPL for temporary workers)/EPL for temporary workers

[4] The regression model include output gap, tax wedge, high coordination dummy, low-coordination dummy, expenditure on ALMP per unemployed and constant term.

Structural factors

Globalisation

Globalisation is a structural factor that is perceived to increase the need for flexibility in the labour market. There are many ways in which globalization affects the labour market. First, liberalization of the world economy or countries' integration into the world economy brings increases in competition of national economies. This leads to changes in production systems of firms as well as changes in labour demand. 'Lean' production or 'just-in-time' inventory are the new types of production systems that adjust production and the labour force to labour market fluctuations more quickly than before, resulting in growth in non-standard work (Mishra, 1999: 25). Also, increases in the freedom of capital to move to other production sites mean that workers have to compete against low wage workers in other countries, thus decreasing the demand for low-skilled labour. The competition for product and capital market also brings about an increase in the elasticity of wages and labour demand, especially for workers that can be substituted by foreign workers (Rodrik, 1997; Sapir, 2000). The bargaining power of labour weakens when elasticity of labour increases especially in periods of chronic unemployment. This decrease in bargaining power enables capital to achieve flexibility in many ways, including employing workers on atypical contracts (Mishra, 1999; Rodrik, 1997). Based on this, we can assume that globalization, or increased market integration into the global market will increase the overall level of temporary employment directly by the increased use of temporary contracts by employers. On the other hand, increased globalization might also bring about changes in the EPL levels, through increased bargaining power of employers and their need for flexibility, which will increase the temporary employment levels indirectly.

Many scholars challenge the view that globalization will necessary bring about deregulation in the labour institutions, suggesting that globalisation will act as an incentive for governments to intervene and improve their regulation standards to cope with the increase in vulnerability (Castles, 2004; Katzenstein 1985; Rodrik, 1997; Garrett, 1998). This line of argument implies that there might actually be an increase in the regulation in some ways due to the increase in the instabilities in the market. Even if there is a general need to increase the flexibility in the market, governments and politicians might choose to provide some kind of security as a way to gain support from the population. As noted in the later sections, contrary to what is commonly believed to be the case, there are countries which have increased their protection levels for both regular workers and temporary workers. However, what the studies that maintain that there might be an increase in protection due to globalization, mainly point

to the improvement of social protection levels to compensate for the deregulation in the employment protection or increase in market flexibility. This suggests that countries may choose the strategy of increasing flexibility in their markets while simultaneously increasing security through social policy measures. Important examples are the 'Flexicurity' strategies adopted in the Netherlands and Denmark. Such strategies involve governments intervening by increasing security through benefits or other measures for the now more "*flexibilized*" or more disadvantaged work force in their labour market (see Wilthagen and Rogowski, 2002; Wilthagen and Tros, 2004).

Economic cycles

There is also evidence that long protracted recession and economic cycles are important factors in explaining the rise in the level of temporary jobs (Pot et al., 2000; Morishima, 2001; Holmlund and Storrie, 2002; OECD, 2002a). Protracted recession is perceived to be an important reason for the increase in the shares of temporary employment in the Netherlands, Japan and Sweden (Pot et al., 2000; Morishima, 2001; Holmlund and Storrie, 2002; OECD, 2002a). Holmlund and Storrie report that there is a sharp decrease in temporary work in the initial stage of recession by overall increase in unemployment. This is followed by an increase in temporary work at the end of recession compared to a rather slow increase for regular workers (Holmlund and Storrie, 2002). They also conclude that the changes in legislation and supply side preferences cannot explain the overall growth of temporary work during this time, which are mostly due to economic changes affecting the demand side (Holmlund and Storrie, 2002: 262~3). In other words, depressed product and labour market conditions will create incentives for firms and individuals to use and accept temporary contracts (Holmlund and Storrie, 2002: 264). For the firms, the cost of finding workers or preventing workers from quitting their current jobs and moving on to others will decline when unemployment is high because of the lack of jobs overall. Furthermore, depressed market situations increase firms' incentives to use temporary contracts to screen workers and adapt to volatile markets (Holmlund and Storrie, 2002:263~264) especially when market prospects are gloomy and unstable. Recession will also affect individual workers behaviour in taking up temporary jobs, especially in countries that do not provide generous benefits during unemployment. Workers will have no choice but to accept these types of employment, when there are no alternatives to support their incomes. Similarly recession may also affect the overall bargaining power of the unions to accept not only wage cuts but flexible labour contracts. Recession or unemployment can also affect employment protection levels. Many

governments have chosen to maintain or enforce their employment protection legislation to protect workers from the dangers of persistent unemployment since the end of the 1970s (Cahuc and Postal-Vinay, 2001). In this case, unemployment rates will have an indirect effect on the incidence of temporary employment through changes in EPL levels especially for regular workers. This suggests that countries that have experienced protracted recession are likely to have higher levels of temporary work than those which have not.

Deindustrialization

Economies with high concentrations of workers in industries which tend to have a higher prevalence of temporary work, such as agriculture and services, might be another factor that affects the level of temporary work in a country. In the case of agriculture, due to its seasonal character many employees are on temporary contracts and the high concentration of workers in this sector will bring high incidence of temporary employment in the overall economy. For example, the OECD notes that the high incidence of temporary workers in Greece, Mexico and Turkey is due to their high share of agriculture workers (OECD, 2002a). However, for agriculture employment is on the decline in most countries, the shift of workers from an industry-based to a services-based economy or the process of 'deindustrialization' is more important. Service sectors use more flexible contracts than industry sectors (OECD, 2002a; Debels, 2004), so the shift of workers to services or a high concentration of workers in the service sector might lead to a large share of temporary contracts in that country. Another way how deindustrialization or changes in economic structure may increase the shares of temporary employment is through an increase in redundant workers and their skill loss from this shift. A large scale decline in manufacturing creates mass redundancy amongst workers, many of whom lack skills for employment in other sectors. These workers do not have a choice but to be employed in 'interim companies' or in temporary contracts, resulting in an increase in the share of temporary employment. Standing gives the example of Lorraine, an industrial area of France, where, in the late 1980s, the decline in the iron and steel industries brought about 50 percent increase in 'interim companies' and a large increase in fixed term contracts (Villeval, 1990:5 ; Standing, 1999: 106).

High levels of temporary work may, therefore, derive from shifts to different sectors or a high concentration of workers in certain sectors of the economy. However, it may also be an outcome of increase in the incidences across all industries. Holmlund and Storrie (2002) find that employment shift to services does not explain much of the rise in temporary work in Sweden during the 1990s. Also in the case of the UK, the changing industrial composition of

employment is not seen as accounting for much of the increase in temporary work (Forde and Slater, 2001). Yet because these findings derive from single-country case-studies, we cannot necessarily expect the same result when examining cross-national variance of the level of temporary work. Moreover, this study does not focus on the changes in levels but on differences between countries at one point in time. For this reason, it seems worth investigating whether different rates of employment in sectors with high concentration of temporary contracts are accounting for the cross-national variance of temporary employment.

Labour market institutions

Wage bargaining institutions and union strength

There are four different factors relating to bargaining institutions that must be taken into consideration when examining employment rates or other labour market indicators. They are union density, collective bargaining coverage rate, centralization of bargaining, and coordination of bargaining. Both trade union density and collective bargaining coverage rate represent the union strength at the bargaining table. Union density is the percentage of workers that have membership in the union, and here it refers to 'net' members excluding those who are non-active (OECD, 2004b:144). Collective bargaining coverage rate measures the extent 'salaried workers are subject to union-negotiated terms and conditions in employment' (OECD, 2004b:146). The relationship between the two measures is complex. Many countries have administrative rules and extensions of wage agreements that supplement union representation in wage bargaining (Scarpetta, 1996:54; Buti et al., 1998:24), making it unnecessary for workers to become actual members of the union. This can make the collective bargaining coverage rate a better measurement of union power. On the other hand, Buti et al. note that the difference between the two can be interpreted as "artificial union power" meaning the strength of unions which is not based on unions' ability to gain support from workers, such as membership (Buti et al. 1998: 24).

Centralization describes 'the locus of the formal structure of wage bargaining' (OECD, 1997a:70). It describes the level where wage bargaining and negotiations take place, and it varies from company or plant levels to central, national level negotiation by peak organizations. Centralization and collective bargaining coverage rates are correlated in the sense that high coverage rates indicate more workers are covered by agreements bargained usually at the more central, national or industry, level rather than through individual agreements. Coordination on the other hand describes the degree of consensus between the

social partners taking part in bargaining. This can vary from fragmented bargaining with no coordination between the partners to high levels of coordination between partners, either informal or formal, that encompass a wide range of unions and employers. The bargaining power of unions or bargaining structures can influence shares of temporary employment in many ways. It may influence employers' ability to introduce various flexible contracts inside the labour market. It may also have an indirect effect on the development of temporary contracts through employment protection levels.

Unions oppose increases in flexible work contracts because they are destructive to industrial relations through their effect on segmentation of the workers (Delsen, 1995: 96). Since union membership is usually centred on permanent workers, and because flexible workers have different behavioural patterns and attitudes, rise in temporary jobs may result in decline in union membership (Delsen, 1995). Therefore, unions try to restrict the development of temporary workers in many countries, because a decline in union membership would in the long run decrease the overall strength of unions and their influence over society (Campbell, 2004; EIRO, 2002). There might also be a reverse causality in this relationship. While it may be that stronger unions will limit the development of temporary employment, employers might be able to introduce flexible contracts more easily where the bargaining power of unions is weak. It might be easier to increase temporary employment in countries with decentralized bargaining for there might be fewer restrictions on the use of different types of contracts. However, a more centralized and coordinated bargaining system can deal with the externalities by internalizing the costs that derive from it, compared to a decentralized, uncoordinated system. When wage bargaining is centralized and there is a high coverage rate of the bargaining outcomes, it is less clear who will benefit and be harmed from various consequences of various bargaining outcomes (OECD, 1997a:65). It is uncertain how this will affect the development of temporary jobs. However, there are examples of countries with highly coordinated social partners with centralized bargaining systems that have introduced various flexibility measures in the labour market to tackle the problem of unemployment. Denmark and the Netherlands both have unions with strong bargaining powers and long histories of negotiation between the social partners in the central level, but have also introduced flexibility in the labour market through various means including deregulating employment protection, with the aim of bringing down unemployment over the past decade (See Visser and Hemerijck, 1997; Madsen, 2003, 2004; Wilthagen and Tros, 2004). Also, in recent years, many unions have changed their perspective on the use of atypical employment, and rather than opposing the use of flexible employment contracts, they are addressing the problems that arise from the use of these job types such as wage and benefit discrimination (EIRO, 2002; Campbell, 2004).

Another way bargaining structures can affect the incidence of temporary employment is through employment protection. Employment stability through protection against dismissal is essential for workers and unions to gain bargaining power. If employment is not secured through regulations, and employers can fire workers easily, workers will not be able to put forward their say in the bargaining table. For this reason, stronger unions will strive to secure workers employment through strict regulations. This effect is likely to be stronger when union bargaining is centralized and unions are able take part in more macro policy decisions. Saint-Paul examines the political economy of unions in employment protection, using the balance between rent of job security, and gains from creative destruction, in other words, the gain from ease of workers moving into new high-tech, more productive industries (Saint-Paul, 2002). He concludes that employment protection is more likely to arise in countries with stronger unions, collective bargaining, and more stringent rules that enable workers to obtain their wage above their alternative wage (Saint-Paul, 2002:696). Also, because many unions concentrate more on the welfare of permanent workers, and regard temporary employment as path towards permanent workers (Delsen, 1995: Campbell, 2004), unions are likely to stress the rights of those with standard jobs. This may result in unions protecting regulations regarding permanent workers and not those on temporary workers.

Overall, strong unions with centralized bargaining are likely to be a factor promoting fewer temporary contracts. However, union strength may also increase the employment protection level, especially regulations on firing regular workers, thus increasing the level indirectly. Empirical studies show that collective bargaining coverage rate, and excess bargaining coverage rate[5] increase overall EPL (Buti et al., 1998:24~25; Chung, 2003:85). In a more direct relationship, union strength has a negative effect on temporary employment rates but this is mitigated by close coordination (Nunziata and Staffolani, 2001). Another analysis shows that higher collective bargaining coverage rates and wage floors accentuate the effect of employment protection for women, youth and immigrant workers, decreasing their probability of obtaining permanent employment (Kahn, 2005).

Unemployment benefit

Unemployment benefit generosity and duration can affect incentives for workers to take up temporary employment, in much the same way as they affect the unemployed in

[5] This is measured as the difference between collective bargaining coverage rate and union density (Buti et al., 1998:24).

taking jobs. Generous unemployment benefit with long duration and high replacement rate has been seen to increase the unemployment duration of its recipients (Danziger et al.,1981; Moffit and Nicholson, 1982; Moffit, 1985; Ham and Rea, 1987; Corson and Nicholson, 1988; Katz and Meyer,1990). However, this effect is disputed by Burtless (1990), Holumlund (1998), and Atkinson and Micklewright (1991), all of whom show that this is not always the case and that different countries tend to show different effects. Although generous benefits have been seen to make job searchers choosy by increasing their reservation wage and decreasing their job search efforts (Scarpetta, 1996:51~52; Nickell, 1997:67), it has also been suggested that they encourage unemployed workers to take up jobs better suited to their specific skills-set in the longer run, thus making their employment more sustainable (Yoo et al., 2002). Active labour market measures have also been seen to offset the effect generous benefit has on the unemployed by giving them incentives to go back into work (Nickell, 1997:57; Nickell, 2003b). If workers do loose incentives to take up jobs, especially low-paying jobs, this is likely to affect take up of temporary jobs more than permanent jobs. This is a consequence of the fact that temporary jobs usually have lower pay with lower benefits, and most temporary jobs are taken involuntarily (see Delsen, 1995; Güell, 2003; European Commission, 2002; Debels, 2004). Thus, generous replacement rates and longer duration of unemployment benefits will have a negative effect on the incidence of temporary employment. If the tax wedge is large this effect is likely to increase.

The tax wedge

The tax wedge is the difference between 'gross labour costs to employers and the wage paid to employees' (Scarpetta, 1996:53) and consists of income tax, employees' and employers' social insurance contribution (defined by the OECD, 2004c). The size of the tax wedge affects employment by increasing the labour costs, which impacts on the incentive for job creation, and thereby on labour demand (European Commission, 2004). This effect can be especially harmful for low-skilled workers or low wage workers. In countries with large tax wedges, employers are not able to reduce wages to compensate for an increase in the non-wage labour costs, especially when there is a binding wage floor through statutory minimum wages or negotiated minimum wages (Scarpetta, 1996; World Bank, 2005). As most temporary jobs are concentrated in low-wage jobs (OECD, 2002a; Caladrino and Gagliarducci, 2004; Debels, 2004), this means that employers will reduce temporary jobs in these situations. On the other side of the market, if the size of the tax wedge is large, there will be a gap between before and after tax wages. For the unemployed receiving generous

benefits, this might make them lose their incentive to participate in the labour market, especially if there is not much difference between after tax wages and benefit levels. Countries with large tax wedges usually have generous unemployment benefits, since the tax wedge, which includes social insurance contributions, to some extent represents the generosity of the social security system (Nickell et al., 2005). On the other hand, if temporary workers are excluded in the social insurance scheme, employers might have an incentive to employ workers on temporary contracts when insurance contributions are high[6].

The size of the tax wedge might also have different implications for different groups of the labour market. Bertola et al. (2002) found that labour taxes have positive effects on employment differentials between different groups in the labour market. They show how large tax wedges lead young workers and women to 'engage in their relatively more attractive non-employment activities such as education and home production' (Bertola et al., 2002: 27). The size of the tax wedge might influence the wage floors, and thus decrease the likelihood of obtaining permanent jobs, therefore increasing shares of temporary workers especially for the disadvantaged groups (Kahn, 2005).

Active labour market policy expenditure

There is also evidence that public employment programmes for workers, especially for those who are categorized as the disadvantaged in the labour market, might increase the overall level of temporary work (OECD 2002a; Dolado et al., 2001; Lechner et al., 2000). Many countries use public employment programmes that provide different groups, such as youth, female, low-skilled, long-term unemployed, with temporary work experience and job training to enhance their work abilities (OECD, 2002b). In addition, governments also subsidize the private sector to employ disadvantaged workers in temporary contracts as part of active labour market policy measures. Therefore, countries with lengthy temporary training programmes or temporary subsidized employment programmes will have higher levels of temporary workers, other things being equal. On the other hand, active labour market policies have been seen to off-set the effects of other labour market institutions. It can off-set the disincentives generous benefit systems have on employment through improving chances to obtain work and by providing greater efficiency in job matching (Scarpetta, 1996; Nickell, 2003a). This may affect temporary employment in the sense that it may increase the

[6] For example the Spanish government introduced social security contribution rebates to increase the transition of temporary contracts into permanent ones (see Dolado et al., 2001).

attractiveness of choosing temporary jobs compared to receiving benefits for the unemployed. Hiring subsidies can also offset the effect high wage costs or employment protection will have on employment (OECD, 2002b). Therefore, high expenditure on active labour market policies can be a factor explaining high levels of temporary employment of countries.

3. Explaining the cross-national variance in the incidence of temporary employment

3-1. Incidence of temporary employment

Table1 Incidence of temporary employment (as a percentage of the total dependant employment) of 19 OECD countries for 2003 (%)

Country	1985 (1)	1990 (2)	1997 (3)	2003 (4)	Change 1 to 4	Change 2 to 4	Change 3 to 4
US	-	-	4.6	4.0 [a]	-	-	- 0.6
Ireland	7.3	8.5	9.4	5.1	- 2.2	- 3.4	- 4.3
UK	7.0	5.2	7.4	5.8	- 1.2	0.6	- 1.6
Austria	-	-	6.6	7.2	-	-	0.6
Belgium	6.9	5.3	6.3	8.6	1.7	3.2	2.3
Norway	-	-	11.8	9.4	-	-	- 2.3
Italy	4.8	5.2	8.2	9.5	4.7	4.3	1.3
Denmark	12.3	10.8	11.1	9.6	- 2.7	- 1.2	- 1.5
Greece	21.1	16.5	10.9	11.1	- 10.0	- 5.5	0.2
Germany	10.0	10.5	11.7	12.2	2.2	1.7	0.5
Switzerland	-	12.6 [b]	10.9	12.3	-	- 0.4	1.4
Canada	-	-	11.3	12.4	-	-	1.1
France	4.7	10.5	13.1	12.6	7.9	2.0	- 0.6
Japan	10.2	10.6	11.0	13.8	3.6	3.1	2.8
Netherlands	7.5	7.6	11.4	14.6	-	7.0	3.2
Sweden	-	-	14.6	14.7	-	-	0.1
Finland	-	-	18.3	16.4	-	-	- 1.9
Portugal	14.4 [c]	18.3	12.2	21.0	6.6	2.7	8.8
Spain	15.6 [d]	29.8	33.6	30.6	15.0	0.8	- 3.0
Un-weighted average	10.1	11.7	11.8	12.2	2.4	1.2	0.3

Source: OECD(2004) *Labour Force Statistics 1983-2003*, Paris.
a : data for the US is for the year 2001.
b: data for Switzerland is for 1991
c: data for Portugal is for 1986
d: data for Spain is for 1987

Table 1 displays the incidence of temporary employment as a percentage of the total dependant employment for the year 2003 or the latest year. As we can see, the US, Ireland and the UK, the liberal welfare states have the lowest level of temporary employment, while Portugal and Spain have the highest levels. We cannot find a distinct cluster of the southern European countries, as Italy and Greece are in the middle of the distribution. Their levels of temporary workforce as a percent of total dependant workforce are similar to those of the continental, and northern European countries. A 'family of nations' pattern is not found for other countries as well, and mixed levels are displayed within the Nordic countries and the Conservative countries. As we can see in the next page this picture is similar to the EPL levels of countries. As for the changes in the shares of temporary jobs, as we can see there has been an increase overall, since the mid 1980s. However, some countries show decline in their shares, such as Greece, Denmark and Ireland, unlike in Spain and France, and to a lesser degree in the Netherlands and Portugal, there have been dramatic increases.

3-2. Evolution of EPL

The evolution of the strictness of EPL level for regular workers from the late 1980s to the year 2003 is displayed in Table 2 by order of their strictness for the year 2003. At a glance we can see that the liberal countries together with Denmark show low levels whereas for the other countries there is not a distinctive grouping of countries. The same can be said about the EPL levels for temporary workers. Liberal countries tend to show low levels of regulations and for the remainder of the countries, there is no clear pattern. However, contrary to most expectations, it is not the Southern European countries that have the most stringent levels of employment protection levels for permanent workers. Although this was the case in the late 1980s, Spain, Italy and Greece have all deregulated their employment protection legislation levels to some extent and now the Netherlands and Sweden manifest higher levels. As for the EPL for temporary workers, the southern European countries still hold their place with the most stringent levels, with the exception of Italy, which has experienced major deregulations over the past 15 years.

Table 2 The evolution of EPL for regular workers 19 OECD countries from late 1980s to 2003

Country	Late 1980s (1)	Late 1990s (2)	2003 (3)	Change (1) to (2)	Change from (2) to (3)	Change from (1) to (3)
United States	0.2	0.2	0.2	0.0	0.0	0.0
United Kingdom	0.8	0.9	1.1	0.1	0.2	0.3
Switzerland	1.2	1.2	1.2	0.0	0.0	0.0
Canada	0.9	1.3	1.3	0.4	0.0	0.4
Denmark	1.6	1.5	1.5	- 0.1	0.0	- 0.1
Ireland	1.6	1.6	1.6	0.0	0.0	0.0
Belgium	1.5	1.7	1.7	0.2	0.0	0.2
Italy	2.8	1.8	1.8	- 1.0	0.0	- 1.0
Finland	2.7	2.3	2.2	- 0.4	- 0.1	- 0.5
Norway	2.4	2.3	2.3	- 0.1	0.0	- 0.1
Austria	2.6	2.9	2.4	0.3	- 0.5	- 0.2
Greece	2.5	2.3	2.4	- 0.2	0.1	- 0.1
Japan	2.7	2.4	2.4	- 0.3	0.0	- 0.3
France	2.3	2.3	2.5	0.0	0.2	0.2
Spain	3.9	2.6	2.6	- 1.3	0.0	- 1.3
Germany	2.7	2.7	2.7	0.0	0.0	0.0
Sweden	2.8	2.9	2.9	0.1	0.0	0.1
Netherlands	3.1	3.1	3.1	0.0	0.0	0.0
Portugal	4.8	4.3	4.2	- 0.5	- 0.1	- 0.6
Un-weighted Mean	2.27	2.12	2.11	- 0.15	- 0.01	-0.16
Standard Dev	1.11	0.91	0.87			
Coefficient of variation	0.49	0.43	0.41			

Source: OECD (2004) *Employment Outlook*, (1999) *Employment Outlook* Paris
Note: The EPL index can have score from 0 to 6, with higher values representing more strict regulations.

The overall trend of the EPL levels is towards greater deregulation. EPL for regular workers on average dropped from 2.27 to 2.11 decreasing by 0.16 over the last 15 years or so. Regulations for temporary workers changed more dramatically, dropping from a score of 2.59 to 1.80, decreasing 0.79 over the years. Most of this change occurred between the late 1980s and the late 1990s, probably in response to the high unemployment rates of this period. The EPL change for temporary workers was biggest in Italy, Sweden, Belgium and Germany, all with the EPL index dropping 2 points or more. However, this does not entail deregulation in all countries. With closer inspection we can see that there have been increases in the strictness of EPL for both regular workers and temporary workers in several countries. This is

especially true for countries with low levels of EPL, although the biggest increase happened in France which had stringent employment protection levels for temporary workers even in the late 1980s. The countries showing the biggest decrease in their indices were those with the highest levels of protection, with the exception of France.

Table 3 The evolution of EPL for temporary workers 19 OECD countries from the late 1980s to 2003

Country	Late 1980s (1)	Late 1990s (2)	2003 (3)	Change from (1) to (2)	Change from (2) to (3)	Change from (1) to (3)
Canada	0.3	0.3	0.3	0.0	0.0	0.0
United States	0.3	0.3	0.3	0.0	0.0	0.0
United Kingdom	0.3	0.3	0.4	0.0	0.1	0.1
Ireland	0.3	0.3	0.6	0.0	0.3	0.3
Switzerland	0.9	1.1	1.1	0.2	0.0	0.2
Netherlands	2.4	1.2	1.2	- 1.2	0.0	- 1.2
Japan	2.3	1.6	1.3	- 0.7	- 0.3	- 1.0
Denmark	2.6	1.4	1.4	- 1.2	0.0	- 1.2
Austria	1.8	1.5	1.5	- 0.3	0.0	- 0.3
Sweden	4.1	1.6	1.6	- 2.5	0.0	- 2.5
Germany	3.8	2.3	1.8	- 1.5	- 0.5	- 2.0
Finland	1.9	1.9	1.9	0.0	0.0	0.0
Italy	5.4	3.6	2.1	- 1.8	- 1.5	- 3.3
Belgium	4.6	2.6	2.6	- 2.0	0.0	- 2.0
Portugal	3.4	3.0	2.8	- 0.4	- 0.2	- 0.6
Norway	3.5	3.1	2.9	- 0.4	- 0.2	- 0.6
Greece	4.8	4.8	3.3	0.0	- 1.5	- 1.5
Spain	3.5	3.3	3.5	- 0.2	0.2	0.0
France	3.1	3.6	3.6	0.5	0.0	0.5
Un-weighted Mean	2.59	1.99	1.80	- 0.61	- 0.19	- 0.79
Standard Dev	1.64	1.31	1.06			
Coefficient of variation	0.63	0.66	0.59			

Source: OECD (2004) *Employment Outlook*, (1999) *Employment Outlook* Paris

Note: The EPL index can have score from 0 to 6, with higher values representing more strict regulations.

These changes combined show somewhat of a convergence of EPL levels, both for regular workers and temporary workers, throughout the examined countries. This is confirmed by the standard deviation and coefficient of variation scores for EPL levels

presented at the last two rows of the tables above. For permanent workers, the coefficient of variation score drops from 0.49 to 0.41 for the 15 years or so, while for temporary workers the convergence is less distinctive as the coefficient variation score dropped from 0.63 to 0.59[7]. Although the standard deviation of EPL for temporary workers did decrease more than EPL for regular workers, for there was a general decrease in the EPL index for temporary workers overall, the coefficient of variation score does not change much.

Another important point to note here is that, if deregulating EPL was a response to persistent unemployment, most governments chose to tackle this problem by reforming temporary employment legislation rather than regulations pertaining to permanent employment. This is shown by the more dramatic change in EPL for temporary workers. This phenomenon only happened in countries with high levels of protection. Obviously in countries that had deregulated markets there would not have been need for deregulation, while in countries with high regulations, deregulation of employment legislations was the most common prescription taken up by governments for their labour reform[8].

3-3. Bi-variate analysis of EPL and temporary employment

The bi-variate correlation of EPL and shares of temporary jobs in a country can be seen by examining the scatter plots given in Figure 1. Although there is not a definite clustering, some patterns among the countries do exist. Firstly, examining the relationship between EPL for regular workers and temporary employment, Spain and Portugal display both high EPL levels and high levels of temporary employment. Liberal countries, including the US, the UK and Ireland are to be found on the opposite end of the spectrum with low levels of both indices. This is also true for EPL for temporary work and the incidence of temporary employment. For other countries, there are no particular clusters of countries.

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[7] This convergence might be from the pressures governments with high regulations face by the international organizations or liberal economists who point to employment regulations as the reason for the high persistent unemployment rates. However, this might also be an effect of the convergence among EU countries from the EU regulation standardization process. We do not go on this matter further here.

[8] EPL change for temporary workers is strongly negatively correlated (-.77) to EPL levels for temporary workers in late 1980s with high significance (.000 level) and EPL change for regular workers is strongly negatively correlated (-.66) to EPL levels for regular workers in late 1980s with high significance (.009 level).

Overall both EPL for regular workers and EPL for temporary workers explain a large extent of the cross-national variance in the incidence of temporary employment[9].

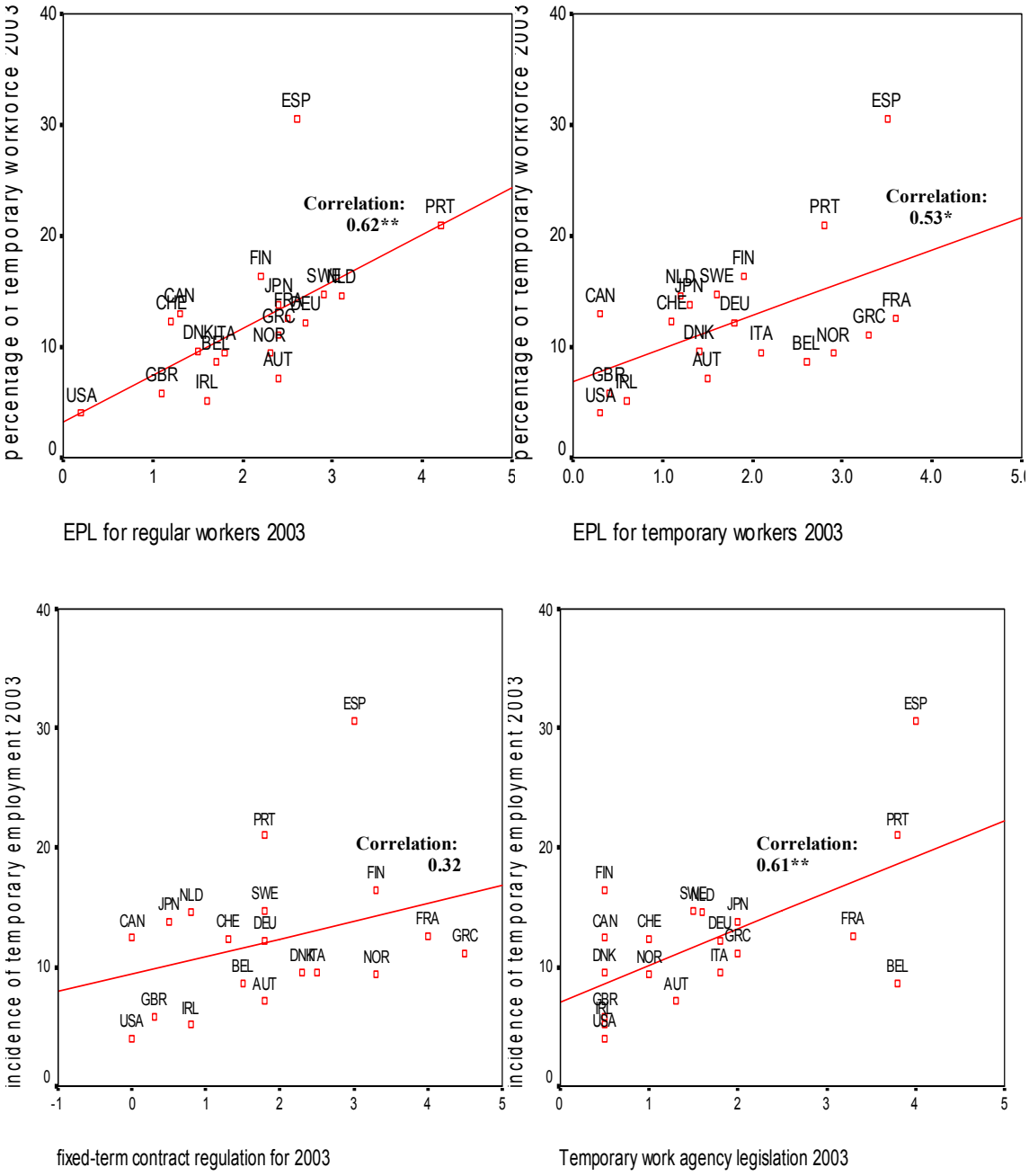

Figure 1 Scatter plot of various indicators of employment protection and the incidence of temporary employment in 19 OECD countries

Source: Data on EPL levels are from Table 2, 3 data on temporary employment levels are from Table 1. Data on fixed-term contract regulations and TWA legislations are from Annex 3.

** : Significant at the 0.01 level / * : Significant at the 0.05 level

[9] The R square scores for the plots are .375 for the plot with EPL for regular workers and .271 for the plot with EPL for temporary workers.

The strong positive relationship between the strictness of EPL for regular workers and the extent of temporary employment accords with our hypothesis. On the other hand, the effect of EPL for temporary workers and its disaggregated indicators, fixed-term contract regulations and TWA legislations, seem not to comply with our predictions. As we can see in Figure 1 and Table 4, contrary to our assumption, temporary employment shares are positively correlated with the strictness of EPL for temporary workers, and its disaggregate indices. This may be a consequence of the fact that in the countries where EPL for regular workers is strict, EPL for temporary workers is also strict.

Table 4 Correlation between incidence of temporary employment and various disaggregate indicators of EPL of 19 OECD countries for 2003

	incidence of temporary employment
EPL for regular workers 2003	0.62**
EPL for temporary workers 2003	0.53*
Fixed-term contract regulation 2003	0.32
Temporary work agency legislation 2003	0.61**
Relative strictness of EPL for regular workers	- 0.12

Correlations are Pearson's R correlation.
** : Correlation is significant at the 0.01 level (2-tailed)
* : Correlation is significant at the 0.05 level (2-tailed)
Source: Data on EPL levels are from Table 2, 3 data on temporary employment levels are from Table 1.

Table 5 confirms this by displaying a positive correlation between EPL for regular workers with EPL for temporary workers, and its disaggregate indices. This suggests that temporary employment levels are actually affected more by the EPL of regular workers rather than the EPL of temporary workers. This outcome fits in with the findings of Dolado et al. (2001), Booth et al. (2002), and Kahn (2005), that the temporary EPL index does not play any role in explaining the extent of temporary jobs in a country and that the genuine determinant of the share is the EPL for regular workers. However, for concrete evidence it is worthwhile to examine how EPL for temporary employment and its disaggregated indices affect the shares of temporary employment. It is especially important to see whether EPL indices of temporary employment have any effect on the incidences of temporary employment controlling for the strictness of EPL for regular workers. This will be done in the later sections.

Lastly, Table 4 shows the correlation between the relative strictness of EPL for regular workers compared to temporary workers effect the incidence of temporary

employment. As we can see it also has no effect on the shares of temporary work, unlike the findings from the OECD (2004a) where it showed significance in explaining the incidence of temporary employment in total employment, youths and the low-skilled[10].

Table 5 Correlation between EPL for regular and EPL for temporary workers and its disaggregate measures of 19 OECD countries for 2003

	EPL for regular workers
EPL for temporary workers 2003	0.58**
Fixed-term contract regulation 2003	0.39
Temporary work agency legislation 2003	0.58**

Correlations are Pearson's R correlation.
** : Correlation is significant at the 0.01 level (2-tailed)
* : Correlation is significant at the 0.05 level (2-tailed)
Source: Data on EPL levels are from Table 2, 3

3-4. Bi-variate analysis of competing factors and the incidence of temporary employment

The correlation table of variables suggested to influence the incidence of temporary employment is displayed in Table 6[11]. As the table shows, only the ten year average unemployment ratio, used here to indicate recession, and agriculture as a percentage of dependant employment exhibit significant relationships with the use of temporary work. From this we can expect these variables to be an important factor in explaining the variance in temporary employment.

Recession is measured by GDP growth and unemployment rate average for the past 10 years. The two recession variables do not represent the same phenomenon and are not correlated. This is a consequence of the fact that economic growth can no longer be translated to good labour market performance. Countries with low economic growth may have, and have had low unemployment, like Switzerland and Japan, while high economic growth does not necessarily improve the unemployment situation, such as in Spain. For this reason, we explore the two recession variables separately, one representing the economic situation while the other represents the labour market situation. In any case, their effect on temporary employment seem to accord to the assumptions. Unemployment ratio average for the past

[10] The analysis done by the OECD incorporates labour market institution variables such as output gap, tax wedge, coordination dummy, expenditure on ALMP per unemployed, and constant term, and uses a pooled data of 16(14 for youth and low-skilled) countries.
[11] For a more information about the variable definition and sources see Annex 1.

decade has a highly significant positive relationship with the incidence of temporary employment. However, this direct correlation is driven by Spain. Spain has the highest average unemployment rate of 17.0 percent and also the highest incidence of temporary employment of 30.6 percent. Agricultural employment also displays a significantly positive relationship with the incidence of temporary employment. It confirms the assumption that countries with large concentration of workers in the agriculture industry will have large shares of temporary workers.

Table 6 Correlation between temporary employment and various explanatory variables of 19 OECD countries

	Incidence of temporary employment 2003
FDI as percentage of GDP 5 year average [a]	0.01
Share of trade as percentage of GDP 5 year average	- 0.19
Real GDP growth rate 10 year average	- 0.18
Unemployment ratio 10 year average	0.55*
Agriculture percentage of dependant employment 2003 (N=17) [b]	0.55*
Service percentage of dependant employment 2003 (N=17) [b]	- 0.43
Union density average 1990, 2000	- 0.18
Collective bargaining coverage for 1990, 2000 (N=17)[d]	0.25
Centralization of wage setting 1990 to 2000 (N=18)[e]	0.27
Coordination of wage setting 1990 to 2000 (N=18)[e]	0.10
UB Gross benefit replacement rate 2001	0.16
UB Benefit duration 2002	0.15
Tax wedge for 2003	0.09
ALMP as percentage of GDP 2002 [c]	0.15
Employment generation as percentage of GDP 2002/01 [c]	0.09

Correlations are Pearson's R correlations.
** : Correlation is significant at the 0.01 level (2-tailed)
* : Correlation is significant at the 0.05 level (2-tailed)
Source: OECD (2004) *Labour Force Statistics, 1983-2003*, Paris; OECD Labour Force Indicators; OECD Fact Book; OECD (2004) *Employment Outlook*, Paris. OECD (2004) *Taxing Wages 2002~2003,* OECD (2004) *Benefit and Wages*. (See Annex 1 for more detail)
a: 1) For Belgium the average is for 2002 and 2003
2) For Netherlands, Switzerland and the US the average is from 1999 to 2002.
b: Data for Switzerland and Belgium is not available.
c: For Canada, Denmark, Greece, Ireland, Portugal, data used is from the latest year.
d: Data for Greece and Ireland is not available.
e: Data for Greece is not available.

Not only do the majority of variables not exhibit significant relationships, but also in most cases the direction of the relationships also does not appear to fit with our hypothesis. It

was assumed that globalization would increase the need for flexibility in the labour market, and have a positive relationship with the incidence of temporary employment. However the opposite holds true according to the relationship between incidence of temporary employment and share of trade, which is used to measure globalization. This is an outcome of Belgium and Ireland, and to some extent Austria, since all three countries are very dependant on international trade and have low levels of temporary employment. The percentage of employment in the service sector also shows an outcome discordant with the hypothesis. Unlike our assumptions, countries with high employment in the service sectors show low shares of temporary employment. This is a consequence of the fact that Liberal and Nordic countries have high levels of service sector employment as a percentage of dependant employment while not having such high incidences of temporary employment. On the other hand, Spain and Portugal have low levels of service sector employment while having high incidences of temporary employment. Also contrary to the hypothesis set above, generous unemployment benefits and high tax wedges show positive correlations with temporary employment shares. However, none of these variables show statistical significance in the relationships and all have very low coefficients, which make them negligible.

Bargaining structure and union strength variables also disaccord with our hypotheses. Although the strength of the relationship is weak and insignificant, centralization of bargaining and collective bargaining coverage rate both show positive correlations with shares of temporary employment. This can be interpreted as some countries that have strong unions with centralized bargaining, and have centralized bargaining have higher temporary employment levels, which contradicts our hypothesis. In closer inspection, we can see that collective bargaining coverage rates and centralization of wage setting both have significant positive relationship with EPL for regular workers[12]. As suggested, this shows that countries with stronger unions and centralized bargaining have more stringent EPL levels. Based on this outcome, we can say that the association of the two bargaining variables show that the incidence of temporary employment is actually the relationship between EPL with the bargaining variables. In other words, these two bargaining variables can be expected to have an indirect effect on the incidence of temporary employment through EPL for regular workers. However, collective bargaining coverage rate and centralization of wage setting are highly correlated with each other (.72 in .001 level), so one would expect only one of the two will display a significance in the multi-variate analysis.

[12] Collective bargaining coverage rate show a .55 correlation in the .023 level and centralization of wage bargaining from 1990 to 2000 show a .53 correlation in the .024 level with EPL for regular workers.

Although bi-variate correlations do show us a glimpse of the relationships between the factors investigated with the shares of employment, because other factors have not been controlled for, further investigation is needed to come to a more concrete conclusion.

3-5. Best fit model in explaining cross-national variance of temporary employment

In this section, we seek to find the best-fit model that can account for the variance in the incidence of temporary employment for 2003. To do this, I first ran stepwise regressions to test which of the variables with missing country cases have significant effects and enters into a successful model in explaining the cross-national variance of incidence of temporary employment. The results of this shows that none of the variables contribute significantly to the model, with the exception of collective bargaining coverage rate in the analysis of 17 countries. For this reason, I find a model that use all 19 country cases with the highest explanation power and then found another model that incorporates the collective bargaining coverage rate which explains the variance for 17 country cases.

Table 7 Best-fit multi regression model for the incidence of temporary employment for 19 OECD countries for 2003

	Model 1			Model 2		
	Coefficient	Std. Error	T-score	Coefficient	Std. Error	T-score
(Constant)	- 2.473	3.061	- 0.808	10.614	4.849	2.189*
EPL for regular workers 2003	3.844	1.083	3.549**	4.124	0.923	4.469**
unemployment ratio average 94-03	0.857	0.279	3.072**	1.196	0.252	4.748**
Real GDP growth rate average 94-03				- 1.594	0.622	- 2.563*
tax wedge for 2003				- 0.302	0.107	- 2.819*
Adj. R^2	0.56**			0.71**		

** : Significant at the 0.01 level

* : Significant at the 0.05 level

The best-fit models which explain the cross-national variance in the incidence of temporary employment of 19 OECD countries for the year 2003 are displayed in Table 7. As we can see there are two models, one representing the one with the highest explanatory power and the other which is more robust and is not susceptible to change when certain country cases are taken out of the analysis. Model 2 explains 71 percent of the variation, while Model 1 explains 56 percent. As both models show, stringent EPL for regular workers increases the shares of temporary employment. A long streak of bad labour market conditions, indicated here as the average unemployment rate for the past decade, is another factor that explains high levels of temporary work. Economic recession, represented here as the GDP growth rate average for the past ten years, and the tax wedge are also determinants in explaining the cross-national variance as we can see in Model 2. However, the two variables are significant only if both are included in the model and cease to be so if either one is excluded. Controlling for other factors, countries with high tax wedges have low incidence of temporary employment, as predicted in the hypothesis. This is probably through decreasing labour market participation incentives from the decrease in the difference between after tax wage and benefit levels. However, this can also result from a decrease in low-wage, low-skilled jobs on the demand side from the increase in labour costs to the employer, thus affecting the demand for temporary jobs. Also, countries with economic recession in the past 10 years have higher incidences of temporary employment which also accords to our predictions and preliminary studies. EPL for regular workers is the strongest factor in explaining the variance in the incidence of temporary employment across 19 OECD countries. This changes when other factors, GDP growth rate and the tax wedge, are controlled for and average unemployment rate becomes the strongest factor.

The models in the table 8 show the best-fit regression models for 17 countries, excluding Ireland and Greece. Model 1 is still valid even when two country cases are excluded, while Model 2 looses its robustness. In the case of 17 countries, a new model, Model 3, is found, which includes collective bargaining coverage rate average for 1990 and 2000. Even so, EPL for regular workers is still the foremost important determinant in the incidence of temporary employment with unemployment rate average being the second. In addition, Model 3 shows that countries with collective bargaining systems that cover a larger number of workers have a lower incidence of temporary employment. This has two implications. First of all, high coverage rates of collective bargaining might imply that there is a set wage floor that covers a wide population of workers. The result can than be interpreted as that in countries that have wage floors that cover large number of workers and are set at the central level, employers will cut low-wage, low-skilled jobs. Since low-wage, low-skilled jobs are usually temporary jobs, the shares of these jobs will decrease. On the other hand, if

we consider collective bargaining coverage rate as an indicator of union strength, the model result implies that stronger unions will stop the increase of flexible employment contracts due to these contracts being an impediment to union strength and bargaining power. There might be a reverse relationship, where, for countries with high shares of temporary employment for 2003 have had high shares during the 1990s and this might have decreased the collective bargaining coverage rate. On the other hand, as mentioned before, collective bargaining coverage rate has a strong correlation with the EPL level for regular workers.

Table 8 Best-fit multi regression model for the incidence of temporary employment for 17 OECD countries for 2003 (Excluding Greece and Ireland)

	Model 1			Model 3		
	Coefficient	Std. Error	T-score	Coefficient	Std. Error	T-score
(Constant)	- 3.201	4.023	- 0.796	- 0.226	2.729	- 0.083
EPL for regular workers 2003	3.696	1.197	3.088**	5.050	1.096	4.609**
unemployment ratio average 94-03	1.198	0.491	2.440*	1.127	0.254	4.446**
collective bargaining coverage average				- 0.095	0.042	- 2.276*
Adj. R^2	0.50**			0.70**		

** : Significant at the 0.01 level
* : Significant at the 0.05 level

Based on this, a critical path analysis is elaborated to see the indirect effect collective bargaining coverage will have on temporary employment. This analysis enables us to examine the interconnections amongst the independent variables in the model, thus permitting us to distinguish direct and indirect effects (Castles, 2004:111). Here the standardized regression coefficients are given to show 'the strength of association and sequences of the variables included in the model' (Castles, 2004:111).

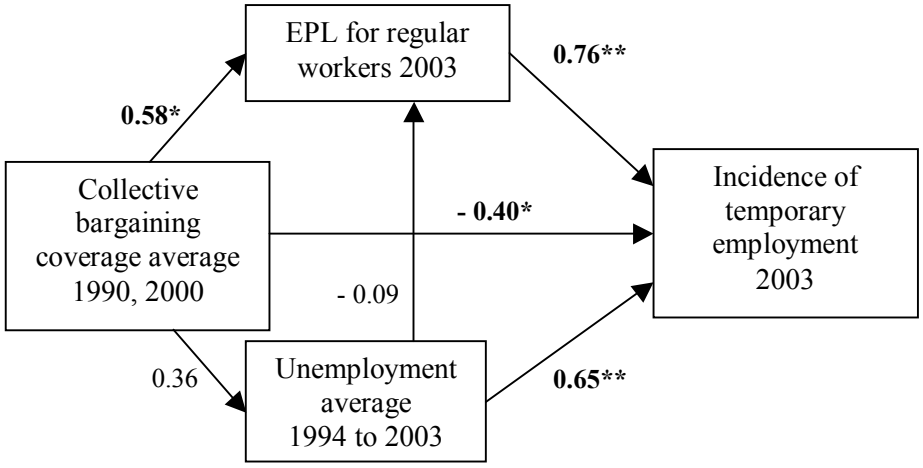

Figure 2 Critical Path analysis of the incidence of temporary employment of 17 OECD countries for 2003

Note: The figures in the diagram represent standardized regression coefficients.

** : Significant at the 0.01 level

* : Significant at the 0.05 level

As we can see from the diagram collective bargaining coverage rate has a direct negative effect on the incidence of temporary employment. However, it also displays a highly positive effect on the levels of regulations on firing regular workers which is the foremost important determinant explaining for the incidence of temporary employment as shown by the standardized coefficient. In this sense, union strength not only has a direct negative but also an indirect positive impact on the shares of temporary employment. Based on this model, strong unions with centralized bargaining will stop the development of temporary employment. However, they will also increase, or have increased in the past[13], the level of regulations on firing workers on regular contracts which has a larger positive effect on the incidence of temporary employment. In other words, although unions will try to stop the development of temporary employment, their influence on employment protection outweighs this effect. The result is that collective bargaining coverage rate has a positive relationship with the shares of temporary employment in the bi-variate analysis as seen in Table 6. Collective bargaining coverage rate also has a positive effect on the unemployment rate average but is insignificant so we do not go on further.

[13] The reason for this is that collective bargaining coverage rate, centralization and coordination indices all show negative correlation with the change in the regulations for regular workers although none of the relationship is significant. From this we can infer that the effect unions or the bargaining systems had on EPL happened before the late 1980s.

Robustness of the Model

Lastly, the robustness of the models is tested to see if they are susceptible to change when any country cases are taken out. This is done to examine if any of the models might be a single country dependant, and loose their stability when that case is taken out of the analysis. For Model 2, average GDP growth rate becomes insignificant when Ireland is taken out, to a .522 significance level[14]. In the case of Model 1, average unemployment ratio loses its significance in explaining the variance of temporary employment when Spain is taken out (significant at the .581). For Model 3, there are minor changes in the significance level of collective bargaining coverage rate when specific countries cases are taken out, but even so, the variable is significant at 10 percent or higher. Also in Model 3, like Model 1, unemployment rate average becomes insignificant (significant at the .114) when Spain is taken out of the analysis. In conclusion, the most robust model in explaining the cross-national variance in the level of the incidence of temporary employment in the OECD countries is as below. It consists only of a EPL for regular workers and a constant term yet explains approximately 35percent of the variance.

Temp emp. = 3.167[2.997] + 4.257***EPL for regular workers** [1.315]**

(Adj. R^2= 0.345)

- Numbers represent the regression coefficients and the numbers inside the [] represents the standard error.

** : Significant at the 0.01 level

* : Significant at the 0.05 level

EPL for temporary workers and temporary employment

In the literature examined in section 2-4, it was predicted that EPL for temporary workers will also have an effect on the shares of temporary jobs in the economy. The hypothesis is that strict rules regarding the use of temporary contracts will decrease their use. However, as seen in the bi-variate analysis in Table 4, the EPL for temporary workers and the

[14] The significance of the average unemployment rate and tax wedge looses its significance when Spain is taken out, and average GDP growth rate is also susceptible to change when Switzerland is taken out but these are minor changes in the significance level and all variables are significant at least 90 percent.

disaggregate indices show positive relationships with shares of temporary workers which contradicts the predictions. Furthermore, the EPL indices regarding temporary contracts also displayed positive relationships with EPL for regular workers. This implies that they might have a negative effect on the incidence of temporary employment, but it is rather insignificant compared to the effects of EPL for regular workers. Likewise, it has also been suggested that the combination of stringent regulations on permanent workers and relaxed regulations on temporary workers will increase the share of temporary jobs.

This hypothesis is tested by incorporating EPL for temporary workers and its disaggregated indices into the model found in the section above. As we can see in Table 9, contrary to the hypothesis, EPL for temporary workers and TWA legislation both show positive relationships with the incidence of temporary employment. However, they are insignificant in explaining the cross-national variance of temporary employment and even decrease the explanatory power of the model. Regulation on fixed-term contracts displays a negative relationship which agrees with the hypothesis, but this relationship proves to be insignificant as well. These results tells us that even if EPL for regular workers is controlled for, EPL for temporary workers, TWA legislation and fixed-term contract regulations do not have much effect on the shares of temporary employment. It also shows us how fixed-term contract regulations and TWA legislations might have different implications and impacts on the shares of temporary employment, which needs further investigation.

Lastly, the relative strictness of EPL for regular workers was tested to see if it could explain for the high incidences of temporary employment. As the results show in Table 10, relative strictness of EPL for regular workers compared to that of temporary workers is also insignificant in explaining for the cross-national variance in shares of temporary employment. The same results occur when relative strictness of EPL is tested in the robust model excluding EPL for regular workers. Not only is relative strictness of EPL insignificant in explaining for the variance of temporary employment, it reduces the explanatory power of the model.

Table 9 Regression results of the combination effect of EPL for regular workers and various EPL regulations for temporary workers on the incidence of temporary employment of 2003 in 19 OECD countries

	Coefficient	Std. Error	T-score	Coefficient	Std. Error	T-score	Coefficient	Std. Error	T-score
(Constant)	- 2.743	3.243	- 0.846	- 2.989	3.079	- 0.971	- 1.878	3.255	- 0.577
EPL for regular workers 2003	4.138	1.397	2.962**	4.334	1.166	3.718**	3.325	1.370	2.428*
unemployment from 1994 to 2003	0.921	0.340	2.709*	1.027	0.318	3.233**	0.769	0.316	2.434*
EPL for temporary workers 2003	- 0.462	1.326	- 0.349						
Fixed-term contract regulation for 2003				- 0.974	0.889	- 1.095			
TWA legislation 2003							0.698	1.089	0.641
Adj. R	0.54**			0.57**			0.55**		

** : Significant at the 0.01 level
* : Significant at the 0.05 level

Table 10 Regression results of the combination effect of EPL for regular workers and relative strictness of EPL on the incidence of temporary employment of 2003 in 19 OECD countries

	Coefficient	Std. Error	T-score	Coefficient	Std. Error	T-score
(Constant)	- 2.567	3.336	- 0.769	4.763	3.322	1.434
EPL for regular workers 2003	3.848	1.120	3.438**			
unemployment from 1994 to 2003	0.862	0.293	2.939**	0.977	0.377	2.589*
Relative EPL for regular workers	0.090	1.032	0.088	- 0.059	1.334	- 0.044
Adj. R	0.53**			0.22		

** : Significant at the 0.01 level
* : Significant at the 0.05 level

Overall, from the models presented above the following conclusions can be made. Employment protection legislation for regular workers is the foremost important determinant in explaining the cross-national variance in temporary employment. It is also the most robust variable in explaining the variance and is not susceptible to change by excluding certain country cases. Bad labour market conditions, presented here as the average unemployment rate for the past 10 years, also appears to be a strong factor, and is the strongest when some other factors are controlled for. Yet its explanatory power is weaker than that of EPL for regular workers when used alone in the bi-variate model and explains only 26.4 percent of the cross-national variance. Furthermore, it can be perceived to be the factor that accounts for the high incidence of temporary employment in Spain. High tax wedges in bad economic situations can also decrease the shares of temporary employment levels probably through increase in labour costs or though decreasing incentives of workers. Countries with high collective bargaining coverage rates will have lower shares of temporary employment while increasing the levels of EPL for regular workers.

Globalisation, deindustrialization, unemployment benefit systems and government spending on labour market policies all have no significance in explaining cross-national variance. One explanation might be that these factors do not have any effect at all. It could also mean that these factors do not have direct effects but have an indirect effect over temporary work. However, none of the correlations between these variables and EPL for regular workers are of any significance. Further investigation will be needed for a definite conclusion[15]. It is important to note that it is the employment protection of regular workers that explains the relative share of temporary jobs across countries, and not the EPL for temporary workers, or any of its disaggregate indicators, nor the relative strictness of the EPL for regular workers. The most important factor in explaining high shares of temporary contracts is the cost of firing regular workers. It is more important than the difficulty in employing temporary workers, whether it may be fixed-term or temporary agency workers.

4. Two paths towards flexibility and their implications

Based on the results of the relationship between employment protection and the shares of temporary employment, it is conceivable that there are two different ways countries

[15] For example, unemployment benefit and EPL have been referred to as 'functional equivalent' policies in protecting workers by numerous studies. Most of these studies examine the overall EPL and also have a more comprehensive measurement of UB. For more see Buti et al.(1998), Auer and Cazes (2003a), Chung (2003).

introduced flexibility in their labour markets. Countries with low employment protection for permanent workers achieve flexibility through regular contracts, for employers are able to hire and fire permanent workers easily. In countries with high employment protection for permanent workers, workers on permanent contracts are protected from the instability of the labour market, while there is an increase in flexibility through introducing other flexible employment such as temporary jobs, even if there are stringent rules that restrict employers from using temporary contracts. In fact, in countries with very relaxed employment protection for permanent contracts, employers would not need these new types of flexible jobs, for they can use the permanent contracts in the same way employers in countries with high firing costs for permanent workers use temporary contracts. For example, in Britain, there is no statutory definition of either temporary or permanent work, although temporary work refers to contracts with short duration and fixed period of time. However, to claim unfair dismissal and statutory redundancy pay, there is a 12 month qualification period of continuous employment (EIRO, 2002), which makes permanent workers that have been employed less than a year as vulnerable as temporary workers. As a result, countries with high levels of temporary jobs do not have high shares of workers with tenure of less than one year. As we can see in Figure 3, the US, with the lowest share of temporary employment, has the highest shares of workers with tenure less than one year. Spain's share of workers with tenure of less than one year is lower than its share of temporary workers, which indicate that those on temporary contracts may be on contracts with long duration or on consecutive contracts.

If we consider this, it is hard to say which country has a more flexible labour market. For employees, being employed in a flexible open ended contract where employers can fire workers without any additional costs, or being in a renewable temporary contract may have the same implications. Although there are problems that arise with temporary employment such as training opportunities, pay gap and the entitlement to social security and other fringe benefits, many of the same problems will arise with workers in open ended contracts with low tenure, since many of these problems arise due to lack of seniority (See EIRO, 2002). The working and employment conditions vary between countries and the difference between short-term open-ended contracts and temporary employment will vary accordingly.

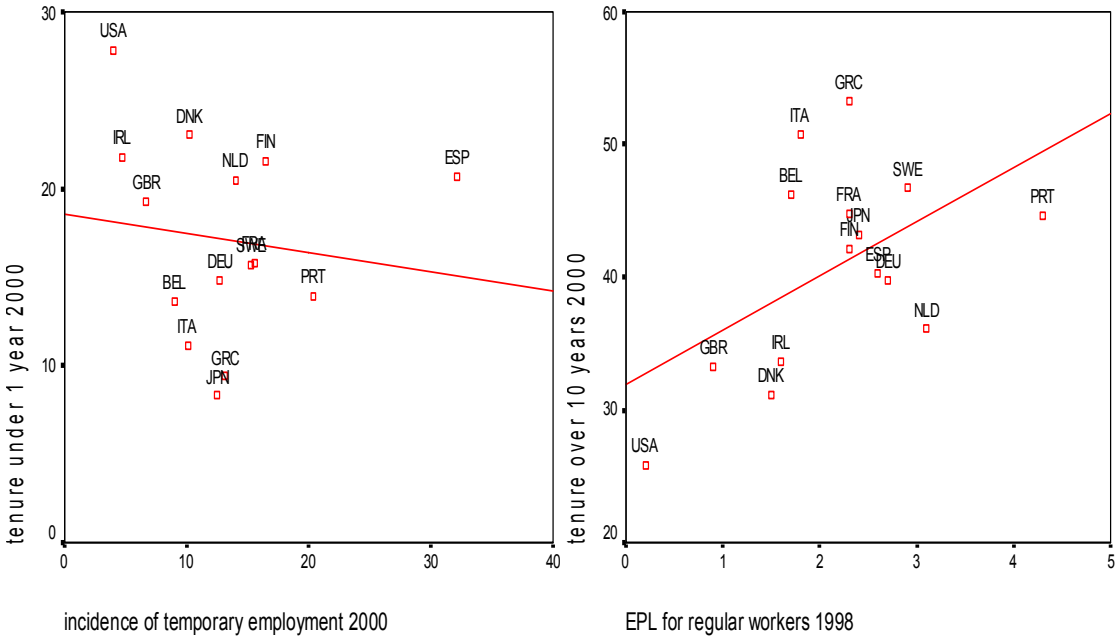

Figure 3 Scatter plot of incidence of temporary employment, EPL for regular workers and shares of workers with tenure of less than one year and ten years or over

Source: Data on temporary employment levels are from Table 1, data on tenure is from Auer and Cazes, (2003b)

The important difference between the two types of countries depending on their level of employment protection is their protection of core workers. Countries with high EPL for permanent workers have higher percentage of workers with tenure of ten years of more. As we can see from Figure 3 above, countries with relaxed regulation on firing regular workers show an overall balanced distribution of workers between tenure. These countries include the US, Ireland, the UK with Denmark. On the other hand, in countries that have a mixture of stringent protection and temporary work, there is a segmentation of workers where a large portion of its workers are in insecure work contracts and another large portion is secured through high levels of EPL. Cahuc and Postal-Vinay calls this as an "evolution toward a more flexible labour market […] to bring down unemployment without harming the so-called 'insiders' who are protected by high job security" (Cahuc and Postal-Vinay, 2001:1; for similar studies see Bentolila and Dolado, 1994; Saint Paul, 1996). However, a closer inspection will be needed for further conclusions.

5. Conclusion

In conclusion, there are two different ways flexibility has been introduced into the labour market in the past two decades. One way was to introduce flexibility throughout the market by using relaxed regulations on firing regular workers, whereas the other includes securing the core workers through high firing cost for regular workers while allowing for flexibility through the use of temporary employment. This development of temporary employment has been enforced by bad labour market situations and high tax wedges in adverse economic conditions. Also countries with high collective bargaining rates seem to have a negative impact on the share of temporary employment while having a positive effect on EPL for regular workers thus having mixed effects. This indicates that unions might be faced with the dilemma of either choosing an increase in the shares of temporary employment from maintaining strict restrictions against firing permanent workers, or agreeing with deregulation thus decreasing the shares of temporary jobs. In a sense this is a dilemma of what extent workers are willing to share the instabilities among each other. It might be that instabilities or insecurity can be shared throughout the market, or unions might choose to secure the core while exposing the others to the increase flexibility. However, there are other implications with the deregulation of employment protection other than the increase of temporary employment, and decisions must be taken carefully.

Which of the two paths towards flexibility performs better is yet to be seen, although many studies have already pointed towards the deregulated market with lower firing costs as the better performer based on its economic growth and employment generation rates (for more see OECD, 2005). However, not only economic performance but also social outcomes must be taken into consideration when evaluating the performance of the different systems. More studies on the difference in the situations and working conditions between the flexible permanent workers and temporary workers are also needed. In most studies it is perceived that permanent work in different countries have similar implications, and temporary work being the same across countries. However, simply looking at the security provided by legislative factors, we can see that permanent work in some countries(for example the UK) might be as insecure as temporary jobs in others(for example Spain). The last point to make is that as we can see in this paper, the notion of 'flexibility' needs to be taken with precaution. Even if we are only considering numerical flexibility there are many other things to be taken into consideration. Low protection levels cannot be automatically perceived as being part of the flexible market, while high levels do not necessarily imply a rigid market.

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[Annex 1] Data definition and sources

Levels of temporary employment

- Operational variable: incidence of temporary employment as a percentage of dependant employment (%)

- Definition: forms of dependant employment which do not offer workers the prospect of a long-lasting employment relationship and has limited duration (OECD, 2002a). Although fix-term contracts are the biggest share of this type of employment it also entails temporary agency workers, contracts for a specific task, replacement contracts, seasonal work, on-call work, daily workers, trainees, persons in job creation schemes and etc.. The specific sub-category list of jobs included in this statistic does differ between individual countries and the levels are somewhat based on national data sources and practices (OECD, 2002a).

- Source: OECD Labour Force Statistics 2004 (Initial source: Most data are based on National or European Labour Force Survey)

- Note: Data used here are for the year 2003 with the exception of the United States which the latest data available was for the year 2001.

Employment Protection Legislation

- Operational variable: EPL for regular workers, EPL for temporary workers, regulations on fix-term contracts, TWA regulations

- Definition: Employment protection legislation is the regulations that concern hiring and firing of workers on both permanent and temporary contracts (OECD, 1999:50)[16]. To test how different regulations levels for different contract types, or how the combination of these will affect temporary employment levels we do not use the overall EPL level in the analysis. Instead we disaggregate the index to EPL for regular workers and EPL for temporary workers, and disaggregate the latter into regulations for fixed-term contracts and TWA regulations. All EPL indices are for the year 2003. Also the change of EPL for temporary workers from the late 1980s to

[16] For further information on specific scoring and weighting of the indices see Annex 2.

2003 is used to examine how deregulation of EPL effects the cross-national variance of temporary employment.

- Source: OECD Employment Outlook 1999, 2004

Globalization

- Operational variable: share of trade of good and services as a percentage of GDP (%), Foreign direct investment as a percentage of GDP (%)

- Definition: Here we use two indicators, used in the study done by Castles (Castles, 2004), to measure the extent a country's economy is *globalized* or to see the degree integration of the nation's economy into the global market. The first indicator of this is the share of trade of goods and services as a percentage of GDP, which indicates the extent of trade openness. The second variable used to indicate globalization is the share of foreign direct investment (FDI) which indicates the extent of international capital movement. This is measured as the average flow of direct investment in a country as a percentage of GDP.

- Source: OECD Fact book 2005.

- Note: Since there may be fluctuations between years the five year average from 1999 to 2003 is used. For shares of trade, four year average from 1999 to 2002 was used for the Netherlands, the US, and Switzerland for the availability of data. In the case of FDI, two year average for the years 2002 and 2003 was used for Belgium because those were the only data accessible.

Recession

- Operational variable: Real GDP growth rate average from 1994 to 2003 (%), unemployment rate average from 1994 to 2003 (%)

- Definition: Recession can be defined as downturn in the economy, of slow down of business activity in a country. Frequently used measures include unemployment rate and the GDP growth rate. Whereas GDP growth rates is the most common indicator

for economic conditions, unemployment gives us a more direct picture of the labour market conditions of individual countries. Also as examined in the literature, high unemployment affects the attitude of employees on taking up temporary employment so both measures are examined.

- Source: OECD Labour Force Indicators, OECD Economic Outlook, 2004

- Note: Based on the literature, protracted recessions and the effect it has on the level of temporary employment is of importance here and not the yearly economic recession. We will consider the average rates of the past ten years.

Labour market structure - Deindustrialization

- Operational variable: share of agriculture employment as a percentage of total dependant employment (%), share of service employment as a percentage of total dependant employment (%)

- Definition: For the indicators of labour market structural changes, this paper will look at both, the share of agriculture as a percentage of total dependant employment and service workers as a percentage of total dependant employment. Here I use total dependant employment for the dependant variable, temporary employment is measured as a percentage of the dependant employment.

- Source: Labour Force Indicator

- Note: Data for the United States, Netherlands, and Greece is for the year 2002. Data for Belgium and Switzerland is not available.

Wage bargaining institutions and union strength

- Operational variable: union density collective bargaining coverage rate, centralization, coordination
- Definition: Union density is the percentage of workers that have membership in the union, and here it refers to 'net' members excluding those who are non-active (OECD, 2004b:144). Collective bargaining measures the extent 'salaried workers are subject to union-negotiated terms and conditions in employment' (OECD, 2004b:146). Centralisation score range from 1 to 5. 1 = Company and plant level predominant. 2 =

Combination of industry and company/plant level, with an important share of employees covered by company bargains. 3 = Industry-level predominant. 4 = Predominantly industrial bargaining, but also recurrent central-level agreements. 5 = Central-level agreements of overriding importance. Co-ordination is measured like wise 1 = Fragmented company/plant bargaining, little or no co-ordination by upper-level associations. 2 = Fragmented industry and company-level bargaining, with little or no pattern-setting. 3 = Industry-level bargaining with irregular pattern-setting and moderate co-ordination among major bargaining actors. 4 = *a)* informal co-ordination of industry and firm-level bargaining by (multiple) peak associations; *b)* co-ordinated bargaining by peak confederations, including government-sponsored negotiations (tripartite agreements, social pacts), or government imposition of wage schedules; *c)* regular pattern-setting coupled with high union concentration and/or bargaining co-ordination by large firms; *d)* government wage arbitration. 5 = *a)* informal co-ordination of industry-level bargaining by an encompassing union confederation; *b)* co-ordinated bargaining by peak confederations or government imposition of a wage schedule/freeze, with a peace obligation (OECD, 2004; 151).

- Source: All union variables are from the OECD employment Outlook 2004, chapter 3[17].
- Note: Union density and collective bargaining coverage rate is the average for the year 1990 and 2000. Collective bargaining coverage rate, centralization and coordination indices are for 1990 to 2000. The reason we choose this time average is because union strength and the influence of bargaining structures are not of that specific year but of the overall trend. Collective bargaining coverage rate data for Greece and Ireland is not available. Also for Greece, the indices for centralization and coordination are also not available.

Unemployment Benefit

- Operational variable: Benefit duration (months), gross benefit replacement rate (%)

- Definition: Benefit duration shows the maximum duration for a 40-year-old single worker without children, with a 22-year employment record. Benefit replacement rates is defined as the average of the gross unemployment benefit replacement rates for two earnings levels(67% and 100% of average production worker), three family

[17] For more information on the source of the data see OECD, 2004b, Annex 3.1.

situations(single, one-earner married couple, dual-earner married couple) and three durations of unemployment(first year, 2nd and 3rd year, 4th and 5th year).

- Source: OECD Benefits and Wages 2004

- Note: Benefit duration is for the year 2002 and benefit replacement rate is for the year 2001.

Tax wedge

- Operational variable: tax wedge (%)

- Definition: The tax wedge reflects income tax plus employee contributions less cash benefits plus employer social security contributions. The index used here is the tax wedge as a % of total labour costs equivalent to the average production worker who is single (OECD, 2004c).

- Source: OECD Taxing Wages 2004

- Note: Data is for 2003.

Public expenditure on labour market policy

- Operational variable: Expenditure on active labour market policy as a percentage of the GDP (%), expenditure on employment generation as a percentage of GDP (%).

- Definition: Expenditure on active labour market policy includes public employment services and administration, labour market training, youth measures, and subsidized employment, and measures for disabled. Here for employment generation includes subsidies to regular employment in the private sector, direct job creation(public or non-profit) which is sub-categories of subsidized employment, and support of apprenticeship and related forms of general youth training which is a sub-category of youth measures. These measures are chosen for they are the categories that are directly connected to employment generation.

- Source: OECD Employment Outlook 2004

- Note: Data for most countries is for the year 2001 to 2002 with the exception of

Canada, Ireland(2001), Denmark, Portugal(2000) and Greece(1998). One variable is included in the analysis at a time to avoid multicollinearity[18] problems.

[18] Expenditure on employment generation is made up of sub-categories of ALMP. For this reason, the two expenditure levels as a percentage of GDP are highly correlated (.51 with the significance level of .027).

[Annex 2] EPL index

The EPL index data used in this study is from the *OECD Employment Outlook*(2004) which follows the methods set by Grubbs and Wells(1993). Here, employment protection is defined as the regulations concerning hiring (e.g. rules favouring disadvantaged groups, conditions for using temporary or fixed term contracts, training requirements) and firing (e.g. redundancy procedures mandated pre-notification periods and severance payments, special requirements for collective dismissals and short-time work scheme)(OECD, 1999b;50). The EPL strictness level is measured here are divided into three categories, the strictness of employment protection of regular workers, regulations of temporary employment, and regulations of collective dismissals weighed as 5/12, 5/12, 2/12 respectively. The scoring method is as follows. Countries were assigned scores from 0 to 6 for all indicators with higher values representing more strict regulation. Then summary scores are derived for the three main areas by averaging individual scores per indicator (OECD, 1999: 54). The limit to this index is that it does not include the employment protection provided by the markets, collective bargaining agreements and court interpretations of legislations and contractual provisions, which also serve as a way of employment protection (OECD, 1999).

EPL summary indicators and weighting scheme

Level 4	Level3	level2	Level1		
Overall summary indicator	Regular contracts (5/12)	Procedural inconveniences (1/3)	Procedures		(1/2)
			Delay to start notice		(1/2)
		Notice and severance pay for no-fault individual dismissals (1/3)	Notice after period	9months	(1/7)
				4years	(1/7)
				20months	(1/7)
			Severance pay after	9months	(1/7)
				4years	(1/7)
				20months	(1/7)
		Difficulty of dismissals (1/3)	Definition of unfair dismissals		(1/4)
			Trial period		(1/4)
			Compensation		(1/4)
			Reinstatement		(1/4)
	Temporary contracts (5/12)	Fixed-term contracts (1/2)	Valid cases other than the usual 'objective'		(1/2)
			Maximum number of successive contracts		(1/4)
			Maximum calculated durations		(1/4)
		Temporary work Agency (TWA) employment (1/2)	Types of work for which is legal		(1/2)
			Restrictions on number of renewals		(1/4)
			Maximum calculated duration		(1/4)
	Collective dismissals (2/12)		Definition of collective dismissals		(1/4)
			Additional notification requirements		(1/4)
			Additional delays involved		(1/4)
			Other special costs to the employer		(1/4)

Source: OECD 1999; 188

[Annex 3] Disaggregate indices of EPL for temporary employment for late 1980s and 2003

	fixed-term contract			TWA legislation		
	late 1980s	2003	change	late 1980s	2003	change
Austria	1.8	1.8	0.0	1.8	1.3	- 0.5
Belgium	5.3	1.5	- 3.8	4.0	3.8	- 0.2
Canada	0.0	0.0	0.0	0.5	0.5	0.0
Denmark	1.3	2.3	1.0	4.0	0.5	- 3.5
Finland	3.3	3.3	0.0	0.5	0.5	0.0
France	3.5	4.0	0.5	2.6	3.3	0.7
Germany	3.5	1.8	- 1.7	4.0	1.8	- 2.2
Greece	4.0	4.5	0.5	5.5	2.0	- 3.5
Ireland	0.0	0.8	0.8	0.5	0.5	0.0
Italy	5.3	2.5	- 2.8	5.5	1.8	- 3.7
Japan	1.0	0.5	- 0.5	3.5	2.0	- 1.5
Netherlands	1.5	0.8	- 0.7	3.3	1.6	- 1.7
Norway	3.3	3.3	0.0	3.8	1.0	- 1.3
Portugal	2.3	1.8	- 0.5	4.5	3.8	- 0.7
Spain	1.5	3.0	1.5	5.5	4.0	- 1.5
Sweden	2.7	1.8	- 0.9	5.5	1.5	- 4.0
Switzerland	1.3	1.3	0.0	0.5	1.0	0.5
UK	0.0	0.3	0.3	0.5	0.5	0.0
US	0.0	0.0	0.0	0.5	0.5	0.0

Source: OECD, Employment Outlook 1999, 2003