Labour Market Flexibility

and

Regional Economic Performance in the UK,

1979-1998

Thesis submitted for the degree
of Doctor of Philosophy (PhD)

by

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Abstract

Over the last two decades labour market flexibility has gained recognition as an important factor for good economic performance. Over the same period, the UK has followed a significant labour market deregulation programme, achieving probably the most flexible labour market in Europe.

The main purpose of this study is to offer a concrete analysis of labour market flexibility and measure the impact that changes in flexibility in the UK have had on its regional economic performance. The thesis starts with a review of the forces that have created the conditions for enhanced labour market flexibility. This includes a discussion of the elements of flexibility, identifying its different forms, types, sources and targets. Through a systematic literature review the relationship between labour market flexibility and economic performance is examined. Some original international empirical evidence is also offered, based on a panel of data from the OECD.

I then proceed to develop a technical economic model, examining the effects of labour standards deregulation on economic outcomes and inequalities in economic opportunities. This is followed by a theoretical discussion of regional dynamics in relation to labour market flexibility, where issues of spatial dependence are considered. In the main body of the empirical analysis, a large number of flexibility measures are developed and their evolution over time and across space is thoroughly discussed. Then, the economic effects of labour market flexibility are formally examined.

The conclusion of this empirical analysis is that, on balance, labour market flexibility seems to have improved economic performance in the UK regions, although efficiency gains have coincided with larger inequalities in labour compensation and economic opportunities. The various elements of flexibility, however, are found to have variable, often opposing effects, suggesting that the issue of flexibility and improved economic performance is not purely quantitative, but mostly related to the specific combination of labour market arrangements which can lead to better or worse social and economic outcomes. It follows that this issue cannot be studied in isolation from its socio-economic environment, as the economic benefits of flexibility are not universal but rather place- and context-specific.

Acknowledgements

I would like to thank all those whose support --practical or psychological, academic or real, intentional or not, at any point in time-- have helped me undertake and complete the present work. Their names (happily, a long-long list) are printed in my hart and need not be repeated here.

For their practical help with specific aspects of my research I would like to thank, in alphabetical order, Badi Baltagi (Texas A&M), Vivian Copeland (Reward Group Ltd), Richard Dickens (CEP), Melanie Dorson (Reward Group Ltd), David Grubb (OECD), Susan Harkness (CEP), Steve Machin (CEP), Alan Manning (LSE), Travor Mendez (Certification Office), Ian Murray (TUC), Steve Nickel (LSE), Sean Townsend (BLPES) and Stephen Woodland (DTI).

I would particularly like to express my gratitude to my supervisor, Paul Cheshire, for assisting and directing my research with his comments and supervision. Equally grateful I am to Gilles Duranton, Steve Gibbons, Ian Gordon and Henry Overman, whose interest in my research, their encouragement and advice have helped me develop and complete the present work. Also, to my to examiners Professor Richard Jackman and Professor Ron Martin, for their valuable suggestions, which helped substantially improve the work presented here.

Last but not least, I would like to stress my appreciation to my sponsors: the Greek State for providing me with a free education since that day in 1976 that I first stepped into my nursery classroom; and the State Scholarships Foundation (IKY), in particular, for financing the first 39 months of my PhD studies. Without this financial support, I might have never been able to complete the present work. I have also benefited from an LSE grant during the fourth year of my PhD studies.

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CHAPTER ONE

SETTING UP THE CONTEXT OF THE STUDY

1.1. Introduction

Presented in this thesis is an in-depth investigation of labour market flexibility and its impact on national and regional economic performance. We start by considering the conditions under which labour market flexibility has become a critical issue for the economy and society at large. The nature and characteristics of the flexible arrangements observed in contemporary labour markets is analytically discussed. We then turn to the economic effects of labour market flexibility, which are examined through a review of the relevant literature, an enquiry into economic theory and a set of empirical investigations at the national and regional levels.

The study falls into the broader area of economic analysis and, although in many respects social considerations are explicitly made, issues of social behaviour and social organisation are often put aside. Although the main research question is of a labour economics nature, the analytical perspective employed is largely macro-economic. Furthermore, despite the fact that the study acknowledges the importance of space (and *place*), and actually does investigate the relationships of interest at the regional scale, it may seem to give this important spatial dimension of labour relations and their influence on economic outcomes too little attention, especially in its first part (chapters two to five).

There is, however, a very pragmatic reason for employing such an approach. The main body of literature on which this study draws gives no consideration to either the space or the place at which the investigated phenomena occur. As an extreme -but factual- example of the literature, trends in unionisation rates and wage inequalities are often compared across countries and inferences for economic theory are often drawn, with scant attention paid to historical cross-country differences in unionisation rates, social security systems and traditions. Arguably, to examine the determinants and economic consequences of labour market flexibility at any level, one needs a concrete but admittedly difficult to construct analytical framework. Hence, rather than introducing the topic of investigation in isolation to the relevant literature, we follow a gradual approach. We start with an a-spatial analysis and introduce the notion of space only when the analysis reaches a certain point of clarity regarding the relationships under investigation (chapter six).

The spatial analysis of the later chapters is nevertheless far from being a comprehensive enquiry into the spatial dimension of labour market flexibility. A thorough investigation is conducted at the regional scale, where space is treated rigorously with the use of spatial econometrics. However, the notion of *place* is effectively neglected here. Local-specific socio-economic conditions and the influence of the local environments in which they are formed are consciously ignored. Attending to these conditions would understandably require extensive theoretical and empirical research, which is not possible to integrate into the present endeavour.

Nevertheless, this study makes a significant contribution, as a unique attempt to place the issue of the economic impact of labour market flexibility onto solid spatial-

economics foundations. A large number of regional-level labour market flexibility indicators directly related to theory and the more general discussions on the topic, are presented. Such a set of indicators is effectively missing on an annual time-series basis not only at the regional, but also at the national and international levels. Furthermore, we analyse in significant detail the cross-regional dependencies in the determination of labour market flexibility and their regional (and cross-regional) economic impacts. It is hoped that these contributions will be followed by detailed case studies that will pursue the investigation of the research questions specified here at a more micro-level, by taking explicit account of the local specificities of labour markets and identifying the factors and contexts which make some flexible arrangements work and some not. To put it differently, in the present study we take the topic from the national to the regional level and use the regional-level information to assess the economic impact of labour market flexibility. Further research is needed to identify any local-specific effects and attribute them to local-specific structures.

Such a reading of the present study and its contributions implies an assumption, which is not disproved by the results obtained from the empirical analyses. We view the (flexible or rigid) institutions and regulations governing local labour markets as representing a local-specific set of assets (amenities or disamenities) that help shape economic outcomes. Under such a perspective, identifying the direct but aggregate effects of labour market flexibility (even at the regional level) is only a first step towards the investigation of the impact that labour market flexibility has on the economy. Further steps require the investigation of the effects of flexibility on the relationships between economic conditions and economic outcomes (e.g., how do unemployment benefits affect

the way in which unemployment impacts on productivity?) and the investigation of the appropriate mixes of labour market flexibility in order to achieve specific outcomes (e.g., how much -and in which direction- does numerical flexibility have to change, if functional flexibility increases by 1%, for employment growth to remain stable?). Only the first step is pursued in the present study, while the other questions are left for future research.

In the remainder of this chapter we turn to the specific economic, social, ideological and technological conditions that have brought the issue of labour market flexibility to the position that it occupies today. The discussion stands apart from the analysis in successive chapters, but this was considered necessary in order to shape the context of this study. In the last section of this chapter we introduce the contents of the chapters that follow and explicitly specify our research questions.

1.2. Economics and the economic context

The study of economics is historically inter-related with the question about the role of government intervention in the economy. From the "invisible hand" of Adam Smith, which pointed to the separation of governance from the economic sphere, through the Keynesian interventionist legacy which followed the Great Depression of the 1930s, to the dominance of neoclassical economics after the oil shocks of the 70s, the debate on the role of policy intervention has always been on the agenda of economic enquiry.

In the last fifteen years or so, significant developments in the fields of Growth Theory and Economic Geography (including the "New Economic Geography", but mainly the literature on Local Economic Development) have led to important changes in

the way the role of policy intervention is interpreted and appreciated. Development in endogenous growth theory led to the recognition of the impacts that fiscal policy can have on the growth rates of an economy (for example, Romer 1990, Barro 1990, King and Rebelo 1990, Greiner 1996). Specifically, by "endogenising growth", economists began to point at government intervention as a potential source of mobilising economic growth. Equivalently, the recognition by regional economists and economic geographers of the importance of local-specific factors in shaping the "growth potential" of a region, gave new insights into the role (central or local) governments can play by providing infrastructure, education, and the like.

Under these developments, the neoclassical view of negative (or at best, negligible) effects of government intervention on growth and economic performance is being questioned, assisted by the growing academic interest in inequality, both between states or regions (the convergence debate) and within states and regions (among people). Of course, this latest readdressing of government intervention policy is in many respects different from the Keynesian-type interventionist legacy of the post-War period. The focus is more on the supply-side of the economy, than on the demand-side. This trend applies in both economics and economic geography. Policy intervention is regarded more as a means of enhancing market efficiency (labour, financial, or product markets) and the quality of intangible economic assets (human and public capital: vocational training, education and infrastructure) in order to increase aggregate welfare, than as a tool for achieving social goals, such as income redistribution and social security, and increasing aggregate demand. The focus, in other words, is more on efficiency and less on equality.

Despite that, recent research on income inequality shows how related these two policy intervention approaches actually are. For some researchers, the two approaches can be characterised as competitive or even contradictory. Economic efficiency is not necessarily compatible with equality and the elimination of income inequality does not seem to promote economic growth (Benabou, 1996). For other researchers complementarity is more likely. Income inequality leads to under-investment and other sub-optimal outcomes, with detrimental effects to economic growth (see for example Hongyi et al., 1998). Under this assumption, reducing income dispersions can, under certain conditions, even be seen as a tool for promoting economic growth. Unfortunately, the trade-off between equality and growth has not yet been fully explored, despite its profound importance for both social and policy design reasons.

Despite the growing interest in the role of government intervention and fiscal policy for (national or local/regional) economic development, the main focus is relatively narrow, on topics like education (or human capital formation –Lucas, 1988; Romer, 1990), infrastructure (Nijkamp, 1994), political stability (Alesina and Perotti, 1996) and taxation (King and Rebelo, 1990; Greiner, 1996). A number of important facets of policy intervention, which might be equally important for the growth and inequality debates, are consequently ignored. Among them, labour market intervention is perhaps the most important. Nevertheless, with efficiency wage theories and the literature on the economic impact of trade unionism as possible exceptions, growth models have failed thus far to structurally include aspects related to the organisation of labour relations, labour standards and, in general, labour market regulation. To the extent that labour market institutions matter in the determination of economic outcomes, it should be realised that

both growth and local economic development theories should account for labour market intervention in a more direct and explicit way (Boyer, 1994).

The issue of labour market deregulation and flexibility was of high priority in the agenda of the EU economic (and social) policy during the 1980s and 1990s and is still very important today. It is moreover one of the most controversial issues debated inside and outside academia (Rodgers, 1994), as the need for flexibility appears to be real rather than rhetorical, following the big changes that have occurred in the international economy and its organisational structure during the last two decades. These developments and their connection with the issue of the organisation of labour relations are synoptically presented in the following sections of this chapter[1].

1.3. Globalisation, localisation and flexible accumulation

It is widely acknowledged in both economics and (economic) geography that the internationalisation of the economic system after the Second World War, the dominance of large transnational corporations (TNCs), the recent entrance of former communist countries into the international -capitalist- economic system and the revolutions in information technology and telecommunication systems, led to the appearance of a new phase of capitalist development, the "global economy". The establishment and gradual domination of a number of international and supranational organisations (such as the IMF, the World Bank and the G7) increased the degree of openness and interdependence of national economies and fostered their integration (Hamilton, 1991). Amin and Thrift

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[1] See also the more detailed discussion of specific developments in the regulation of labour markets and their causes in the second chapter.

(1994) identify seven characteristics that are connected -either as driving forces or as results- to the globalisation of the economic system: the increasing power of the financial structure over the sphere of production, the increasing importance and internationalisation of knowledge, the acceleration and diffusion of technological progress, the rise of global oligopolies, the "globalisation of state power" (i.e., the emergence of a number of supranational organisations), the increase of global cultural flows ("fusion of different narratives and local vernaculars") and the rise of a "new geography" that is "globally local".

The globalisation of the economic system is therefore associated with increased volatility, openness, competitive pressures and uncertainty (ILO, 1997). These characteristics cannot be compromised with the static, rigid and inflexible organisation of the socio-economic sphere that prevailed for the three decades after World War II, under the so-called Fordist mode of accumulation.[2] From the late 70s Fordist capitalism, based on mass production, economies of scale, taylorist production processes (moving assembly line), growth of waged labour and expansion to new markets, and "regulated" by a Keynesian-statist method of regulation (unemployment benefits, the "welfare state", increased trade union power and high wages to stimulate demand and, hence, growth),

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[2] The term "mode of accumulation", together with the terms "method of regulation" and "hegemonic structure" were developed by the "school of regulation" (see for example Aglietta, 1979; Boyer 1988; Lipietz, 1987), as an alternative to the Marxist "linear" theory of capitalist development (and crises) and its set of analytical tools. Regulation theory considers capitalist development as a "non-linear" process that "is characterised by a sequence of specific social formations, which differ from each other greatly, based on an unvarying basic structure in their forms of production and exploitation, conditions of socialization and class, as well as in the character of the state and the political rule" (Esser and Hirsch, 1994, p.73). Throughout this work we refer to the regulationist approach in a wider sense, to included effectively all non-marxist structuralist approaches.

entered a period of crisis and reconfiguration.[3] To respond to these new developments, many authors assert that a new mode of accumulation and a consequent new method of socio-economic regulation, the so-called "post-Fordist era" is being formulated.[4] However, this new regime is not yet dominant in all the facets of economic activity. Rather, "in a national and international context, the situation is characterised by a complex mixture of alternative strategies for overcoming the crisis" (Esser and Hirsch, 1994, p.76).

More orthodox approaches view these changes from a less structuralist perspective but equally recognise that globalisation and technological progress necessitate increases in the flexibility of product and labour markets. Besides the methodological and epistemological differences, there seems to be common agreement that the new era is described by the increased importance of technology and a turn towards flexible specialisation (Piore and Sabel, 1984) and a flexible mode of accumulation (Harvey, 1987). These elements include the geographical diffusion of production, the increased importance of SMEs, networking, "competition through co-operation" and quality-based competition, information and technology diffusion, subcontracting, and the reorientation of production in accordance with a changing and differentiated (heterogeneous) demand. But they also include another factor, namely the re-organisation of labour relations, as we discuss further in later chapters.

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[3] For an analytical discussion of the transformation of the Fordist regime, see Dunford (1995, especially pages 127-140) and the references presented there.

[4] Tickell and Peck (1992), Peck (1994) and others have correctly mentioned that, although in the post-Fordist era flexible accumulation and its characteristics have been well identified, the method of flexible regulation is still neither apparent nor well studied. The juxtapositions of the new regime complicate the identification of the new forms of socio-economic regulation.

These developments, the so-called "global challenge", have significant spatial effects. The dominance of the nation as the basic economic entity is under scrutiny, mainly because of two trends. On the one hand, the internationalisation (globalisation) of the economy, the integration of national markets and consequent emergence of a number of supra-national institutions, weaken the powers of national states ("hollowing-out" of nation state power) in designing and implementing their own economic policies (Bennett, 1991). On the other hand, the diffusion and differentiation of production increases the importance of local (or regional) economies (Granados-Cabezas, 1992). Moreover, "the compression and transgression of time and space barriers (i.e., globalisation) ascribes a greater salience to place, since firms, governments and the public come to identify the specificity of localities as an element for deriving competitive advantage" (Amin and Thrift, 1994, p.6). In this sense, there is a new role emerging, not simply for local economies, but for local economic development (LED) and its governance as well. The implication is that localities can control their own economic performance by exploiting their growth potential and integrating into the global economy.[5] In other words,

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[5] Within this context a number of scholars stress the importance of the "institutional thickness" of a region in promoting its integration to the global economy and fostering its economic development (see for example Hodgson, 1993; Hudson, 1994). Of course, not all scholars are optimistic about the ability of local economies (and local economic governance) to play an active role in the global economy. Such authors (see for example Harvey, 1987; Ohmae, 1990; Hirst and Thompson, 1996) emphasise the role of transnational corporations (TNCs) in "running" the global economy and determining the fate of local economies. Additionally, they question the analytical validity of the notion of "glocalization" (the simultaneous existence of two opposite tendencies: globalisation and localisation), arguing that localisation is not an autonomous tendency of the economic system. Instead, it is the globalization of the economy that, through the hollowing out of national states, exaggerates the importance of local economies. Sabel (1994), although listing five developments that contribute to the "reconsolidation of the region as an integrated unit of production", advocating the idea of the regionalisation (localization) of the world economy, appears skeptic about the degree of independence and autonomy (in one word, the power) that regions can have in a globalised economy. For related arguments, see also Amin and Robins (1990).

globalisation has led to (or is accompanied by, depending on one's theoretical view) a simultaneous "localisation" of the world economy.

Together with the increased importance of regions and their local economies, the trends discussed here have also enhanced "the autonomy of the enterprise" (ILO, 1997, p.82). In an era of increased volatility and uncertainty the firm has to adapt by changing its strategies and objectives. Flexible, differentiated products, with small stock holdings and just-in-time production methods (Koshiro, 1992) are unquestionable requirements for enterprise success. Flexible methods of labour use and new management methods to enhance the flexibility and adjustability of a firm's policies are seen as preconditions for a firm's survival and expansion.

Evidently, then, the need for change in product and labour markets and in their social relationships (between workers and employers, between employers and the State), affects the behaviour of all the parties involved. The area where this need for change has been more urgent and the effects of the consequent changes more evident is the labour market. In the next section we look at the structuralist debate on the relationship between the aforementioned preconditions for change and their effects on the regulation of labour markets.

1.4. Flexible accumulation and flexibility in labour markets

As noted above, the forces related to the new mode of accumulation and the new method of regulation, affect all facets of government intervention and economic activity: regional and national development policies, income distribution and redistribution measures, provision of infrastructure and education (public and human capital

formation), trade policies, taxation, housing policies and labour market intervention.[6] Labour market deregulation in particular has gained increasing importance in the last two decades and claims a special position in the debate on the changing international economic order.

The labour market is the area where the pressures for change have been most severe, since the evaporation of Keynesianism as a method of socio-economic policy has re-defined the social and economic role of waged labour. Moreover, the labour market is where the impact of "globalisation" and "post-Fordism" has been felt more strongly, as the re-configuration of the economic system directly affects labour incomes, labour relations and employment opportunities. The relatively poor labour market performance of the 1980s and early 1990s internationally, has in many respects made the position of labour in the economy less favourable. Although unemployment is more recently less of a problem, wage inequalities, employability and skills depreciation (with low-skilled workers becoming increasingly more vulnerable to poverty and social exclusion) are real problems that the re-configuration of the economic system has yet to solve. Furthermore, employment growth (full-time employment growth in particular) has not yet fully recovered from previous declines. These labour market developments have contemporaneously been followed by a tendency towards lower labour standards that is supported by the neo-liberal search for increased labour market flexibility (deregulation), both in the political sphere ("Thatcherism") and in the academia.

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[6] At a first glance, it may seem contradictory to focus on governmental intervention policies when we simultaneously talk about the "hollowing-out of nation states" (and authority). Nevertheless, nation states (and their governments) are still the main actors of socio-economic regulation. Furthermore, government intervention is a term wide enough to include policies implemented by supra-national organisations and institutions as well as by local authorities.

Of course, the mere fact that changing labour market conditions have coincided with (i) the emergence of the "post-Fordist mode of accumulation" on a notable scale and (ii) the generalisation of the tendency towards globalisation, is not a sufficient condition for one to claim a causal relationship between the levels and quality of labour standards and the new economic order. Many authors (Wilkinson, 1983; Peck, 1989; Hudson, 1989) advocate that "there is no straightforward connection between flexibility in production and flexibility in labour markets" (Peck, 1992, p.329).

Despite such critics, the recognition of the importance of labour market flexibility in the new era of capitalism, for the competitive position of an economy or for its growth rates, is apparent in documents and policies employed by supra-national organisations, such as the EU and the WTO, or in international agreements, such as GATT and NAFTA (see Hufbauer and Schott, 1993 and Krugman, 1996 for a critical discussion of relevant references). Apart from the importance of alleviating unemployment and wage inequality for economic stability and social justice, the ways in which governments intervene to regulate their labour markets can have different effects on relative factor prices, the size of the active labour force, labour demand, sectoral structures and, consequently, rates of economic growth. Mainstream economic analysis, although using a different terminology than the one used here, finds labour market deregulation (higher flexibility) not only justifiable but even necessary (as we will discuss more extensively later) exactly because of "globalisation" and the changes in the regime of accumulation (increased volatility and uncertainty of the world economy). The differentiation of demand and shortening of products' life-cycles, what in neo-Schumpeterian terms has been labelled "creative destruction" (Aghion and Howitt, 1992; Caballero and Jaffee, 1993), have increased

uncertainty in production and created "the need for enhanced flexibility in production systems" (Scott and Cooke, 1988, p.241). This has been partially achieved through automation and partially through the functional re-organisation of the production process and the externalisation of some of its parts (subcontracting, casual and temporary employment, R&D co-operation networks, etc.). This has necessarily led, not simply to the re-organisation of labour relations but, as some scholars have argued, even to a new social and spatial division of labour.[7]

The main benefit of labour market flexibility and the consequent re-organisation of labour relations is that it constitutes a source of competitive advantage (Ozaki, 1999). The use of alternative forms of non-standard employment, the benefits from wage flexibility and the advantages of production methods that enhance functional flexibility, as will be explained in the following chapters, help increase productivity and reduce production costs. More importantly, they allow the firm to enhance its ability to adjust to changing demand and wider economic conditions. Among all benefits this is considered to be the most important. In an era of high uncertainty and volatility, the merits of high profitability and lower costs may possibly be less significant than the achievement of sustainable production.

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[7] We do not discuss further the issue of the new (social and spatial) divisions of labour under the mode of flexible accumulation. This is because this issue relates to the emergence of a new geography of production ("new industrial spaces", "sub-urbanisation" of the "secondary labour market", new forms of agglomeration) and to the restructuring of gender, class and ethnic (racial) relations, in both the economic and social spheres. For a discussion of these issues, see Massey, 1984; Scott and Storper, 1986; Scott and Cooke, 1988; Scott, 1988a, 1988b, 1988c; Nielsen, 1991).

The re-organisation of labour relations (to increase labour market flexibility) has taken place at three levels: first, at the level of wage determination, with the individualisation of employment relations and the weakening of workers' bargaining power; second, at an intra-firm level, through the promotion of group-work, multi-skilling and intra-firm mobility of labour (internal flexibility); and third, at an inter-firm (market) level, through part-time and temporary employment, subcontracting, and other forms of "quantitative adjustments in the labour intake" (external flexibility) (Storper and Scott, 1990, p.575). These distinctions, among the various forms and sources of flexibility, regulation and deregulation, will be investigated in greater detail in the next chapter.

1.5. The limits of flexibility?

The direction in which the re-organisation of labour relations is heading raises two questions. First, are these developments intrinsic to the new regime, or are they ephemeral, residuals of earlier (pre-Fordist) phases of capitalist accumulation; and second, do they constitute sustainable (reproducible) economic structures.

Regarding the first question, one strand of the literature suggests that the new flexible labour relations are not specific to the present. As Peck (1992, p.329) puts it, "many of the so-called flexibility strategies are established means of deepening control over the labour process in ways of which F. Taylor might have been proud". Moreover, "far from being a recent phenomenon flexible labour markets have a long history" (p.330). Nevertheless, one has to acknowledge that the specific forms of labour market deregulation in post-Fordism seem to be characteristic of (and historically specific to) the

new regime, despite lack of homogeneity in their strategic implementation.[8] For example, the pre-Fordist "sweatshops" have been replaced in the post-Fordist era by production units characterised by the increased use of high-technology (e.g., computers) and an "emphasis upon skill and quality" (Piore, 1990, p.44), at least in the developed world. As a consequence, the labour force is not so easy to control (in that it is relatively specialised in non-firm-specific skills and is therefore potentially mobile). Although many of the labour market flexibilities existing today seem to closely resemble the flexibilities of the early 20th century, there are both qualitative and quantitative differences in their inspiration and their enforcement. As a result, it is difficult to sustain the argument that contemporary flexible labour arrangements are residuals of the pre-Fordist period.

With respect to the second question, a number of contradictions have been noted in the literature that lead one to question the ability of flexible labour markets to reproduce themselves. Internal flexibility increases the importance of workers to the production process (due to the increased number of tasks undertaken by each worker, and greater responsibility and participation in the design/management of production), while multi-skilling increases their attractiveness and "tradability" in the external labour market. Hence, both their bargaining power and the turnover rates increase, with adverse effects on the degree of internal flexibility observed in the labour market. In addition, as Mahon (1987) among others has stressed, the differentiation of products across firms also

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[8] Deregulation is not necessarily seen from a functionalist point of view. It is not only dependent on the variations in the form of "flexibilities" that emerge with the re-organisation of labour markets (see for example the discussion about the "competitive" versus "structured" flexibilities, by Leborgne and Lipietz, 1988), but also on variations that accrue from the different "logics" that different places (localities) have, according to the locally-specific regulatory and social milieux (Peck, 1992). We return to this issue in parts of chapters two and six.

makes the latter depend on their internal labour markets, thus increasing job-security.[9] According to Streeck (1985, as quoted by Mahon, 1987), "steady employment may in fact be required by a flexible production strategy". External flexibility, with the segmentation of the labour market and the externalisation of production reduces the firms' control over the workers (Michon, 1987) and hinders on-the-job, firm-specific skill formation (Peck, 1992). The importance of firm-specific skills can in many cases act against labour market flexibility. We provide a treatment of this issue in the dual labour demand model set out in chapter five.

These endemic contradictions in the process of transformation from Fordism to flexible accumulation, it has been argued, may act as destabilising factors for the new regime. Industrial disintegration and labour market segmentation, that can be the result of unregulated labour market flexibility, can potentially lead to "under-investment in technology innovation and skill formation [and] undermine the nascent growth model of flexible accumulation itself" (Peck, 1992, p.334). Labour market segmentation can also hinder local economic growth by widening socio-economic inequalities and political (class or ethnic) tensions (Saxenian, 1983). It can also lead -together with the absence of labour market regulation, job security and guaranteed minimum wages- to reduced worker effort and, hence, productivity (Piore, 1990).[10] Finally, productivity slow-downs can also occur from the management side. Flexible specialisation and accumulation foster

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[9] We do not provide definitions for the various forms of labour market flexibility here, as this will be done thoroughly in chapter two.

[10] This rationale, advocated by the neo-institutionalist literature of labour economics, is in complete accordance with the "efficiency-wage hypothesis". In the context of the neo-institutionalist approach, however, effort is not simply a function of wages (as for example in Yellen, 1984) but, more broadly, a function of the overall labour standards (Herzenberg et al., 1990).

the emergence of small firms and promote home-working, basically because of the need to reduce as much as possible all the fixed costs of the firm (Piore and Sabel, 1984). At an extreme, when "all costs are variable costs, [which] are borne by the worker, [then] no one has an incentive to worry about productivity" (Piore, 1990, p.39). Although it can be argued that workers still have an incentive to be more productive, to receive higher wages, such productivity gains are limited by the absence of economies of scale, investment in physical capital and new technologies, which can also be attributed to enhanced labour market flexibility under the cost-reduction strategies assumption.

To state this argument in a more general way, despite the fact that higher flexibility in production (i.e., output adjustments and product differentiation) and the labour market is a response to greater uncertainty and volatility in the economic system, higher levels of flexibility induce fewer risks with respect to costs and greater risks with respect to investment in physical capital and skill formation. In other words, the externalisation of production and the increased external flexibility in the labour market constitute externalities that lead to under-investment in both physical (promotion of labour-intensive technologies) and human (reduced on-the-job training) capital. In the words of Streeck (1989, p.91), "firms acting 'rationally' are only in exceptional cases able to [proceed to] human resource investment in new and higher skills. It appears that the skills needed for industrial modernisation have so peculiar collective [(i.e.: public)] goods properties that they can not even be generated by unilateral state provision".

Although this argument is somewhat extreme, it is closely related to what the recent literature on endogenous growth (human capital accumulation, learning-by-doing) identifies as non-linearities in the aggregate production function, that create increasing

returns to scale at an aggregate level ("external economies of scale", for the economy as a whole) but constant returns for each individual firm, leading to Pareto sub-optimal equilibria (under-investment) and hindering economic growth (Romer, 1987; Barro, 1990; King and Rebelo, 1990; Barro and Sala-i-Martin, 1992; Greiner, 1996; and others).[11]

We take a closer look at this in chapter three, when we present an analytical discussion of the different approaches to labour market flexibility and deregulation. For now, our conclusion based on the discussion conducted thus far is the following. Labour market flexibility is a profit-maximisation response by firms to changing economic conditions and structures. Despite that, however, the deregulation of labour relations can potentially create as many problems as it can actually solve. For this reason, a careful re-configuration of labour relations, rather than their complete deregulation, seems to emerge as the best policy response.

1.6. The structure of the present study

So far we have quite briefly discussed the wider changes that have altered the conditions governing economic relationships, their relation to the organisation of labour relations and the prospects of the new forms of regulation and accumulation (production). This discussion was necessary in order to set up the context of the analysis. The relevance of the issues considered here is that they inform us about the social, economic and political climate that generates the need for enhanced flexibility in the labour market and

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[11] Monastiriotis (2001) presents a direct empirical test for the existence of such non-linearities in the UK regions.

elsewhere. Throughout the reminder of the analysis this climate is taken for granted. Our focus switches from the wider to the more specific, as we examine in detail the nature and forms of labour market flexibility and their impact on national and regional economic performance.

There are four specific research questions that this study addresses and attempts to answer, either at a theoretical or at an empirical level, each with multiple offshoots. Our first question is what is labour market flexibility? Which are its types, forms and manifestations? But, further, what are the origins and determinants of labour market flexibility and -more importantly- of the changes in labour market regulation? After pursuing this question, the second issue clearly emerging refers to the economic impact of flexibility. How does labour market flexibility affect the economy? How do the different elements of flexibility impact on the economy and to what extent does this impact differ for different elements? Which are the economic indicators that are affected most? Moreover, how can one conceptualise (and possibly model) the labour market outcomes related to changes in labour market regulation, both at an a-spatial and at a regional level?

For the next two general research questions the focus turns to the case of the UK and becomes explicitly regional. Hence, our third question is how has labour market flexibility evolved in the UK and its regions over the last two decades? Have the regional labour markets converged in terms of the labour relations prevailing in each of them? Has flexibility advanced faster in the most backward regions? Has it instead advanced faster in regions more exposed to the international economy? Or has the deregulation of labour

markets, that was followed during most of the period under consideration, produced spatially even changes in labour market flexibility?

Finally, the fourth and most significant question we investigate refers to the specific regional economic impact of enhanced labour market flexibility. We examine empirically how changes in labour market flexibility in the UK changed regional economic performance. Further, we examine whether and to what extent the regional economic balance and the cross-regional dependencies have changed due to enhanced labour market flexibility.

The structure of the present study essentially follows the order in which these questions were asked. In chapter two we analyse and attempt to explain labour market flexibility. In chapters three and four we deal with the economic impact of labour market flexibility. Chapters five and six focus on the conceptualisation of the regional and labour market effects of labour market flexibility. The examination of the evolution of labour market flexibility in the UK is undertaken in chapter seven and in chapter eight we perform a number of detailed econometric investigations to locate and measure the specific effects of labour market flexibility on regional economic performance in the UK over the last two decades. The final chapter summarises the analysis, outlines a number of implications and concludes. In more detail:

- In the next chapter we define "labour market flexibility" and identify its constituent elements. Specifically, we first examine the definitions of, and differences between, the terms flexibility, regulation, deregulation and flexibilisation. We then present a number of decompositions of these terms to identify what is meant in reality by the notion of flexibility. We further consider

different theoretical approaches under which the constituent elements of flexibility can be integrated into an analytical model of the evolution and change of labour market institutions. Finally, we analyse the labour market flexibility and deregulation experience of the OECD countries over the last two decades in an attempt to relate the theoretical discussion to the stylised facts.

▪ Chapter three outlines various theoretical considerations and empirical evidence relating to the economic and labour market effects of regulation, deregulation and flexibility. With regard to the discussion of the previous section, we first review the main points of the neoclassical analysis of labour market flexibility before turning to less orthodox (post-Keynesian) and even heterodox (neo-institutionalist and neo-Ricardian) approaches. The discussion in this chapter is not conclusive, as the main purpose is to account for the multitude of different effects and mechanisms identified in the literature. This procedure is meant to enhance our theoretical understanding of and inform our empirical investigation on the issue.

▪ A first part of the empirical investigation is presented in chapter four. We investigate the effects of the various degrees of regulation in the OECD labour markets on their economic performance, as well as on their performance in terms of wage inequalities. Following the discussion of the third chapter, this investigation is split into two parts, one relating to the wage inequality effects and the second relating to the wider effects on economic performance. Results from these empirical investigations seem to verify the views taken in contemporary research that the impact of labour market flexibility differs both

qualitatively and quantitatively across its different elements. This further supports the theoretical discussion of chapter two.

▪ Chapter five is dedicated to the development of a theoretical model for the economic analysis of labour standards. Starting with some considerations regarding the nature of labour standards as an element affecting productivity, production costs and worker utility, we build a model which explicitly incorporates labour standards in the analysis of labour-market and wider economic outcomes. Most of the discussion in chapter five is based on a diagrammatical analysis, which allows us to speculate on the wage and employment effects of labour market deregulation. Introducing trade unionism (as well as unemployment benefits and minimum wages) in the diagrammatical analysis enables us to explain the trends in inequalities that have been identified in the world economy, both with respect to wages and with respect to labour standards.

▪ In chapter six we expand this analysis and transfer it to the regional level. With a particular focus on the UK, we discuss the importance of the regional dimension of the issue under investigation. We identify regional mechanisms and dynamics, which are not clear in an a-spatial analysis, and we discuss the ways in which they can be incorporated into the empirical analysis. We then outline the context for the regional empirical investigation of chapter eight. In doing so, we also discuss the issue of scale and our selection of the region as our unit of analysis.

▪ The regional empirical analysis begins in chapter seven. We present the evolution of the main indicators of regional economic performance in the UK and discuss the differences and similarities of the economic structures of the UK regions. We also present a large number of labour market flexibility indicators that we have constructed for the UK regions, for the period 1979-1998. As already mentioned, these indicators represent a unique attempt to measure labour market flexibility (and its changes over time) in the UK and are in complete reference to the theoretical discussions of chapters two and three. Together with the presentation of these indicators, some empirical results, mainly referring to the evolution of regional labour market flexibility and its determinants, are also presented in chapter seven.

▪ The main body of the empirical analysis is actually presented in chapter eight. The chapter introduces the empirical investigation with some theoretical and technical considerations, before the presentation of the main empirical findings. We also provide a number of alternative estimates as a check for robustness and examine in detail the issue of spatial dependence. The empirical findings offer a large amount of information, the wider implications of which are related to our earlier theoretical discussion in the concluding sections of the chapter.

▪ With chapter eight we conclude our investigation of the regional economic effects of labour market flexibility. The last chapter is a summary of the theoretical discussion and an assessment of the empirical evidence. The empirical findings are related to the theoretical discussion, suggesting a refined view of the entire issue of labour market regulation and flexibility, both for a-

spatial and space-specific analysis. An organised discussion of the implications of the obtained findings deepens our understanding of the social and economic role of labour market regulation and flexibility. We close the chapter by identifying directions for further empirical and theoretical research on the issue, especially at the regional and local levels.

CHAPTER TWO

LABOUR MARKET (DE)REGULATION

AND LABOUR MARKET FLEXIBILITY

2.1. Introduction: regulation, deregulation and flexibility

This chapter looks at the issues of labour market flexibility, regulation and deregulation, with our main focus being to define what is meant (and understood) by these terms, what forms do they take, and what is their relationship with each other. Specifically, in this chapter we provide broad definitions for these terms before narrowing down to relate them to the contemporary academic and policy debates. Further, we look at the various types of flexibility from a functionalist perspective, identifying the elements that make a labour market flexible. Next, we scrutinise from a more practical perspective the forms that these flexible labour market arrangements assume. We then attempt to relate the forms and types of flexibility to one another, suggesting ways in which they can be integrated into a wider model, to facilitate a greater understanding of their interactions. We close with a review of the changes in (de)regulation and flexibility as experienced by different OECD countries, with a special focus on the UK. To put it succinctly, we proceed by investigating the following questions: (i) what is flexibility and (de)regulation? (ii) what are their ingredients, from both a functional and a practical perspective? (iii) how are these ingredients integrated? and (iv) what are the country experiences of all this? To put it differently, the first step (pursued here) is to locate (define) these terms; the second is to decompose them into their constituent elements; the third step is to provide an

organic re-integration of these elements; and last is to relate this theoretical exercise to the stylised facts. Hence, we next discuss the meaning and history of these terms and provide some definitions.

2.1.1. Labour market flexibility

A very simple and rather convincing definition of labour market flexibility is that *labour market flexibility is the extent to which the labour market is allowed to operate under the influence of market forces*. In other words, labour market flexibility is the extent to which labour market forces determine labour market outcomes. Hence, a totally flexible labour market is the one where no financial, institutional, linguistic, political and cultural impediments (or indeed any impediments) are present.[12] In this respect, any factor entering the labour market other than the forces of demand and supply -themselves determined by the profit and utility maximising economic agents and their preferences-, potentially impose rigidities in the labour market and lead to labour market inflexibilities.

The latter are naturally producing inferior economic outcomes, as in their absence optimality would emerge. Under this definition, there are many factors that can be related to labour market rigidities. By far the most important, however, (or at least the most deeply discussed and analysed factor in the context of labour market analysis) is government labour market intervention or, in other words, labour market regulation. A more detailed definition of labour market flexibility would then be the state of a labour market in which there are no unemployment benefits, no legislation

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[12] Housing market inflexibilities and the friction of space are two other important factors creating (or sustaining) labour market inflexibilities. However, such factors are not directly related to the design and implementation of labour market policies. In this respect it is difficult to define the limits between flexibility in the labour markets and flexibility in the housing markets or geographical flexibility. It should be clear, however, that absolute labour market flexibility cannot be achieved in the absence of total market flexibility.

on work-schedules, working time and fire-and-hire procedures, no trade unions to bargain on wages, working conditions and redundancies and so on. This is probably the most common definition of flexibility, although it is rather technical and non-exhaustive.[13]

This is because labour market regulations are widely acknowledged as the main sources of labour market inflexibilities (rigidities), for two apparent reasons. The first is practical. Labour market regulations are particularly binding, as they are normally enforced by law and (when monitored appropriately) cover the whole of the labour market. They are, moreover, insensitive to labour market and general economic conditions. A regulation covering a specific aspect of labour relations can be in force for years (if not decades), while labour market conditions (in terms of demand and supply and of labour market equilibria) can change much faster.

The second reason is rather ideological. Labour market regulations represent and constitute a form of government intervention. Despite the recognition even in some strands of neoclassical economic analysis (e.g., welfare economics and versions of the endogenous growth theory) that government intervention can correct certain "market failures", mainstream economic analysis still identifies government intervention as the main source of economic inefficiencies in broad areas of economic activity. With respect to labour market analysis and the analysis of labour market flexibility in particular, government intervention and trade unionism are the most widely acknowledged sources of economic inefficiency, more so than any other economic or non-economic externality. But what are the other externalities that can also constitute labour market rigidities?

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[13] The phrasing presented here is extreme, as is the case that it describes: the case of total flexibility or total absence of any form of regulation in the labour market.

One main factor of labour market inflexibilities, which occupies, nevertheless, a peripheral position, especially in the non-academic strand of the debate about labour market flexibility, is labour market power from the side of firms or individual employees. Specifically, although much of the labour market flexibility literature focuses on workers' market power, which is attributed to trade unionism and legislation on collective worker rights, less discussion is directed towards the impacts of monopsony (or oligopsony) power, or of monopoly power of some segments of the workforce (e.g., highly skilled IT specialists, or financial analysts and executives). It is common knowledge in economics (but effectively outside the labour market flexibility debate) that monopsony power in the labour market produces inferior economic outcomes in all respects: lower levels of employment, lower levels of production (output), higher prices and lower wages. The same may be true for some types of labour monopoly power, as has been shown for example in the insider-outsider literature (Lindbeck and Snower, 1988). Such factors are therefore important barriers to labour market flexibility and are perhaps as important as labour market regulation itself.[14]

This returns us to the question of what is labour market flexibility, as it must be something more than simply the absence of government-imposed regulations in the labour market. Indeed, that was explicitly discussed by Prof. R. Solow in his 1997 Keynes Lecture in Economics for the British Academy. An alternative definition of labour market flexibility would then be that "[a] perfectly flexible labour market [is the] one that interposes no obstacle to the frictionless matching of an unfilled job and an unemployed worker with the appropriate skills [so that] vacancies and

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[14] In this respect it is quite ironic that labour market deregulation seeks the removal of the institutional arrangements in place precisely to counterbalance these externalities. This observation illustrates clearly the ideological element in the search for labour market flexibility and deregulation.

unemployment [can] never coexist" (Solow, 1998, p.4).[15] Despite the fact that such a definition may seem rather narrow, interestingly it accounts for a large number of other labour market externalities and rigidities. Racial or gender discrimination, labour market segmentation, linguistic, geographical and legal barriers to labour mobility, trade unionism, high reservation wages, monopsony power and restrictions imposed by the housing and financial markets, are factors that can all potentially increase the mis-match between job vacancies and unemployed persons, thus allowing for vacancies and unemployment to co-exist.

2.1.2. Labour market regulation

With this definition of labour market flexibility we depart from the rather short-sighted view of the latter being effectively the opposite of labour market regulation. Although many of the labour market rigidities relate to the regulation of labour markets, a large number of them do not. For example, attitudes towards minorities (discrimination), non-legal barriers to labour mobility (linguistic, cultural, geographical and other), imperfections in the financial and housing markets and so forth, are strictly beyond the reach of labour market intervention. This perspective allows one to consider labour market regulation outside the narrow and restrictive issue of labour market flexibility. Labour market regulation is the sum of the regulations, restrictions and laws governing the operation of labour markets and the relations between the workers and their employers at a given time and place. Such restrictions and regulations serve a totally unrelated to the *performance* of a labour

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[15] With such a definition, a very appealing practical suggestion as to how to measure labour market flexibility is by using the distance of the Beveridge Curve from the unemployment and vacancies axes (see Cheshire, 1973, for an early elaboration on the unemployment/vacancies relation). On the other hand, as Solow (1998) acknowledges, there are limitations to the appropriateness of the Beveridge Curve as a measure of thus defined labour market flexibility, mainly due to the endogeneity of both unemployment and vacancy rates.

market purpose. Indeed, most labour laws are introduced to protect the workers from firms' power. Trade unions were formed to allow the workforce to organise and negotiate with the employers on a more equal basis. Regulations regarding working hours per year, week or day were introduced to reflect the socially acceptable standards with respect to work intensity, working time and health and safety. Minimum wages were introduced to set minimum levels of "acceptable" labour compensations (the minimum value the society gives to a person's hour of work) and unemployment benefits were introduced to provide incomes for those temporarily out of employment. In the same way, employment security, insurance contributions and redundancy payments were introduced to maximise the inter-temporal security of the workforce which, as opposed to employers, is committed to one job and cannot diversify its "human capital portfolio" in order to minimise risk. Overall, labour market regulations were largely introduced to organise the operation of the labour markets in a systematic way, to achieve continuity and establish commonly accepted "rules of the game". This, of course, should benefit both employees and employers.

Following these considerations, *labour market regulation is the set of binding arrangements imposed by a government on labour relations in order to achieve a number of economic and non-economic outcomes*, not necessarily related to the labour market itself. Such regulations, however, can adversely affect the operation of labour markets and produce greater inefficiencies than those they are supposed to prevent. Because of that danger -and under the specific conditions that were created after the slowdown of economic growth in the 1970s- labour market deregulation became an issue with many advocates and few opponents. Labour market deregulation therefore refers to the removal of the technically imposed institutional obstacles in the free operation of a labour market, obstacles that are imposed and

controlled by governments. It is under this perspective that such issues as Active Labour Market Policies (ALMPs: vocational and subsidised on-the-job training, job-brokering, etc; see Calmfors, 1994), the flexibilisation of the housing and financial markets and the reduction of barriers to geographical mobility relate directly to labour market deregulation. More importantly, of course, labour market deregulation refers to the relaxation of policies that keep minimum wages, hiring and firing costs, costs related to overtime and non-wage compensations (maternity leave, paid holidays, sick leave, etc) and unemployment benefits at high levels. The objective of labour market deregulation is not, however, the complete removal of any form of regulation from the labour market and should not be considered as merely a quantitative reduction in "rigidities". As was discussed in the previous chapter, labour market deregulation constitutes effectively a re-regulation of labour markets under more flexible and (mainly) cost-effective rules. It is thus conceptually different from labour market flexibility and not at all symmetrically opposite to labour market regulation.

2.1.3. Regulation, deregulation, flexibility and flexibilisation

Labour market deregulation is however often confused with what could be called "labour market flexibilisation".[16] Nevertheless, the case here is again not symmetric. As will be further discussed in the following chapters (and explicitly shown in chapter five), labour market deregulation is neither a sufficient nor a necessary condition for flexibilisation to occur. First, flexibility in a labour market can increase without a change in regulation if other labour market rigidities are removed. For example, a reduction in the degree of segmentation (either vertical or

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[16] Although we recognise that the term "flexibilisation" is a neologism that is not aesthetically appealing, we use it extensively to describe "increases in labour market flexibility".

horizontal) in labour markets would increase sectoral, occupational and (possibly) geographic mobility. The result would be a flexibilisation of the labour market.

Second, labour market deregulation can occur without a subsequent flexibilisation of the labour market (Brosnan and Walsh, 1996; Ozaki, 1999). Imagine for example that, despite regulations, the extent of part-time employment in a labour market is (close to) optimal. Further, imagine that some restrictions are withdrawn so that the part-time employment becomes easier to achieve. Naturally, the effect of deregulation on employment arrangements and labour market relations in such a (hypothetical) case would be negligible.

A different and perhaps more plausible example is the following. Imagine that certain rules regulating fringe benefits were withdrawn (deregulation). Firms would have the option to reduce their fringe benefits in order to reduce their (labour) costs. If, however, such a reduction led to lower labour supply and a probable reduction in workers' effort, it is possible that this would effectively increase wages and reduce output. So, it is possible to assume that a profit-maximising firm would find it more profitable to keep the fringe benefits it offers at their pre-deregulation levels, rather than reduce them.[17] This rationale can probably explain the finding of Addison and Hirsch (1997) that the introduction of mandatory advance notices (regulation) in the USA in 1989 did not raise the proportion of redundant workers receiving a dismissal notice of over than a month in advance (inflexibility). As their estimates suggest, 8.6% of dismissed workers received a one-month-or-more notice in the six-year period prior to regulation, while in the next three years following regulation this

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[17] Such an outcome can be formally derived from an insider-outsider or an efficiency wage model. We derive a condition for such an outcome under a perfect competition framework in the model we develop in chapter five.

percentage even dropped slightly to 8.2%. This example points to the fact that deregulation proxies flexibility only to the extent that it is used by firms.

Figure 2.1: Labour market regulation, deregulation, flexibility and flexibilisation
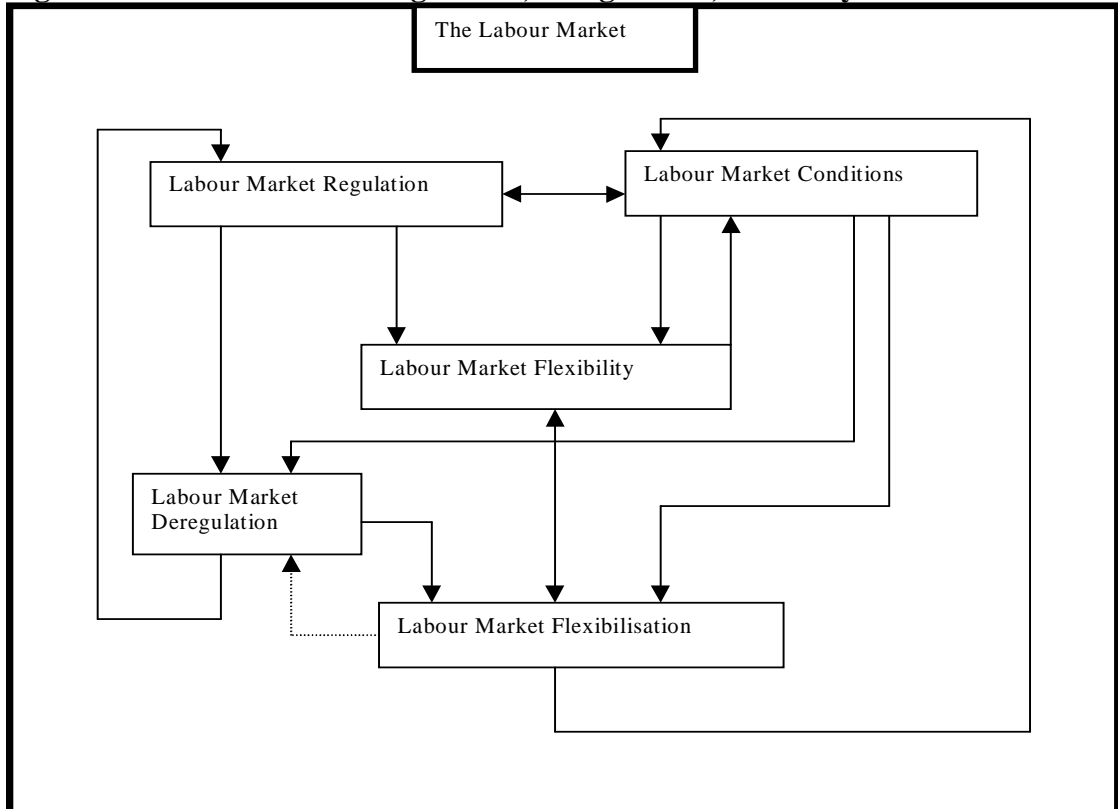
Finally, labour market deregulation can result in the removal of some "rigidities" that actually cancel other important inflexibilities. Although this refers more to labour market outcomes than to labour market flexibility as such, imagine a case where the decentralisation of wage bargaining leads to its restructuring in such a way so that an increased number of parties become involved. Prolonged periods of bargaining and a potential increase in wage-stickiness can result, especially if the centralised bargaining system was characterised by high co-ordination (Calmfors and Driffil, 1988; Nickell, 1997a; Traxler and Kittel, 1997).

Indeed, for the last two cases one can argue that flexibilisation has in fact occurred with the withdrawal of the restrictive regulations, and that flexibility is higher, although not directly observed. Such a perspective would, however, create further problems for the definition and measurement of labour market flexibility. We prefer to think of flexibility more as an outcome, rather than a potentiality, in order to simplify the analysis, both theoretically and empirically. This is the perspective we employ in the theoretical discussions and empirical investigations that follow.

To better illustrate this perspective, we summarise our discussion so far, in Figure 2.1. Labour market regulation interacts with economic conditions and, although both are reshaped by each other, determines the degree of flexibility that prevails in the labour market. Labour market conditions can of course trigger changes in labour market regulation (deregulation). The labour market response to deregulation (flexibilisation) will generate some minor feedback effects to deregulation (dotted line) and affect directly the overall degree of flexibility. Flexibility, deregulation and flexibilisation will reshape labour market conditions, so that a new "equilibrium" of labour market regulation, labour market outcomes and labour market flexibility will emerge.

Before closing this section, it is important to note that such a perspective suggests that labour market flexibility is endogenous to labour market conditions. In other words, it is not the potentiality of flexible employment arrangements to occur that is important, but rather the extent to which such flexible arrangements are identifiable in a labour market. The latter will depend on the degree of regulation and the specific economic conditions prevailing in the labour market and will affect the extent to which regulations are used.

2.2. An analytical decomposition of labour market flexibility

Having rather extensively discussed the issues of labour market regulation, deregulation and flexibility, we now turn to the forms and types of flexibility, to reproduce the typologies existing in the literature and discuss the particular elements of flexibility. Our examination of the ingredients of flexibility is conducted on three levels: first, at a functional level, which provides an investigation of the different types of flexibility; second, at a technical level, which facilitates the analysis of the various forms of flexibility; and, third, at a practical level, which facilitates the discussion of the ways in which flexibility manifests itself in the labour market. A detailed table with all the decompositions discussed here is presented in the Appendix (Table A.2.1).

2.2.1. Functional decomposition

From a functional perspective labour market flexibility can be classified as numerical and functional, with each of these types further divided into internal and external.[18] The term "numerical flexibility" refers to a condition where firms can easily find the necessary quantities and qualities of labour to adjust to any business cycle shifts. "Internal numerical" flexibility refers to the workforce already employed by the firm and to the adjustability of their working hours (short shifts, overtime) working time (weekly hours, variable shifts), leaves and holidays. "External numerical" flexibility refers to the ease with which a firm can adjust its labour input, presumably by temporarily employing additional workers. Conversely, "internal

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[18] This classification resembles the distinctions produced by the Institute of Manpower Studies (Atkinson (1984; Meager, 1985; Atkinson and Meager, 1986). In their model, however, functional flexibility was mostly identified as internal, while numerical flexibility was considered external. A third type of financial flexibility, which here we consider external to the labour market and do not discuss, was also identified.

functional" flexibility refers to the "ability of companies to improve their operating efficiency by reorganising the methods of production and labour content (multiskilling, decreases in job demarcations, increased employee involvement) in order to keep pace with changing [demand conditions or] technological needs" (Koshiro, 1992, p.14). "External functional" flexibility refers to the ability of firms to externalise some parts of their production (vertical disintegration) and possibly diversify their production, mainly through sub-contracting.

2.2.2. Technical decomposition

While such a classification of the various functional types of flexibility is useful, further analysis is needed to obtain a clearer picture of what labour market flexibility actually refers to. Such an analysis is facilitated by the technical decomposition of labour market flexibility. From a technical (or "economic-theory") perspective, labour market flexibility can be understood as the extent to which market forces are allowed to operate freely in three broad domains. These domains can be labelled as "production function flexibility", "labour costs flexibility" and "supply-side flexibility". Alternatively, one can regard these three domains as "institutional flexibility", "wage flexibility" and "individual flexibility", respectively (Dawes, 1993). Each of these domains consists of smaller sub-domains, as illustrated in Figure 2.2.

Production-function flexibility can be divided into "flexibility in the labour input" (adjustability of labour input to changing economic conditions) and "flexibility in the work content".[19] Labour-costs flexibility can be divided into "flexibility in non-

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[19] Note that these two categories closely resemble the distinction between numerical and functional flexibility, respectively. However, this is a different classification. For example, although sub-contracting would be classified as (external) functional flexibility from a functional perspective, from a technical perspective it would fall into the "labour input" category.

wage costs" and "pay flexibility". The latter can be further decomposed into "flexibility in the determination of the reservation wage" and "(average) wage flexibility". Finally, supply-side flexibility can be split into "labour mobility" and "flexibility in skills acquisition".

Figure 2.2: Technical decomposition of labour market flexibility

		Labour Market Flexibility				
Production-function		Labour-costs		Supply-side		
		Wage costs (pay)				
Flexibi-lity in labour input	Flexibi-lity in work content	Determi-nation of reserv. wages	Determi-nation of average wages	Flex. in non-wage costs	Labour moblity	Flex. in skills acqui-sition
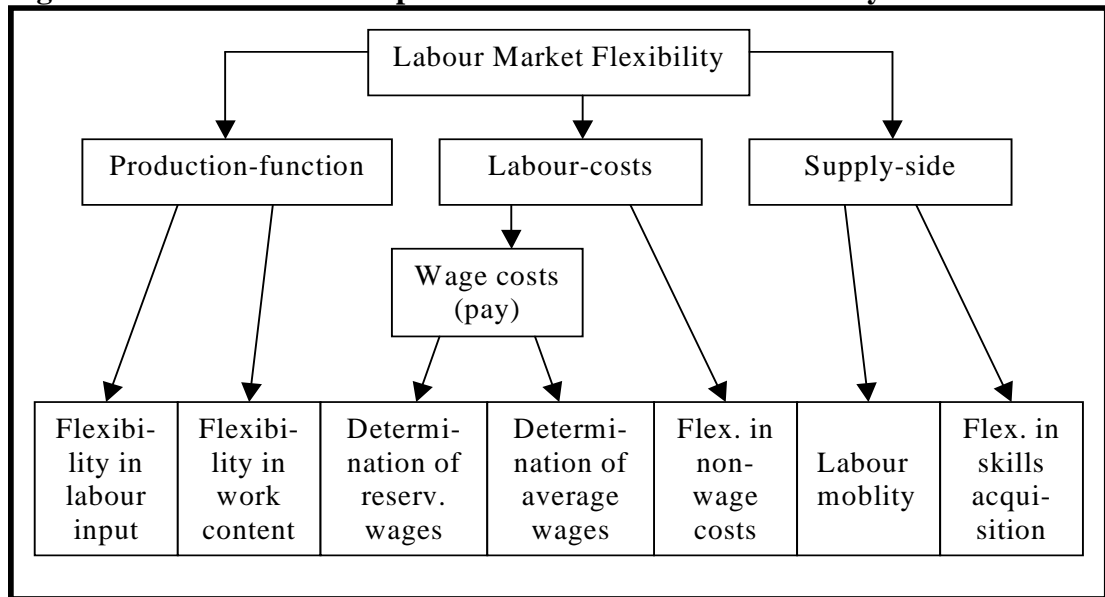
We will return to these categories after a practical account of the different elements constituting labour market flexibility has been made. At present, three points are noteworthy. First, these seven "bottom-line" categories identified in technical terms include elements that are not exclusively attached to any particular category. For example, deregulation in hiring-and-firing legislation can increase both flexibility in non-wage costs and flexibility in the labour input, by reducing (non-wage) labour costs and increasing labour turnover, respectively. Second, categories identified from a technical perspective do not exactly correspond to a specific category from the functional decomposition. Some elements of supply-side flexibility can thus be better viewed as functional (e.g., occupational mobility), while others refer to numerical flexibility (e.g., sectoral mobility). Third, this technical

decomposition allows us to scrutinise the specific *targets* that each category of labour market flexibility is supposed to reach. Some of the categories presented in Figure 2.2 refer mainly to *pure labour market flexibility* (defined as the degree of adjustability to changing economic conditions). Such categories would be what we defined above as pay and supply-side flexibility as well as most elements of production-function flexibility. Most of the latter would also be relevant in a *productivity-enhancement* context, as would be (a few) elements of flexibility in non-wage costs, although these fit almost entirely to a third target, that of *cost-reduction*. These three targets of labour market flexibility will be further discussed later, together with our practical decomposition of flexibility and re illustrated in Table 2.1.

Table 2.1: Elements of flexibility, by target and technical category

Flexibility targets / Technical Categories	"Pure" flexibility	Enhancement of labour productivity	Reduction of labour costs
Labour input	Irregular hours, Shift work, Working time, Weekends, Temping, Dismissal protection	(Negative effects)	Alternative, Part-time and Home-work, Irregular hours, Temps, Dismissal protection
Work content	Multi-tasking, Within-job occ/tional mobility, Job demarcations	Multi-tasking, Within-job occupational mobility	Multi-tasking, Job demarcations
Reservation wage	Duration of benefits, Minimum wages, Replacement rate	(Duration of benefits, Replacement rate)	Minimum wages, Replacement rate
Wage flexibility	Co-ordination (unions-firms), Structure of wage bargaining, Union (coverage, density, power), Wage flexibility	Union power	Co-ordination (unions-firms), Structure of wage bargaining
Non-wage costs	Dismissal and empl. protection, Employees representation rights, Labour standards	Employment protection, Labour standards	Dismissal and empl. protection, Labour standards
Labour mobility	Housing flexibility, Job mobility / Tenure, Occupational, Regional and Sectoral mobility	Regional and Sectoral mobility	Job mobility / Tenure, Occupational mobility
Skills acquisition	ALMPs, Educational attainment, Training	ALMPs, Educational attainment, Training	Training

Note: In parenthesis are listed elements that are not straightforwardly expected to be related to a target, but for which there is debate in the literature about their potential connection.

Before turning to the specific elements that constitute labour market flexibility, we must mention the distinction among the various *sources* of flexibility. Labour market flexibility can be the outcome of government legislation (labour market regulation and deregulation), collective bargaining (trade unions), changes in firm behaviour, or changes in the behaviour of the workforce (Ozaki, 1999). While the second source of flexibility is rather common in some countries (Denmark and Holland, usually with the consultation of -and sometimes the pressure from- government), the most common sources of flexibility are labour market deregulation and unilateral changes in firms behaviour. Changes in the behaviour of the workforce (for example, workers investing in multi-skilling and becoming more mobile) are more of a theoretical possibility than an identifiable reality, at least outside the area of self-employment. The fact that flexibility and flexibilisation are dominated almost entirely by the acts of the firms and the state, together with the fact that much of what is perceived as flexibilisation is in effect productivity-enhancing and cost-reduction strategies, has led to the identification of the search for flexibility with "the idea of labour being flexible in the interests of capital" (Atkinson, 1987, p.98). As one strong critic of labour market flexibility puts it, "[t]he notion of flexibility, then, becomes something of an ideological fetish" (Hyman, 1991, p.281). We will talk about these issues in detail in the next section. We now turn to a detailed presentation of the list of elements that constitute labour market flexibility.

2.2.3. Practical decomposition

From a practical perspective, there are many elements that fit into the notion of labour market flexibility. The discussion of this sub-section cannot be exhaustive, as a full account of all possible elements of labour market flexibility would require

much more space than we can actually devote to it here. However, we will cover most areas at least briefly.

Our technical decomposition illustrated the main elements that labour market flexibility is conventionally thought to include. We present a fairly extensive list of these elements in Table A.2.1, with reference to the targets that such elements are primarily meant to meet. One group of elements includes non-standard employment arrangements that allow a firm to employ workers while simultaneously avoiding a permanent commitment and the non-wage costs that such a commitment might entail. Elements included in this category of "flexible employment" are part-time work,[20] temporary placements (fixed-term contracts or contracts over a fixed task), seasonal work, sub-contracting and casual employment (irregular or occasional work).

These non-standard employment arrangements also connect to elements related to the "casualisation of employment", with the deregulation of dismissal protection (job security). Such elements make the permanency of a job less secure and dismissals less costly. Consequently, the labour input becomes cheaper (lower non-wage costs) and therefore more responsive to demand and general economic conditions.

Another group includes what we could attach to the labour-input and internal numerical flexibility categories. This group, characterised by the ILO as "working-time flexibility" (Osaki, 1999), includes flexibility in overtime, working hours and working time, shift-work and work on weekends. Such elements of flexibility represent the ability of firms to adjust their labour inputs upwards or downwards without any additional costs.

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[20] To the extent that part-time work is contracted on an open-ended (permanent) basis, it could be included in the next group as well.

Hence, relaxation of the regulations covering (paid) overtimes, maximum working hours per week and per day, maximum days per week, the continuity of the working day (shift-work) and of the working week (weekend-working) allow firms to adjust internally their labour inputs and distribute them more evenly, so as to achieve continuity of production and respond immediately to demand changes. An example of such an arrangement would be the annualisation of working time, with which overtime is no longer calculated on a weekly basis and weekly hours can vary substantially, sometimes including a week's holiday per month in return for weekend work or longer workdays.

Multi-tasking, which often includes team-working and within-job occupational mobility, is also a means of internally adjusting labour inputs, although it mainly refers to the content of work. As an example, imagine a firm with a number of secretaries, which needs occasional book-keeping services. The firm could either sub-contract this service, hire an occasional, temporary or part-time employee, or re-train one of its secretarial employees to occasionally provide this service (overcoming occupational demarcations through skill enhancement). The last option would additionally reduce costs (and increase productivity), especially if the secretarial staff was not fully utilised (labour hoarding). Additional elements of flexibility that could also facilitate multi-skilling and occupational mobility are increased training provision (on-the-job and government-provided job-related training) and higher educational attainment. This group of "supply-side" flexibility elements allows firms to use more fully (the skills of) their workforce and probably more flexibly organise their production process. But to the extent that changing demand conditions do not require that, this only serves a cost-reduction purpose. A special category within this group is Active Labour Market Policies (ALMPs). Such policies can increase the

employability of the unemployed (especially the long-term unemployed), increase job-matching (hence, productivity) and help firms overcome skill-shortages that can increase labour costs (wages) and hinder production efficiency.

Related to the above is a group of elements that fall under the general title of labour mobility. This list includes occupational, sectoral, regional and job mobility, as well as flexibility in the housing market. All these are pretty much supply-side elements, although both firms and governments can offer incentives to enhance labour mobility. These elements mainly guarantee the unrestricted operation of "market forces" that compel the labour market into an equilibrium any time a deviation occurs. Flexibility in the housing market (and, hence, housing market deregulation) is included here as it removes barriers to mobility (in space and, consequently, across jobs) for the workforce. Flexibility in labour standards includes a wide range of elements, of which employee representation rights, working conditions, health and safety regulations, the right to organise (unionism), regulated breaks, paid leave (sickness or maternity) and holidays, are the most significant. All these elements largely represent extra production costs. They also include, however, aspects related to the adjustability of the labour input (breaks, working hours) and of labour costs (working conditions, holidays) and their deregulation, therefore, is a source of flexibility. As we shall see in the model we develop in chapter five, labour standards (non-wage costs) can be adjusted depending on market conditions, despite the degree of regulation (which, however, provides a lower floor).

For theory, however, the most important elements of flexibility are those related to the determination of (minimum and average) wages. First among them is wage flexibility, or the elasticity of wages with respect to unemployment. This is a much less institutional element, as it depends on a plethora of factors that affect the

operation of the (labour) market. It is related, however, to the reservation wage and the system of wage determination. Wage determination involves at least three elements: decentralisation (or individualisation) of wage bargaining, reduced trade union power (as well as densities and coverage rates), and co-ordination among unions and among employers in the bargaining process. Trade unions apply upward wage pressures (with potential negative employment effects) and make wages stickier, thus reducing their (downward) adjustability with respect to unemployment. Co-ordination in wage bargaining can unify the otherwise sectorally and regionally segmented labour markets and help regional and sectoral specificities be accounted for in the wage bargaining process, especially when the latter is decentralised. Decentralised wage bargaining recognises the existing differences in profitability and final demand for different sectors and firms and allows the equal growth of all sectors in the economy by producing sector-specific wage equilibria.

Flexibility in the determination of reservation wages is directly related to a lowering of minimum wages and the levels and duration of unemployment benefits. Hence, this group of flexibility elements is effectively a (labour) cost-reduction policy, although it also helps reduce reservation wages, increase labour supply and, more importantly, increase the unemployment elasticity of wages. A final cost-related element of flexibility is (reductions in) payroll taxes. This is sometimes a large component of the so-called "wedge" (the difference between production and consumption wages).[21] Reducing the wedge can increase labour demand and supply, thus stimulating economic activity and impelling labour market outcomes (wages and employment) to be increasingly responsive to (and more reflective of) general economic conditions.

With this discussion of the various constituent elements of labour market flexibility we conclude this section on the decomposition of flexibility into its discrete parts. In the next section we attempt an organic synthesis by placing the relevant elements into a more structural framework.

2.3. The "flexible firm"? the relationship between the different elements of flexibility

In the previous section we saw what constitutes labour market flexibility. We decomposed flexibility into its descriptive elements and provided further aggregations based on functional, technical and other classifications (i.e., targets and sources). Here we explore how and whether all these elements can be integrated into a model of labour market behaviour and managerial strategies. The literature does not offer many insights on the issue, as this is too complicated to be convincingly described by one single model. Thus, our present inquiry is more exploratory than conclusive.

In general, one can identify three theoretical perspectives in which to fit the stylised facts of the patterns and forms of flexibility discussed so far.[22] The most thorough and analytical attempt dates from the mid-1980s, to the work of the -then-Institute of Manpower Studies (now Institute for Employment Studies). In a series of studies (Atkinson, 1984 and 1985; Meager, 1985; Atkinson and Meager, 1986) a model of a "flexible firm" was developed and relevant evidence was provided to explain the changing patterns of labour use and labour market flexibility. A divergent second perspective considers such changing patterns as the outcomes of fundamental socio-economic changes: a number of causal factors, not necessarily organically integrated, rather than the implementation of specific strategies by "flexible firms"

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[21] There are enormous differences in the payroll tax rate among countries, varying for example (for the 1989-1994 period) from 0.6% in Denmark to 40.2% in Italy.

are what drive these changes. Such a perspective is compatible with the view of firms as having "a distinctively non-strategic approach to labour use" (Hunter et al, 1993, p.401).

A third approach considers such changes (labour market flexibilisation) as a wider "strategy" outside the firm. This category could include non-economic approaches (political theory and sociology) as well as non-orthodox economic approaches (flexible specialisation, regulationist, marxist, neo-institutional). According to such approaches, a specific strategy exists for changing patterns of labour exploitation, organisation of production and regulation of socio-economic relations. This strategy, however, is beyond the scope of the firm. In other words, these changes occur at the level of the firm but are inspired at and instigated from the wider social and economic arena. We present and briefly discuss each of these approaches below.

2.3.1. The "flexible firm"

The model of the "flexible firm" (Atkinson, 1985; Atkinson and Meager, 1986) suggests that firms consciously move from traditional labour use strategies to more flexible ones. Under the pressure of increasing economic uncertainty, higher competition and technological change, firms tend to favour a division between a "core" of permanent employees who enjoy (relative) job security and probably higher wages and a "periphery" of temporary employees with low labour standards (and wages). Firms deploy such a strategy in order to enhance their ability to adjust their labour use, responding quickly and with little costs to changes in demand or in the organisation of production. This strategy generates a dichotomy between an internal

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[22] Pollert (1991) offers a similar classification (of three theoretical perspectives) to ours.

labour market of core workers and an external labour market of peripheral workers. Firm strategies go further to apply new measures of functional flexibility to the core workforce, while using the external labour market to satisfy their need for numerical flexibility.

Figure 2.3: The Flexible Firm Model
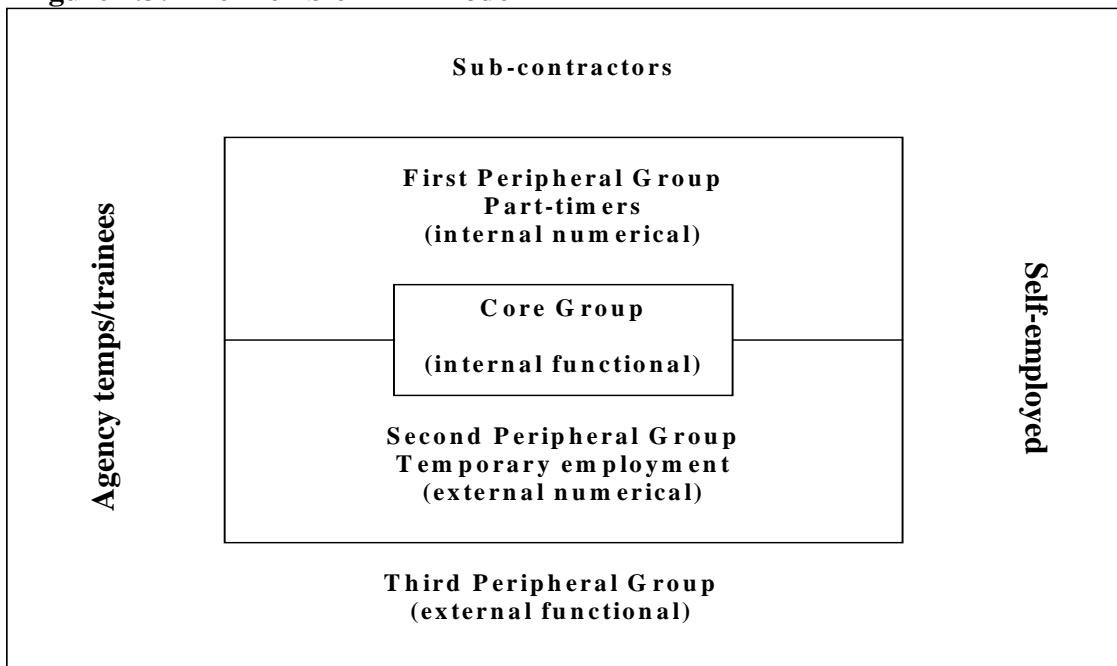
As Figure 2.2 shows, outside the core group there are three peripheral categories.[23] The first includes all workers employed on a part-time basis or under job-sharing arrangements. This part of semi-core workers normally works irregular hours in order for the firm to meet its numerical flexibility goals. The second group includes workers on fixed-term and task-related contracts and constitutes the typical external workforce, which has no options for promotion or any further involvement within the firm. In the periphery of these two groups is a third group consisting of sub-contractors, agency temps, trainees and the self-employed. This group is an

external labour market, which is not specific to the firm and to which the firm has no commitment other than that deriving from the specific production arrangement (contracted task).

To summarise, the flexible firm model predicts a structural trend of firms consciously developing a strategy where various forms of flexibility are technically constructed. Internal functional flexibility is achieved by the technical construction of the core workforce; (semi-)internal numerical flexibility is offered by the first peripheral group (part-timers); external numerical flexibility is offered by the second peripheral group (temporary employees); and external functional flexibility is achieved by the utilisation of the external peripheral group (sub-contractors). Further, with this segmentation of the workforce, the flexible firm can also achieve pay-flexibility and non-wage costs flexibility, simply by altering the shares of each of the groups of workers in its total workforce. Union representation and power will also decline, sometimes by more than the extent to which the core workforce is reduced.[24]

2.3.2. The "non-strategic" approach

It is no exaggeration to say that the main critiques of the flexible firm model are data-oriented. A number of empirical studies have indeed found that the pay and labour standard conditions within the different groups of peripheral workers are not so homogenous as to support a core-periphery model (Hunter et al, 1993; Gallie et al., 1998; Pollert, 1988). Survey evidence also strongly suggests that the increased use of temporary and contingent forms of employment is unrelated to any shifts from

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[23] The model actually presented here is based on Errington and Gasson (1996) and is a modified version of Atkinson's (1985) original model, in that it explicitly takes into account the heterogeneity of the various forms of peripheral employment.

[24] This is expected, as it is assumed that only core workers can in the long run be union members. As their numbers decline, so will union density. As union power increases geometrically with union density, the decline in unionisation rates will lead to a stronger decline in union power.

traditional firm strategies to newer, flexible ones (Hunter et al., 1993; Wood and Smith, 1989; Casey, 1988 and 1991; Walsh, 1991). A pragmatic, random and non-strategic approach is what seems to drive firm behaviour.

If there is no firm-specific strategy to explain the increasing labour market flexibility, then one might have to look at the various economic and non-economic forces for a coherent explanation (Hakim, 1987).[25] From this perspective, firms respond to changing economic and technological conditions and to increased uncertainty by changing what can be called their "aggregate flexibility" (Gallie et al., 1998). Simultaneously, the same forces that lead firms to enhance their aggregate flexibility also create the conditions for specific forms of flexibility to emerge. This would include "institutional" flexibility (labour market deregulation) and "supply-side" flexibility. As an example of the latter, a high probability of someone experiencing long-term unemployment would make her more willing to accept a part-time or temporary job. Firms exploit that opportunity in order to increase their aggregate flexibility, but flexibility at the individual level is not altered. For the individual part-timer, stability rather than flexibility is the norm.

Gallie et al. (1998), using information from the Employment in Britain Survey, provide the most recent evidence revealing that workers normally perceived as the "peripheral workforce" do not experience severely different levels of job-insecurity, pay, task, or even working-time flexibility. This, despite the fact that pay (especially non-wage compensations) is on average lower for this group of workers.

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[25] We do not discuss here this part of the literature extensively, as it does not help us perform the "organic synthesis of the various forms and types of labour market flexibility", which is in fact the purpose of this section. A very good presentation of the market and institutional forces that necessitate and hinder the flexibilisation of the labour markets from a (new) political economy perspective, can be found in Saint-Paul (1996).

Such an analysis therefore suggests that firms deploy strategies merely to reduce their (labour) costs (the "cost-reduction target" that we discussed earlier) and increase their production flexibility on aggregate. However, the implementation of these strategies does not imply the existence of a strategic approach to labour use methods or to production organisation.

The same results were obtained by Hunter et al (1993) in their analysis of the Employers' Labour Use Strategies and Workplace Industrial Relations surveys. Moreover, their analysis suggested that, rather than complying with a "horizontal segmentation" (within-firms) scenario as dictated by the flexible firm model, to the extent that firms had a strategic approach to their labour use, this was more of a vertical segmentation (between firms). This in turn supports the argument about the aggregate-versus-individual flexibility made above. Firms might be making increasing use of "flexible" forms of employment (and this might be enhancing their internal, external, numerical, functional and pay flexibility on aggregate), but this is not occurring under a specific and organised managerial strategy. Rather, it seems as an opportunistic response to changes in competitiveness, technology and even ideology. Hence, the conclusion based on this approach suggests that the existence of a clear trend -not to mention strategy- of within-firm "flexibilisation of labour use" cannot be sustained.

2.3.3. Structuralist approaches

Although equally critical of the flexible firm model, the third approach examined here does not support the view of a pragmatic but non-strategic firm behaviour. As noted earlier, this approach is less homogenous and includes

perspectives as diverse as the marxist "labour exploitation" and the (post-modernist) "flexible specialisation" theses.

For the latter and largely for the post-Fordist regulation approaches,[26] flexibility is conceptualised as the outcome of the decline of the "Fordist" firms and spatial production systems (large industrial cities), or the erosion of Fordism as a mode of accumulation and method of regulation (Scott, 1988b; Scott and Cook, 1988; Storper and Scott, 1990; Vazquez-Barquero, 1992; Granados-Cabezas, 1992; Amin, 1994). With this decline and erosion, alternative production systems begin to gradually dominate. Such systems are flexibly specialised and spatially unique. Storper and Scott (1990) identify six new complementary organisational structures of production, which facilitate various forms of flexibility: labour-intensive flexible specialisation; technology-intensive flexible specialisation; semi-continuous serial production; systems house manufacturing; de-skilled service production; and professional and managerial team-work. To avoid grappling with unnecessary details, the main argument states that (previously dominant) large trans-national corporations (TNCs) encounter the limits of Fordism and react by reducing their (internal) employment and externalising their production. Depending on "local responsiveness", small businesses will grow, thus creating a network of self-employment, sub-contracting, part-timing, temping and home-working. A new production system (of a small "core" workforce and a larger more dynamic "peripheral" flexible workforce) will emerge, leading us to observe on aggregate a flexibilisation of the labour market.

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[26] There are important differences between these two approaches. We overlook them, however, quite arbitrarily for ease of presentation. Observable differences exist also within each of these perspectives. Although the examination of these differences is interesting, we avoid considering them here and restrict ourselves to the relevant discussions of chapter one. Interested readers can refer to the editorial of Amin (1994) and the critical discussion of Brenner and Glick (1991).

With the decline in core employment, "new forms of work and of conditions of employment" prevail, manifesting themselves as multi-skilling (reduced job-demarcations), work-intensification (overtime), decentralised wage bargaining and union de-recognition (Hudson, 1989, p.8). Hence, the global-local interplay gives birth to a new dualism: core workers in TNCs and peripheral workers in "local" enterprises, with a consequent erosion of unionism and labour standards.[27] In the words of one of the flexible specialisation analysts, "productive adjustment would appear through new forms of capital accumulation that make the production processes and the functioning of the labour markets more flexible" (Vazquez-Barquero, 1992, p.33). We do not want to further expand on the global-local and flexible specialisation debates here. Here, we merely want to point out the relevance of certain aspects of these debates to the organic understanding of (the various elements of) labour market flexibility.

Turning to the marxist approaches to labour market flexibility -and avoiding other perspectives, such as the German analysis of "new production concepts" (see Hyman, 1991)- the main question addressed is the degree of novelty and indeed the analytical validity of the notion of flexibility. For such approaches, labour market flexibility was always present (for a non-marxist elaboration on that, see Peck, 1992). Prior to keynesianism, the almost complete lack of regulation in labour relations had allowed maximum degrees of "flexibility". Such flexibility, of course, is for marxists nothing more than pure labour exploitation for the creation of surplus value. In the keynesian period, this exploitation took the form of a vast utilisation of cheap immigrant labour and native female and agricultural labour, assisted by the pre-conditions for growth that emerged after the Second World War (Mandel, 1972).

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[27] This is also consistent with the "between" segmentation thesis discussed earlier.

These factors allowed for the stabilisation (and often expansion) of the rate of profit and simultaneously of employment, work arrangements and labour standards.

With the new crises of the 1970s, the increased uncertainty of the 1980s and the consequent decline in the rates of profit, capital sought new ways of increasing labour exploitation.[28] In this respect, all the forms and types of flexibility reviewed above are alternatives in a continuous search for increased labour exploitation. The re-emergence of labour market flexibility simply "represents the re-imposition of old 'hire and fire' strategies as the position of labour in the market becomes seriously weakened" (Hudson, 1989, p.15). This shift has been largely assisted by the re-emergence of neo-liberal ideology and the changing role of the state, from a mediator and advocate of worker rights, to a facilitator of the interests of capital (Hyman, 1998). The emerging "new" forms of flexibility, then, are random outcomes of a "strategic" and organised attempt to increase labour exploitation. They are random because there is not an underlying managerial model of labour use or a governmental plan of the configuration of social relations behind them. And they are strategic because these changes are endogenous (historically-specific) to the present phase of capitalist development.

2.4. Labour market (de)regulation in the UK and the OECD

In this section we proceed to a synoptic overview of the main labour market reforms and evolutions in the OECD and the UK in particular. We do not intend to make a full account of the changing conditions in the labour markets of these

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[28] From such a perspective, the contemporary anti-immigration policies (both proactive and reactive), especially in the USA and the EU, can be viewed as a reaction to the re-emergence of a once welcomed socio-economic phenomenon, which has now reached its limits (played its historical role). To sustain peace and balance in contemporary advanced societies, while simultaneously ensuring its own sustainability and reproducibility, capitalism requires new forms of labour exploitation to replace older ones. Such forms of exploitation can be found in the "flexibilisation of the labour markets".

countries. Rather, the purpose is to present a number of general trends and specific country experiences relating to the issues discussed in this chapter. Despite the distinctions drawn in the previous sections, in what follows we use the terms flexibility and deregulation somewhat arbitrarily. Furthermore, and in complete analogy, the term regulation will be occasionally used to represent both regulation as such and inflexibility. This is done only to simplify our discussion here. The basic distinctions between the terms should however be born in mind at all times. In complement with the discussion here, in the third section of chapter four we review the OECD labour market experiences. Furthermore, in chapter seven we provide a rather detailed list of labour market reforms (deregulation) in the UK and analytically present the evolution of labour market flexibility in the UK regions, based on the flexibility indexes we constructed.

Consistent with its wider political tradition, the UK has never had a vast set of rules and regulations governing its labour market, at least not in the forms of hiring-and-firing, working-time, employment-contracts or wage-bargaining regulations (Nickell, 1997b). This is unlike the experience of other OECD countries (for example, the Scandinavian countries, Spain, France and the Netherlands), where labour relations were traditionally much more under the control of the state. Most of these countries have introduced in the last two decades various measures in their labour markets to achieve enhanced flexibility. However, the UK -together with the USA and, to a minor extent, Canada, Australia and New Zealand- is thought to have introduced the most severe deregulation measures and to have one of the more flexible labour markets. Deterioration in the treatment of the unemployed, with reductions in the levels and duration of unemployment benefits, is clearly identifiable (although to different extents and with additional qualitative differences) for all

OECD countries. In many countries, a concurrent increase in spending on Active Labour Market Policies (training, job-brokering, etc.) has accompanied the reduced spending on traditional (passive) labour market policies (OECD, 1994; Jackman, 1995; Martin, 1998).

The UK does indeed stand among the more flexible labour markets, together with the USA, New Zealand, Canada and Denmark (OECD, 1994 and 1997). These countries have the most flexible arrangements concerning temporary employment (broadly defined), parental leave, labour standards and employment protection legislation (Nickell and Layard, 1998). Conversely, Finland, Norway, France, Italy, Germany and Belgium have rather strict laws regarding both labour standards and employment arrangements (OECD, 2000). There are small differences in these classifications regarding the treatment of unemployed, minimum wages and union recognition and power. But if we look at rates of change in labour market flexibility (flexibilisation), a quite different picture is revealed. The Netherlands, Italy, Belgium and Spain have introduced a number of measures to reduce the real level of minimum wages and facilitate alternative forms of employment (OECD, 1998). In contrast, the UK -while embarking in a strong deregulation path during the 1980s- has recently (re)introduced a minimum wage and restrictions on working hours.[29] In 1994 the government expanded employment protection to cover part-time employees (Saint-Paul, 1996). Norway, Sweden, Denmark and the Netherlands are gradually moving towards more flexible and decentralised wage-bargaining systems and –although with major differences in the way changes occur- so do the USA, the UK, Canada, Australia and New Zealand (OECD, 1997). Only a few European countries remain relatively rigid in this respect (Spain, Italy).

Of course, looking at changes in regulation is not as informative as examining actual changes in the patterns of labour commitment and employment relations, as was indicated by our previous discussion of the conceptual and practical differences between flexibilisation and deregulation. Changes in labour relations are, however, much more difficult to identify and measure than institutional changes, despite the latter's qualitative nature. Information about functional flexibility, in particular (and especially its internal flexibility aspects), is difficult to obtain even with the most detailed survey data. Some evidence indicates that job-demarcations have declined and multi-tasking and multi-skilling have increased, although in many cases these trends are industry-specific. Ozaki (1999) suggests that these trends have been slower in the Anglo-Saxon countries, where occupational segmentation is traditionally stronger. New Zealand managed to successfully overcome its rigidities and has seen in the 1990s a substantial reduction in job-demarcations and an equivalent increase in multi-skilling (NZIER, 1996). Multi-skilling has also advanced relatively fast in France, Germany and Norway. For the UK, Evans (1999) found that occupational upgrading and downgrading does not follow a clear time-trend, but depends on the business cycle. Finally, a clear trend of increasing work intensification is reported by Burchell et al (1999), for the case of the UK in the 1990s.

A clear increasing trend can also be identified for part-time employment, sub-contracting and self-employment (these are mainly indicators of numerical flexibility, with self-employment also potentially proxying for external functional flexibility), both in the UK and the OECD in general (Casey, 1988; Boli, 1997; OECD, 2000). Using data from the OECD and the European Commission, Ozaki (1999) has shown

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[29] The UK had up to 1992 a form of sector-specific minimum wages based on the Wage Councils (see Dickens et al., 1995).

that -with the exception of the USA, Sweden, Spain and Norway- the incidence of part-time employment increased in all OECD countries between 1985 and 1995.[30] The incidence of temporary employment, contrary to widely held notions, was fairly constant in many OECD countries (Belgium, Germany, Japan, Sweden), at least until the early 1990s. In the UK the share of temporary employment to total employment was around six percentage points throughout the 1980s (Casey 1991). But in the 1990s temporary employment exhibited an increasing trend (Watson, 1994; Gallie et al. 1998). Hunter et al (1993) suggest a small increase in temporary employment (around 0.6% per year). In Australia and New Zealand broadly defined non-standard forms of employment have increased sharply, accounting by 1995 for around 30% of total employment, while temporary employment in particular also increased in France, Spain and the Netherlands (Ozaki, 1999).

Although data on changes in flexible work practices are especially difficult to obtain, evidence suggests that countries with high levels of shift-work and weekend-work (UK, USA, Spain) tend to also have the faster expansion of these arrangements (Grubb and Wells, 1993). Generally, however, the growth of non-standard working times is rather slow. The incidence of working irregular hours (as measured by the extent of annualised hours contracts, weekend working and the like) increased sharply in the 1990s in the Oceania countries, France, Italy and the Netherlands. Regarding wage flexibility, as measured by the unemployment elasticity of (log) wages, the evidence is limited. Some evidence for the UK suggests that the responsiveness of wages with respect to unemployment has increased during the 1980s (Jackman and Savouri, 1991; Blanchflower and Oswald, 1994a; Armstrong and Blackaby, 1998).

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[30] Some authors attribute this increase to the rising labour force participation of married women. However, even to the extent that this is true, it is difficult to establish which of the two trends is endogenous, that is, whether the increase in part-timing is supply- or demand-driven.

An increasing responsiveness of wages to unemployment also seemed to describe Germany in the 1990s, although German wages in the 1980s were rather rigid. Compared to other EU countries the unemployment elasticity of wages is in general higher in France, Italy and probably the Netherlands (Layard et al., 1991). Blanchflower and Oswald (1995) have also found (statistically) significant unemployment elasticities of wages for the USA, Canada, Switzerland, Australia and Norway. Performance-related pay, another form of wage flexibility, is increasingly common across firms in Italy, France, New Zealand, the USA and the UK, but is less important in Norway, Canada and the Netherlands.

In retrospect, there has been a relatively clear trend of labour market deregulation across all OECD countries during the last two decades and especially during the late 1980s and early 1990s. The Anglo-Saxon countries have in general more flexible labour markets than continental European countries, although significant differences do exist among different countries in their experiences with respect to specific elements of flexibility. The same is true for the trends towards labour market flexibilisation. Flexibility has increased in many respects in all OECD countries, especially flexibility referring to the internal and external adjustment of firms' labour inputs. Conclusions regarding the trends in functional flexibility are more difficult to draw as are conclusions regarding pay flexibility. The reduction, however, in employment security, minimum wages and unemployment benefits can actually be identified as a common OECD trend.

2.5. Concluding remarks

This chapter has explored in detail the nature, forms, types and patterns of labour market regulation, deregulation, flexibility and flexibilisation. Despite the fact that a large literature encompassing these issues exists today, a detailed and coherent analysis from a perspective as wide as that which is employed here is hardly found in any of the relevant works. As noted in the introduction, the structure of this chapter was developed around four questions: what is labour market flexibility; which are its constituent elements; how are they organised and integrated into a wider paradigm of socio-economic behaviour; and how do the facts relate to the theoretical considerations. We now summarise our discussion thus far and draw some general conclusions.

Because of the numerous and rather diverse elements that are naturally thought to constitute the concepts of (de)regulation and flexibility, it is difficult to give a widely accepted definition of these terms. A very broad definition of flexibility is that flexibility refers to a high degree of responsiveness by the economy to exogenous economic and technological factors. Accordingly, deregulation can be defined as the withdrawal of institutional and political arrangements from the determination of economic outcomes. As we have seen, however, many of the aspects of flexibility are related to increased labour market intervention by the state, in that new institutional arrangements are introduced and enforced in the organisation of employment and production. In this respect, labour market deregulation is nothing more than a change in regulation and effectively a re-regulation of the labour markets (Streeck, 1989). Accordingly, labour market flexibility and flexibilisation are chiefly a new set of arrangements prevailing in the labour markets and governing labour relations, which help reduce labour costs and intensify labour use.

The classification of the various elements of labour market flexibility is no less problematic, because one can organise a classification of these elements from many perspectives. Classifications can often conflict one another. For example, it is widely believed that increased flexibility is connected to a higher incidence of temporary employment and sub-contracting. But it is also often argued that many of these forms of non-standard employment have been present for many decades and are not at all "new" forms of employment arrangements. The appealing functionalist categorisation of flexibility becomes quite problematic when attempting to attach specific elements of flexibility (e.g., temping and part-timing) to specific theoretical categories (e.g., internal and external functional and numerical flexibility).

Furthermore, conflicts also exist between different elements of flexibility as such. For example, internal functional flexibility is related to higher job-tenure (lower labour mobility), training on job-specific skills and the construction of an internal labour market. So, flexibility can occur with a concurrent standardisation of employment relationships, which stands in contrast to the view that flexibility is related to the casualisation of the employment relationship (Hunter et al., 1993). In other words, labour market flexibilisation can include both an increase in non-standard employment and an increase in job-tenure.

Moreover, conceptual complications also arise at the level of theory and the attempt to identify the structural characteristics of the hypothesised "new paradigm" of flexible labour relations, as it is less evident that a new paradigm actually exists. Our discussion of the various theoretical approaches to the issue of flexibility, presented in section 2.3 illustrated this situation. There is little empirical evidence to support the thesis of a "flexible firm", even though this model can explain the simultaneous increase of job-tenure and firm-specific skills acquisition on the one

hand, and non-standard forms of employment on the other. The concept of the flexible firm is rather vulnerable to theoretical critiques and the flexible firm model has attracted such critiques from a wide range of approaches.

Yet, it is far from clear which are the exact conditions leading to specific changes in the organisation of labour markets, and ultimately manifesting themselves as "labour market flexibility". Although an almost absolute consent exists about the trends of labour market flexibility over the last two decades being triggered by changes in the international economy,[31] approaches to the specific processes and mechanisms that are actually activated differ substantially. Among others, the humanitarian approach of a pragmatic and reactive behaviour model of the firm and the structuralist approaches of flexible accumulation and specialisation and of labour exploitation are the most popular and were discussed in this chapter.

When the stylised facts of changes in labour market regulation and the experience of flexibility across OECD countries are reviewed, even more complications arise. Countries exhibit a substantial diversity in the degree, quality and mix of the specific arrangements they have introduced to (or, withdrawn from) their labour markets. Over-simplifying generalisations regarding the ideological background and the evolutionary patterns of labour market deregulation and flexibility are not sufficient in explaining this diversity and can possibly be misleading. The understanding of the causes of discrete country experiences is helpful in order to distinguish among three different approaches to labour market flexibility.

One approach attempts to facilitate the re-organisation of production by allowing the functional flexibilisation of the labour market. This approach can be

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[31] Such changes include the significant sectoral shift towards services, the increased importance of information and communications, the higher uncertainty in product and financial markets, the higher volatility and differentiation of product demand and the ever-accelerating technological progress.

attributed to the Netherlands, Norway, Denmark and Germany. A second approach focuses more on numerical flexibility, aiming primarily at the amelioration of labour market outcomes. Representatives of this approach are Italy, Spain and the UK. A third approach attempts a balanced use of both forms of flexibilisation as part of a wider reconstruction of the social and economic relations of production. The USA, Australia and New Zealand belong to this group. Irrespective, however, of which approach is employed, a general conclusion is that in all countries measures of deregulation and flexibility are selectively introduced as a means to improve labour market and wider economic performance. Nevertheless, countries differ also in their means of introducing these measures (legislation enforcement, co-ordination between economic agents, or unilateral enhancement of employers' power).

To summarise, there are many approaches to flexibility and flexibilisation as well as many different approaches to the implementation of measures related to these approaches. The discussion in this chapter has attempted to highlight the diversity and complexity of labour market flexibility, both in terms of its conceptualisation and its implementation. Despite the differences, the common denominator of all approaches is that flexibility is introduced as a means to improve economic outcomes. The remainder of the chapters in this study discuss and investigate the existence and significance of such a relationship between flexibility and economic outcomes. Chapter three reviews the empirical and theoretical literature. The remaining chapters are devoted to the empirical investigation and theoretical modelling of this relationship, at the international, national and regional levels.

APPENDIX A.2: Labour market flexibility decompositions

Table A.2.1: Analytical decomposition of labour market flexibility

Listing	Practical	Technical	Functional	Target	Source
Homework	Homework	LI, NW	EN	F, C	F, S
Part-time	Part-time	LI, NW	IN, IF	F, C	F, W, S
Casual	Temping	LI, NW	EN	F, C	F, S, U
Fixed-term	Temping	LI, NW	EN	F, C	F, S
Seasonal	Temping	LI, NW	EN	F, C, P	F, S
Sub-contracting	Temping	LI, NW	EN, EF	F, C, P	F, S
Task-contracting	Temping	LI, NW	EN, EF	F, C, P	F, S, U
Job-sharing/overtime	Working-time	JC, LI	IN	F, C	F, W
Irregular hours	Working-time	JC, LI	IN	F, C	F, S, W
Weekend-work	Working-time	JC, LI	IN	F, C	F, W, S
Working week	Working-time	JC, LI	IN	F, C	S, F, U
Shift-work	Working-time	JC, LI	IN, IF	F, C	F, W, S
Health/safety rules	Labour standards	NW	IF	F, C, P	S, F, U
Holidays	Labour standards	NW, LI	IN	F, C	F, U
Lunch breaks	Labour standards	NW, LI	IF, IN	F, C	F, W
Paid leaves	Labour standards	NW, LI	IN, IF	F, C	F, W
Representation rights	Labour standards	NW	IF	F	F, S
Right to organise	Labour standards	NW	IF	F	S, F
Working conditions	Labour standards	NW	IF	F, C	F
In-job occ. mobility	In-job occ. mobility	JC	IF, IN, EN	F, P	F, U
Job demarcations	In-job occ. mobility	JC	IF, IN, EN	F, C	F, U
Multi-tasking	In-job occ. mobility	JC, LI	IF, EN	F, C, P	F, W, U
Dismissal protection	Job security	LI, NW	IN	F, C	F, S
Empl. protection	Job security	NW	IN	F, C, P	F, S
ALMPs	Training	SA	EN, IF	F, P	S, W
Educational levels	Training	SA	EN, IF	F, P	W, S
Job-related training	Training	SA	EN, IF	F, P, C	S, F, W
Housing flexibility	Labour mobility	LM	EN	F	W, S
Job mobility	Labour mobility	LM	EN	F, C	W, S
Occupational mobility	Labour mobility	LM	EN	F, C	W, S, F
Regional mobility	Labour mobility	LM	EN	F, P	W, S
Sectoral mobility	Labour mobility	LM	EN	F, P	W, S, F
Benefits duration	Unemployment	RW	EN	F, P	S, U
Replacement ratio	Unemployment	RW	EN	F, P, C	S, U
Minimum wages	Minimum wages	RW	EN	F, C	S
Coordination	Wage determination	AW	EN	F, C	F, U, S
Decentralisation	Wage determination	AW	EN	F, C	S, F, U
Payroll taxes	Wage determination	AW	EN	C, F	S
Wage elasticity	Wage determination	AW	EN	F, C	F, U, S
Union coverage	Unionism	AW	EN	F	F, S
Union density	Unionism	AW	EN	F	W
Union power	Unionism	AW	EN, IF	F, P, C	S, F, W

Notes: The following abbreviations are used. *Technical:* LI – labour input; JC – job content; RW – reservation wage; AW – average wage; NW – nonwage costs; LM – labour mobility; SA – skills acquisition. *Functional:* IN – internal numerical; EN - external numerical; IF - internal functional; EF - external functional. *Targets:* F – pure flexibility; P – productivity enhancement; C – costs reduction. *Sources:* F – firms; S – state; U – unions; W – workers.

CHAPTER THREE

THEORY AND EVIDENCE ON THE ECONOMIC IMPACT OF LABOUR MARKET REGULATION

3.1. Introduction

In the previous chapters we sketched a picture of high economic uncertainty in a changing economic environment, which brought about -among other things- new developments in the organisation of labour relations. In chapter one (especially section 1.3) we conducted a preliminary discussion about the different views on the desirability, effectiveness, necessity, but also the sustainability of the new forms of labour regulation (labour market flexibility). This discussion continues here with a more detailed critical presentation of the relevant schools of thought and theoretical and empirical studies, with direct reference to the economic role of the new regulatory frameworks.

We discuss the different theoretical approaches while analysing their predictions about the impact that labour market regulation (and deregulation) has on certain indicators of labour market and macroeconomic performance (e.g.: unemployment and wage inequality or output and productivity growth, respectively). We focus in the next section on the "labour market performance" effects of labour market (de)regulation and flexibility, and draw on empirical as well as theoretical contributions. Likewise, section

3.3 discusses the impact of labour market regulation on -more broadly defined- overall economic performance. This analysis is conducted mainly at the national level, since the vast majority of the relevant literature is concerned with the effects of deregulation on national economic performance. Some connection to the relevance of the analyses for regional or local levels of economic activity will, however, also be made. But a more thorough discussion of the regional dimension of those issues will be presented in chapter six.

The views summarised in this chapter range from approaches advocating the idea of a regulation-free labour market, where "market forces" are free to determine economic outcomes, to approaches that regard labour market regulation ("rigidities") as potentially beneficial. We label the latter group of approaches as post-Keynesian or neo-institutionalist, although they include a variety of (often, complementary) theoretical perspectives (from efficiency wages to neo-Ricardian and Regulation[32] theories). Incorporated in the discussion of the economic impact of deregulation is a discussion of the alternative explanations of recent trends in wage dispersions (section 3.4). In the concluding section we synthesise the various approaches and make some considerations to enhance our understanding of the social and economic role(s) of labour market regulation and flexibility.

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[32] The term "Regulation" here refers to the French "School of Regulation" (e.g., Aglietta, 1979, 1982; Lipietz, 1979, 1984). It should, therefore, not be connected directly or confused with the debate about the (de)regulation of labour -and other- markets.

3.2. Labour market regulation and labour market performance

The literature on the impact of labour market flexibility and (de)regulation on employment, unemployment and wage rates is large and constantly growing. Moreover, it encompasses a wide range of economic sub-disciplines, including industrial relations, labour economics, international (trade) economics, growth theory and development economics. There are numerous empirical studies that try to quantify the impact of labour market conditions (and especially institutions) on labour market outcomes. Yet, the results cannot be safely regarded as conclusive. As in all social sciences, the empirical findings -not to mention their interpretations- depend to a noteworthy degree on the theoretical perspective and the assumptions of the individual researcher.

3.2.1. The neoclassical framework

Using the "text-book" theoretical analysis as a starting point,[33] we can identify how the main indicators of labour market performance are determined in a Walrasian world. Under the assumptions of perfect competition, rational behaviour and perfect information, wages are equal to the marginal revenue product of labour: to the market value of the product that the least productive worker makes. Employment and unemployment are determined by the demand and supply of labour, both of which depend on the (real) wage rate. Hence, in equilibrium, unemployment can only be due to the mobility of workers between jobs (frictional unemployment). Apart from this "natural rate of unemployment", there will be no involuntary unemployment in the long-run. And, with perfect capital and labour mobility and a homogenous labour force in terms of skills,

there is no reason for any wage differentials to emerge.[34] Productivity increases lead to higher wages and boost employment either via increases in profits, investment and labour demand, or via increases in workers' demand for goods.

Of course, in the real world things are different. As we discussed earlier, unemployment rates in many countries are far from being close to a "natural" level, while the incidence of long-run unemployment (people unemployed for more than 12 months) is strikingly high. Wages are much more rigid than the simplistic outcome of neoclassical theory sketched above assumes and substantial wage differentials exist within countries, as well as within regions and between regions. Labour mobility (both occupational and geographical) is constrained by a great number of factors.[35] The relatively poor labour market performance, internationally, for much of the last twenty years has led to the emergence of a strong critique of the regulatory regime of the labour markets. Although numerous factors have been proposed to explain the deterioration of labour market outcomes and especially the pattern of increasing wage inequality, the analysis of labour market institutions is at the centre of the debate.

There is common agreement concerning earnings dispersion that institutional factors (such as unions, employment legislation, minimum wages, etc.) tend to lower wage inequality. However, this is effect is not always regarded as positive. Blau and Kahn (1996, p.832) conclude in their empirical study that "to the extent that institutions are important in [reducing] wage inequality, [they have an] adverse impact on

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[33] See for example Smith (1994) or Ehrenberg and Smith (1997), or any labour economics textbook.

[34] In the case of heterogenous labour, wage differentials will reflect differences in skills or preferences.

[35] Social and personal characteristics are the main non-economic factors of labour immobility. Another important barrier is home-ownership and housing market rigidities (see for example Ermisch, 1990, or Henley, 1998). Uncertainty and job search-related costs are among the main economic factors.

employment and productivity due to resource allocation effects". Hence, from a neoclassical perspective, as far as wage differentials reflect the impact of market forces (like the ones discussed in the section 3.4: shifts in labour demand, technological change, international trade, etc.), an institutional setting which tries to reduce these differentials will notice distorting and negative employment effects. More institutionalist-oriented approaches, however, see labour market institutions as a means of ensuring justice and security for the labour force. Security and justice are regarded as productivity-enhancing, either due to increased worker effort, or due to increased provision of training by firms.

3.2.2. Adverse regulation effects

Let us now consider more deeply the mainstream neoclassical views concerning the effects of labour market regulation and institutions on wages, wage dispersions and unemployment. One of the most thoroughly studied institutions is trade unions and their impacts through wage bargaining. Unions can lower wage inequality by narrowing the distribution of wages for the unionised workers, but they can also increase inequality by increasing the distance between the wages of unionised and non-unionised workers (Gottschalk and Smeeding, 1997). The positive effect is easier to rationalise in the case of professional clubs. Trade unions acting individualistically (maximising the utility of their members) tend to increase unemployment by the upward pressures they apply on wages in the bargaining process. Unemployment will not appear in the -protected- unionised sector, but it will spill over into the non-unionised workers (Oswald, 1982a; Lindbeck and Snower, 1988; Ehrenberg and Smith, 1997). The resultant downward pressure of wages in the non-unionised sector, which could effectively eliminate the increased

unemployment, may be cancelled out if employers in this sector offer higher wages to their workforce to prevent them from getting unionised (Rosen, 1969). To the extent that unions raise wages, employment growth will be lower in unionised firms (Blanchflower and Oswald, 1994b).

Although higher wages could lead to higher productivity,[36] other trade union policies (pressures for better working conditions, restrictions on work content, etc.) will tend to reduce labour productivity and raise labour costs. To the extent that labour costs increase more than labour productivity due to union policies, the profitability of unionised firms will be lower. A number of empirical studies seem to support this view (e.g., Machin and Steward, 1990; see also Millward, 1993).

Of course, the trade union is not the only institution that is seen as imposing labour market rigidities and affecting labour market outcomes. Even though trade unions are -together with minimum wages- the institutions appearing more often in the relevant empirical literature,[37] the importance of other institutions has not gone unnoticed. Other institutions include legislation on hiring and firing (employment legislation and dismissal protection), legislation on fixed-term contracts (temporary employment), legislations regulating per-week working hours and per-year working weeks, regulations on the level at which wage-bargaining takes place (from the national level -centralised wage bargaining- to the firm or individual level -decentralised wage bargaining), and regulations concerning "overtime" payment, conditions of work (health and safety

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[36] This can be for a number of reasons. Increased worker participation, increased capital to labour ratio due to less employment (higher capital intensiveness), or reduced quit rates. Lower quit rates mean higher job-tenure, more job-specific experience, but also more incentives for firms to enhance their workers' skills (via training).

[37] This, of course, happens mainly for data-related reasons.

standards) and worker representation rights. They also include what is often called "passive" labour market policies, specifically the duration and level of unemployment benefits (replacement ratio) and other social (income) support.

All of these regulations are considered in neoclassical analysis as factors that -in one way or another- increase labour costs. Centralised wage bargaining processes fail to account for the specificities of each industry, sector, region or firm (in terms of costs, profitability, etc.). In that sense, they may even be catastrophic for some firms or even some (low-productivity) sectors of the economy. When employment and dismissal protections are stricter, firms will tend to hire fewer workers than otherwise during periods of expansion in order to fire fewer workers in downturn periods (Blanchard et al., 1986; OECD, 1996). This leads to lower levels of output and employment (higher unemployment) in the long-run, despite the "mechanical" positive effect it has on labour productivity (by raising the capital-labour and output-labour ratios).

Millard (1995, as surveyed in OECD, 1996) has presented empirical evidence supporting the view that looser employment protection legislation (lower turnover costs) is related to both higher incidence and lower duration of unemployment, thus leading to an overall decline in unemployment rates. In the same manner, other regulations limiting the ability of firms to adjust the size of their workforce to changes in product demand (such as legislation on fixed-term contracts, overtime pay and weekly working hours) have the same negative impact on employment and output. High unemployment benefits make workers more selective, increasing "reservation wages".[38] Hence, unemployment

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[38] Reservation wage is the minimum wage a worker (or the typical worker) would be willing to work for.

benefits apply upward pressures on wages, especially in low-paid jobs, lowering in this way the demand for labour and increasing unemployment (Siebert, 1997). A study utilising a more macroeconomic perspective (Koedijk and Kremers, 1996) has also found a negative relationship between labour market regulation ("rigidities") and labour market outcomes. The study employs a cross-country analysis and concludes that, overall, regulation has a negative impact on employment and productivity growth.

Recent studies in the field of labour economics develop a somewhat more sophisticated approach, decomposing the different characteristics of labour market deregulation/flexibility and empirically testing which of the characteristics have positive and which have negative (employment) effects. For example, Nickell (1997a) has tested the impact of different labour market conditions and institutions on unemployment. His results indicate that it is the incentives for the unemployed to seek a job (e.g., duration of unemployment benefits, employment creation schemes, job-brokering assistance) and not the level of unemployment benefits that are responsible for the relatively high European levels of unemployment. In the same way, it is the degree of co-ordination between unions and employers that matters and not the degree of unionisation or the protection of employment and labour standards.

Although neoclassical analysis attributes a negative role to labour market regulation, this should not lead to the conclusion that any kind of labour market intervention is dismissed out of hand. As discussed earlier, a number of so-called Active Labour Market Policies (ALMPs) are considered important in that they can promote employment growth, productivity, wages and output, while reducing wage dispersions. The provision of vocational training and the acquisition of advanced technology-related

skills make workers more "attractive", thus increasing their employment opportunities and their potential wages. Job-brokering helps both firms and the unemployed, by increasing the "matching" between job-seekers and vacancies. And when firms can easily fill their vacancies with qualified workers, they will tend to create more new jobs (especially if firing costs are kept low). Accordingly, the implementation of such policies is expected to lead to higher production efficiency and productivity, and lower turnover and unemployment rates.

3.2.3. Beneficial regulation effects

Although mainstream economic analysis attributes a negative role to labour market regulation, there are numerous studies within the neoclassical approach that provide evidence in favour of a positive relationship between labour market institutions and labour market outcomes. Machin and Manning (1992) and Machin et al. (2000) offer some empirical evidence (for the case of the UK) for the argument that the overall impact of minimum wages on employment is negligible if not positive. The same conclusion was reached by Card and Kruger (1995) and earlier by Bertola (1990), while theoretical studies also support such findings (e.g., Boadway and Cuff, 2001). Bertola has shown for the case of Europe that job security legislation does not seem to reduce employment when wages are rigid, nor is it connected with higher wages. He concludes that "job security provisions alone cannot be blamed for the high unemployment in European countries" (p.851). Fraja (1996) offers a theoretical framework for explaining this "paradox". In his model, minimum wages lead to increased investment in physical and human capital (training), with a positive effect on aggregate (production and)

employment. Regarding wage rigidities (caused by trade union power and the imposition of minimum wages), Card et al. (1996) found evidence that they do not seem to affect the patterns of employment growth in their sample of countries.[39] A similar result was reached by Nickell and Bell (1995) for a cross-section of OECD countries.

The common wisdom about the adverse impact of unionism on labour market performance has most analytically been questioned by the much earlier work of Freeman and Medoff (1984). The authors discriminate between the "undesirable" wage-increasing function of unions and their "desirable" collective voice-enhancing function. They conclude (for the USA economy) that the collective-voice effect (unions improving workplace conditions and altering the social relations of production) dominates, thus increasing economic efficiency and employment. In the same line of argument, but explicitly using a formal model, Booth and Chatterji (1998) show that under realistic assumptions unionism leads to lower quit rates and increased job-stability (when wage bargaining occurs at the firm level). Moreover, they show that this is sufficient to make firms increase their human capital investment (on-the-job training), thus moving closer to the social optimum level of training and "leading to an improvement in social welfare" (p.329). As they mention, the predictions of their model are consistent with the stylised facts of the existing empirical literature (Freeman and Medoff, 1984; Booth, 1991; Miller and Mulvey, 1993; Green et al., 1996). Relevant evidence for the case of a developing country has been offered by Standing (1991), who found that while unions have modest wage effects and reduce employment growth, they also reduce turnover rates and are

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[39] France, Canada and the USA. The authors also find that negative demand shocks lead to either lower wages or to higher unemployment, depending on the institutional setting regarding wage determination.

associated with more training, increased fringe benefits and higher productivity.[40]

An interesting and controversial finding is offered by Freeman (1988). Using a cross-country analysis he concludes that "both highly centralised and highly decentralised labour market arrangements [(as measured by union density and inter-industry wage dispersion)] outperform intermediate cases" (p.75). The well-known study of Bruno and Sachs (1985) also found that regulated and relatively deregulated economies performed about the same in terms of employment growth. Calmfors and Driffil (1988) reach the same conclusions and offer supportive evidence to the work of Fields (Fields, 1990; Fields and Wan, 1989; OECD, 1995) who, by employing an "international economics labour standards" perspective, argues that a loose labour market regulation is inferior to a strict policy (either strong regulation or no regulation) in terms of both labour market and general economic outcomes (increased market efficiency, employment, output and growth).[41]

This last result is in sharp contrast with the views advocated by more institutionalist-oriented researchers (Piore, 1990; Sengenberger and Campbell, 1994), who suggest that an intermediate level of regulation is the most efficient policy. We have already mentioned that the "economics of labour standards" employs a more macroeconomic and dynamic analysis and focuses mainly on the wider economic effects of labour market regulation. In addition, this strand of literature lacks the variety and vast number of empirical studies that the neoclassical approach enjoys. As a result, it is

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[40] The study of Standing (1991) for the role of trade unions in Malaysia is reviewed in Freeman (1993).

[41] As we shall see later, this stands in absolute contrast with the neo-institutionalist approach, which advocates that some regulation is better than no regulation, even though a very tight regulation can be harmful. Then again, the two approaches are set in a different context and try to explain different patterns, so they define "tight", "average" and "loose" regulation differently.

difficult to present the labour market performance effects of labour market regulation as predicted by this strand of literature, without discussing the wider economic relations and effects. For this reason we leave the detailed presentation of this and related approaches for the next section. For the moment, we shall only comment on the relevance of the efficiency wage hypothesis to the issues discussed here.

In terms of the effects of labour market regulation on labour market performance, it is the utilisation of the efficiency wage hypothesis that probably serves as the most appropriate means of questioning the analyses reviewed above. Efficiency wage theories were originally proposed to explain the existence of unemployment rates above the "natural" rate of (frictional) unemployment (e.g., Yellen, 1984) and later to explain inter-industry wage differentials (e.g., Dickens and Katz, 1987; Blackaby and Murphy, 1991). Nevertheless, it is easy to transfer the focus of the analysis to the impact of labour market regulation using the same framework. In the efficiency wage literature, output is a function of workers' effort, which in turn depends on the wage they receive.[42] It is not unreasonable to assume that the effort workers put into the production process is also a function of a number of labour market conditions, which depend on a number of labour market institutions. Hence, if health and safety standards, job and employment security (legislation on dismissal protection and temporary employment), and minimum wages are guaranteed by legislation, workers would be more willing to work harder for their firm.[43] A formal presentation of a similar assumption is made in chapter five.

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[42] In this literature, efficiency wages are sources of higher unemployment and wage dispersion, but also of higher labour productivity and output.
[43] This, nevertheless, holds only if the "outside opportunities" that the workers face -that is, their alternative options in case they get fired- are sufficiently poor to suppress their incentive to shirk.

3.3. Labour market regulation and economic performance

In the previous section we presented a short selective review of the theoretical and empirical literature on the effects of labour market conditions and institutions on indicators of *labour market* performance. In this section we broaden the discussion to include the analysis of the impact of labour market regulation on wider indicators of *economic* performance. Although such a discussion would ideally include all possible channels through which economic outcomes can be influenced, we focus strictly on the standard short- and long-run effects, not paying much attention to more dynamic effects. An example of such dynamic effects based on Kaufman (1997) is nevertheless worth mentioning. Imagine that regulations on maternity leaves are relaxed, leading to a reduction in both the duration and the incidence of maternity leaves. In the short-run, this is going to reduce labour costs and possibly increase profits. In the long-run it will affect female labour force participation (with a possible small impact on wages). In the longer-run, however, such a policy might lead to slower population growth, affect the gender and household relationships and result in lower-quality (and quantity of) pre-school education (human capital formation) and probably to lower levels of educational attainment for the new generation(s). In this respect, the effects of labour market deregulation are particularly difficult to conceptualise and measure.

3.3.1. Orthodox analysis

As alternative -to the orthodox- approaches to labour market regulation do not focus much on the labour market performance effects, in the same way, mainstream

analyses related to the wider economic effects of the regulation of labour markets are limited. This is mainly a side-effect of the focus of mainstream economic analysis on microeconomic relations (the micro-foundations of macroeconomics). Hence, traditional (neoclassical) theory concentrates mainly on the employment effects of labour market deregulation. Nevertheless, one can speculate on some expected income and wider economic effects. As already stated, a simple neoclassical model would predict that labour market rigidities increase unit labour costs and harm employment. Consequently, profits should be expected to shrink, with a negative impact on investment (both in physical and human capital). With less investment, productivity growth will be slower as will economic (output) growth.

There have been comparatively few studies of these anticipated effects and, of those, Koerdijk and Kremers (1996) is one of the even fewer empirical studies to straightforwardly investigate the impact of labour market regulation on macroeconomic outcomes. The results (consistent with the neoclassical orientation of the authors but subject to problems related to sample size, sample selection and model specification) indicate that countries with more regulated (rigid) labour markets perform worse in terms of output growth. The more in-depth investigation of Nickell and Layard (1998) reaches the conclusion that output and employment growth are negatively related to unionism and unemployment benefits specifically, but not to other regulation factors, like employment protection and minimum wages. In a micro-originated approach, Bertola (1994) examines the effects of labour mobility costs that prevail under tight job-security provisions. He concludes that "constraints on employment flexibility reduce production efficiency and the value of firms, with adverse effects on private incentives to invest and, in

equilibrium, on the level and rate of growth of product demand... ...[T]he welfare of the economy's consumer-investors and workers is harmed ... by lower profitability of existing capital, reduced capital accumulation and slower growth of productivity and wages" (p.217).

Further supportive evidence to these conclusions (in the context of developing countries) is offered by Rama (1995). He finds a robust negative relationship between economic growth and unionism or public sector employment for the Latin American and Caribbean countries. Nevertheless, his study also reveals an insignificant relationship between minimum wages or unemployment benefits and economic growth for his sample countries (see also MacIsaac and Rama, 1997). Marshall (1993), in a study of Latin America countries, also has found no relation between job-security and (manufacturing) productivity. It must be stressed, however, that the results of such studies are of questionable relevance to advanced economies, since the labour market institutions and general social and economic conditions in developing countries are often very different from those of the developed world.

3.3.2. Non-orthodox approaches

A normative model in variance with the negative relationship between job-security and economic outcomes has been offered by Parkin (1996). Under the realistic assumption of asymmetric information (monitoring costs), he shows that the free-market level of job-security is below the Pareto optimal and that lower job-security leads to lower labour effort. Hence, (legislative) increases in job-security (protection against dismissals) will have the effect of increasing labour effort, profits and workers' utility.

Although Parkin's (1996) work lacks any empirical verification, some support for his model is provided by the empirical findings of other studies (e.g., Hall, 1982; Carter, 1988; Levin and Parkin, 1994). A much less technical study of LDCs and NICs concludes that it is impossible to generalise about the relation between institutional structures and growth patterns from the experience of such countries. "Rather than trying to force all experiences into a simple competitive (or other) model, we ought perhaps to explore the domains in which different institutional arrangements produce better results" (Freeman, 1993, p.408).

This last quotation effectively calls for an institutional analysis of labour market regulation and its impact on economic performance. Such a perspective can be found in the neo-institutionalist or post-keynesian "economics of labour standards" (Piore, 1990; Herzenberg et al., 1990; Sengenberger and Campbell, 1994; Boyer, 1994; Rodgers, 1994), the neo-Ricardian school (Aspromourgos, 1987), and the post-Fordism debate (Michon, 1987; Hudson, 1989; Storper and Scott, 1990). For these approaches, labour standards (job security, employment security, minimum wages, etc.) are seen as assets for the economy, which enhance the human capital available for production and raise the efficient operation of the product-market, promoting quality-based competition (against price-based competition) and technological innovations (progress). Higher and secured wages are seen as a productivity-enhancing factor (and, hence, as a factor promoting growth) due to reduced shirking, improved worker morale and lower turnover rates. Moreover, any reduction in labour standards leads to productivity slow-downs (the "low pay – low productivity" hypothesis), gives incentives for the adoption of cost-saving technologies and price-based competition (with detrimental effects on technological

progress and economic growth) and results in the de-skilling of the labour force.

This argument is central to the discussion of the positive impact of labour market regulation. In the absence of labour market regulation (wage and employment protection) firms lose their incentive to participate in quality-based competition and instead compete on the basis of excising monopoly power over labour, lowering wages and labour standards (see for example, Brosnan and Wilkinson, 1988; Piore, 1990; Deakin and Wilkinson, 1991; Sengenberger and Campbell, 1994 and the references given there). This, in effect, harms overall economic efficiency because it allows inefficient producers and obsolete technologies to survive.[44] Streeck (1989) rather convincingly argues through an extensive and multi-disciplinary theoretical discussion that the problem of under-investment in skills is not a question of efficient allocation of costs and resources, but rather "market failure in skill formation is endemic and inevitable" (p.92), as the short-sighted opportunism of firms cannot provide the "functional" and "extra-functional" skills that are required in contemporary capitalist production (and which are of a collective, public-good nature). The conclusion, then, is that "just as skill formation for individuals requires education, skill formation in firms requires regulation. Deregulation, if driven too far, breeds inefficiency" (p.100). An empirical example of the role of higher labour standards in diverting firms towards higher product innovation is given by Koshiro (1992). He presents the experience of a number of Japanese firms that increased their production diversification (towards faster expanding markets) in the face of binding

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[44] Note that this reasoning has been criticised by advocates of the neoclassical approach. The argument is that labour market regulation (while it may shift employers to more "productive" strategies) "diverts the employees' creative energy towards non-productive strategies for securing jobs or economic benefits" (Herzenberg et al., 1990, p.7).

labour standards.

So, in such a view, not only does labour market deregulation increase wage inequality, but it also reduces aggregate output (and income) and leads in the long-run to higher unemployment. Consequently, what is most important in contemporary capitalist production and economic development is the quality of the labour force and the co-operation among all actors taking part in the production process (Sengenberger, 1994a). Both of these factors suggest additional importance for labour. When workers are dissatisfied in terms of income, job and employment security, it is not reasonable to expect such factors as labour effort and co-operation in the production to be enacted. The whole production process can fall into what is called a "low pay – low productivity trap", where increases in pay require increases in workers' effort and co-ordination, but the latter also require an amelioration in labour standards. In this respect, it is only the creative activity by firms (quality-based competition and enhanced workforce productivity) that can help escape this trap of relatively poor outcomes (Wilkinson, 1994) and lead to a "high road" of competitiveness (Ozaki, 1999, p.142).

The empirical literature offers some evidence in support of the views presented here. An ILO study (ILO, 1997) gives many empirical examples where unions have in fact played a beneficial role in work re-organisation and increased efficiency. The ILO reports cases where the absence of unions (or union consent) acted as an obstacle to the introduction of new elements in the technology and organisation of production. Based on evidence from survey data, many authors have suggested that non-standard employment (temporary work, sub-contracting, etc) and job-insecurity (higher labour turnover) are related more often than not to lower productivity (Casey, 1988; Kuhl, 1990, Ozaki,

1999), and to efficiency losses in the longer-run, due to a lack of (firm-specific) skills and experience or commitment to the firm (Brosnan, 1996; Burkins, 1996; Ozaki, 1999). The last issue is more directly related to the long-run view of the economic effects of flexible labour arrangements, which introduces the wider issue of dynamic efficiency.

3.3.3. Dynamic efficiency issues

In an interesting discussion of the economic, social and political factors in the operation of the labour market, Craig et al.(1985) note that the segmentation of labour markets (which they attribute to increased labour market flexibility and wage inequality) makes wages unrelated to skills or productivity. This constitutes "a shift in the direction of protective regulation and its more narrow concentration upon an elite of [primary sector] workers" (Deakin and Wilkinson, 1991, p.138). This duality and inequality is one source of dynamic inefficiency, since a specific segment of the labour force (which need not lack any skills or productive ability) is excluded from the skills-oriented, high productivity segment of the economy. A less recognised source of production inefficiency, which is due to the suppression of labour standards, is cited in Standing (1995). In his World Health Organisation study he suggests that "there has been a substantial increase in work-related accidents ... as a result of flexiblisation of labour contracts" (p.169). Rodgers (1994) argues that not only can labour market institutions increase on-the-job training and production efficiency, but they are also important in sustaining and enhancing consumption.

Employing a more "regulationist" framework of analysis, which attributes the move towards deregulation to changes in the organisation of production, Kuhl (1990)

argues that lower employment protection has not generated higher employment (in W. Germany). He goes on to say that "the efficiency of CLF-jobs[45] may be questioned because of poor productivity performances in the medium term … and because of high costs of manpower transactions and labour turnover. The slow-down of productivity growth in some EC-countries may be a consequence of CLF-expansion" (p.251).

The point about the impact of (changing) production organisation on the organisation of labour markets is frequently made by economic geographers. For example, Hudson (1989) argues that the changing locational patterns of production enforce the adoption of more flexible work practices and employment relations, putting the relationship between re-organisation of production and labour market flexibility into a spatial perspective. The analysis of work organisation and local labour markets by Storper and Scott (1990), developed in a similar context, offers a thorough explanation of the economic-organisational factors that lead to the deterioration of labour standards (labour market flexibility). They conclude that "the uncertainties endemic in flexible labour markets diminish the incentive, both for firms and workers, to invest in on-the-job training and the acquisition of new skills" (p.590). As we claimed in chapter one, this is the main contradiction of the forces behind labour market deregulation which inevitably raises serious questions about the reproducibility of the system of flexible production with flexible labour markets (Peck, 1992).

A different theoretical perspective, which criticises labour market flexibility based on dynamic efficiency considerations, originates from the neo-Ricardian school of

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[45] The term "CLF-jobs" describes three categories of marginalised workers: contingent (temporary work), life-of-project (related to employment-creation schemes) and "fake self-employment" (on subcontracting).

thought.[46] For neo-Ricardians, full employment is not attainable in a capitalist economy, because of the very functioning of the capitalist system. Hence, for the advocates of this approach, a labour market deregulation policy aiming at increasing aggregate employment by reducing labour costs cannot be successful. This is true (in a classical analytical framework) because a shift to more labour intensive methods of production (fall in the capital-labour ratio) cannot be activated through increases in the rate of profit and falls in real wages (which are the by-products of labour market deregulation) (Garegnani, 1970). Two other ways of promoting employment growth, namely increases in investment and product demand, are also unobtainable. Higher investment cannot be sustained without an increase in the purchasing power of workers. And since labour market flexibility implies a suppression of labour incomes, workers' consumption abilities are reduced. For the same reason, a demand-driven increase in employment is very unlikely to occur.

This analysis, although it belongs to a completely different framework, is very similar to the predictions of the advocates of higher labour standards. Indeed, the words of a neo-Ricardian, about the importance of labour market deregulation, could be easily attributed -terminology apart- to the institutionalist approach: "the supply-and-demand theory of wages, conditions and employment should be rejected. Once the marginal theory is rejected, the social norms which govern work, and the institutions which support them emerge, not as "artifices" imposed upon the "natural" forces of supply and

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[46] The neo-Ricardian approach originates from the work of the classical economists and was first introduced by Sraffa (1960). We find it particularly interesting to present such an approach here, as this shows the universality of the issue of labour market flexibility and offers some additional insights and considerations not made by other approaches.

demand, but as themselves part of the normal organisation of employment in capitalist societies. [U]nemployment is a normal feature of the operation of a competitive capitalist economy, there existing no mechanism which would automatically push the system towards full-employment. [W]age flexibility cannot succeed in fulfilling the role of such a mechanism" (Aspromourgos, 1987, p.141).

Empirical evidence for the beneficial economic effects of higher labour standards has been offered from a recent research project of the International Institute for Labour Studies (IILS). Under this project, work for the case of India (Papola and Rodgers, 1992) questioned the commonly held opinion about the detrimental effects of minimum wages and labour protection. Complementing this, is the work for a number of OECD countries (Boyer, 1994) which found that job regulations hinder labour mobility and increase unemployment, but also increase real wages and productivity. Sengenberger (1994b, p.115) concludes from his empirical study that "countries with protection from the termination of employment and personnel stabilisation policies enjoy higher productivity growth than countries without such provisions". Similar findings were reported by Brunetta and Dell'Aringa (1990) and Buechtemann (1993). In terms of the dynamic efficiency potential of labour market institutions, Table 3.1 adapted from Boyer (1994, p.56) and slightly amended, is very illustrative.

Table 3.1 summarises the plethora of short- and long-run effects that some main labour market institutions have been claimed to have. Both positive and negative effects exist at both the static and dynamic levels. For example, in a static framework unemployment benefits, unionism and minimum wages tend to reduce inequalities but increase unemployment. In the long-run though, the last two tend to ameliorate the skill-

composition of the workforce and increase productivity, while unemployment benefits are a significant ingredient for social peace. Employment protection can stimulate technological change and stabilise product demand, but it also leads to reductions in profits and employment. In principle, the short-run effects are more likely to be negative, while the opposite holds for the long-run effects. This observation is very interesting in that it helps us to understand the complexity of the issue and possibly build a bridge between the opposing theoretical approaches.

Table 3.1: Static versus dynamic efficiency

Impact	Type of regulation					
	Employment protection	**Labour Standards**	**Minimum wages**	**Welfare system**	**Training**	**Unionism**
Short-run static efficiency	-Lagged employment adjustment -Reduction in profits -Stabilisation of wages and consumption	-Increased unit labour costs / lower profits -Possible unemployment -Reduced productivity	-Reduced inequalities -Exclusion of workers of low productivity -Possible unemployment	-Reduced inequalities -Increased unit labour costs -Possible unemployment	-Extra costs for firms -Possible shifts of labour demand	-Reduced inequalities -Less wage flexibility -Harmful to "outsiders" -Possible unemployment
Long-run dynamic efficiency	-Incentive to internal flexibility -Reduced employment -Stimulation of technical change	-Higher job-satisfaction / fewer accidents -Increased efficiency -Increased productivity	-Work intensification -Labour saving tech. change -Upgrading of skills and product quality	-Increased labour mobility -Ingredient for social peace	-Higher wage incomes -More occupational mobility -Skill driven tech. change	-Increased productivity -Possible elimination of the impact of wages upon employment

As we discuss further in the concluding section, because of the simultaneous existence of both positive and negative effects of regulation and flexibility, it may be more correct to focus on the appropriate mix and quality of regulation, rather than to try to support (or dismiss) all kinds of regulation, altogether.

3.4 Alternative explanations for recent trends in wage inequalities

The existence of substantial wage differentials and their increasing trend during the 1980s and -for some countries, at least- the 1990s (OECD, 1993, 1996) has led to the development of a wide variety of theoretical formulations, consistent with orthodox theory, that try to explain these trends.[47]

3.4.1. Microeconomic explanations

On the one hand, standard competitive (neoclassical) labour market models, such as Human Capital Theory and the Theory of Compensating Differentials, attribute wage differentials to differences in the quality of labour or to unobserved differences in skill levels and job characteristics. Thus, changes in wage inequality can be attributed to changes in the distribution of such characteristics across people. On the other hand, Efficiency Wage models suggest that wage premia are paid to workers in industries where monitoring is more difficult (e.g., large establishments, Oi, 1983), where the labour market is tighter, or where work experience (and job-tenure) is more important (e.g., high-skill firms), so that workers lose their incentive to shirk or quit. Similarly, Insider-Outsider models attribute such wage premia (and involuntary unemployment) to the market power of the incumbent workforce (insiders). Changes in these conditions could induce changes in wage inequality. Dual and Segmented Labour Market theories attribute the existence of wage differentials to the segmentation of the labour market,

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[47] Since the objective of this study is not the explanation of wage dispersion and the evaluation of the relevant theories, but rather the investigation of the impact of labour market (de)regulation on wage dispersion, we do not find it necessary to provide a detailed presentation of those theories. The interested reader can refer to the brief surveys by Dickens and Katz (1987) and Blackaby and Murphy (1991), or to the more detailed works of Borjas (1988) and Akerlof and Yellen (1986).

where forces connected to the organisation of production divide the economy into a well-paid, secure primary sector and an insecure secondary segment of low-paid jobs, with limited mobility between the two segments. Finally, threat models of Collective Action and Bargaining models emphasise the role of union power in raising wages in the unionised sectors of the economy. Each of those theories stresses the importance of one or two factors having an impact on the dispersion of wages, but fails to give a full explanation as to why those disparities exist, when it comes to their empirical verification.

Departing from the more theoretical explanations, in general the main explanations for the increased earnings dispersion include the following factors: specific personal (age, education, job-tenure, etc.), occupational, industry (plant-size, profitability, etc.) and regional (e.g., local amenities) characteristics, an increasingly skill-biased labour demand due to technological change, variations in the (shadow) price of the workers' skills (human capital), increasing female labour force participation, and international trade and "globalisation" that -due to international competition- put different pressures to different sectors of the economy.[48]

As mentioned above, the empirical investigation of the determinants of wage inequality has shown that wage differentials persist even after controlling for a wide variety of factors of a microeconomic nature. For example, Dickens and Katz (1987, p.30) found that the identified wage differentials in the UK persist "even after controlling for a wider range of personal characteristics and geographic location ... for both union

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[48] An analytical presentation of alternative explanations on rising wage inequalities with specific reference to the United States can be found in Danziger and Gottschalk (1993).

and non-union workers". They attribute the remaining (unexplained) variation of wages on wage premia, in accordance with the efficiency wage hypothesis. Using the same methodological approach, Blackaby and Murphy (1991) conclude that -again for the case of the UK- regional and industry characteristics explain much of the earnings dispersion which is left unexplained after controlling for a large number of human capital characteristics. Gosling and Machin (1993) found a statistically significant difference in the earnings dispersion between unionised and non-unionised workers (especially for semi-skilled ones), even after taking into account differences in personal, occupational, industry and firm-specific characteristics. They conclude that unions tend to compress the distribution of earnings and mainly help the less-skilled workers. Similar findings have been obtained in the works of other researchers, conducted for other countries. For example, Freeman (1991) and Card (1991) found a flatter distribution of wages in unionised USA firms. Fortin and Lemieux (1997) have also estimated a negative relationship between unionism and wage dispersions for the US (although this relationship is weaker for women; see also Gosling and Machin, 1993 and Freeman, 1994) as well as a stronger negative relationship between minimum wages and the latter.

Hemmings (1991), following Shah and Walker (1983) and Blackaby and Manning (1987), concludes that intra- and inter-regional variations in wages can be explained by the regional variation of individual, occupational and industry-specific characteristics.[49] Some of the regional variation of wages has also been attributed to inter-regional differences in local amenities (climate, environment, infrastructure, crime

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[49] Duranton and Monastiriotis (2000) further stress the role of changes in the returns to personal characteristics for the UK. Similar results have been obtained for the case of Indonesia (Manning, 1997), where regional variables are found to affect wage differentials (together with other controls variables).

rates, population growth, etc.), as well as on the (shadow) value of these amenities (Roback, 1982, 1988; Furtado, 1998). Support for the efficiency wage hypothesis is offered in the empirical work of Wadhwani and Wall (1988) for the UK, Kruger and Summers (1988) for the USA, Gera and Grenier (1994) for Canada, Lucifora (1993) for Italy and Arai (1994) for Sweden (among other studies).

If a general conclusion can be drawn from these studies, it would be that there is a long list of microeconomic factors that generate wage dispersions and, despite this long list, there is always a significant part of these dispersions that remains unexplained. The implication here is that macroeconomic or institutional factors are also important.

3.4.2. Macroeconomic explanations

The belief that wage differentials, persisting even after controlling for the factors identified in the microeconomic literature, are systematic (rather than random) is reflected in the macroeconomic literature of wage inequalities. At the macro-level, one of the most cited explanations for the identified trend of increasing wage inequality is the increased importance of international trade (globalisation). Borjas and Ramey (1994) showed that wage inequality in the United States shares the same long-run trend with the share of the durable-goods trade deficit to GDP and argued that the latter has helped increase wage inequality in the USA. Similar findings are reached by Borjas et al. (1997). On the other hand, Lawrence and Slaughter (1993) attribute only a minor role to international trade patterns in affecting wage inequality and they find the effects to be concentrated in a limited number of low-productivity industries (see also Bound and Johnson, 1992, and Baldwin, 1995). Some studies have found the impact of international

trade and globalisation to be insignificant (Davis and Haltiwanger, 1991; see also Wes, 1996 and Krugman, 1996). In his regional-level analysis for the USA, Topel (1994) attributes most of the dispersion of wages to supply factors rather than trade, namely to the changing skill ratios in the labour force and to increased female labour force participation.

Other authors have also found evidence for the impact of changing labour demand conditions on wage inequality. Specifically, Berman et al (1994) and Machin (1995) stress the importance of skill-biased technological change, which increases wage premia for better-educated and high-skill workers. Similar evidence is provided by Monastiriotis (2000). Finally, a rather different strand of literature stresses the role of changes in the organisation of production (post-Fordism) (Storper and Scott, 1990; Peck, 1992) in increasing wage dispersions.

In their influential study, Blau and Kahn (1996) found that countries with more "rigid" labour markets perform better in terms of wage inequality -at least for the bottom of the wage distribution. Also, that differences in measured workforce characteristics among countries are only partly responsible for wage inequality and that price differences for these characteristics have a stronger impact (see also Duranton and Monastiriotis, 2000). Since labour market institutions (minimum wages, trade unions and the wage-bargaining system) co-determine these prices, countries with weaker trade unions and more decentralised wage bargaining "show less wage compression at the bottom" (Blau and Kahn, 1996, p.831).

The diversity of the findings in the macroeconomic literature of wage inequalities suggests that, as was the case with the microeconomic explanations, no single factor can

satisfactorily explain the marked differences in labour incomes that exist among seemingly similar individuals. Instead, it seems that there is a variety of micro- and macro-economic factors that impact on the distribution of wages. Together with such factors, labour market institutions also play a role. The importance of such institutions for wage inequality cannot be undermined, even if one assumes that wage inequality is significantly influenced by other microeconomic (industry wage premia, human capital characteristics) and macroeconomic factors (international trade or technological change). This is because, even under this assumption, labour market regulation will still affect the impact that these factors have on wage inequality. That is not to say that labour market regulation can affect -say- technological change,[50] but that the effect of technological change on wage inequality will be conditioned on the specific regulatory regime of the labour markets.

A number of empirical studies can support this argument. For example, Cortes and Marshall (1991) claim that the regulation of the Argentine labour market cannot be studied outside its inter-relation with the long-run growth model of the country. In their studies of the labour markets of Equador and Bolivia, Rama (1995) and MacIsaac and Rama (1997) conclude that the pattern of economic growth followed by these countries was largely determined by the specific forms of regulation in their labour markets. A detailed study of six industrialised countries for ILO (Ozaki et al., 1992) shows that technological change is conditioned on the existing labour relations, but it also reshapes

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[50] This, nevertheless, is not impossible. The forms of regulation existing in a labour market can influence the patterns of R&D and technology diffusion, the levels of FDI (inward investment), the degree of female labour-force participation, or the competitive advantage and, hence, the volumes of trade of a specific economy.

them. All these studies can be interpreted as evidence that labour market regulation can affect wage inequality even when the effects of other micro- and macro-economic factors are present.

3.5. The theory of labour market regulation: concluding remarks

The discussion throughout this chapter on the impact of labour market conditions, institutions and their regulation, has served as a means for the presentation of the arguments in support of and in opposition to labour market deregulation. The approaches range from technical microeconomic analyses, to political arguments on the role of labour market regulation for capitalism. For neoclassical analysis, raising labour standards creates economic distortions that harm job and income creation. For neo-institutionalist analysis, labour standards are seen as "tools that may influence the social process of development in positive or negative ways, depending on how policy-makers apply them" (Herzenberg et al., 1990, p.4). The implied differences of the various approaches, in both methodology and the perspective employed, create a potential obstacle to the formulation of coherent empirical hypotheses with which to test the validity of the alternative views. For example, as straightforwardly dismissible as it may seem at first glance, it is not necessarily incompatible for labour market deregulation to have a negative impact on *productivity* (in a static, firm-level analysis), while affecting positively *productivity growth* (in a dynamic, macroeconomic specification).

This condition can exist mainly because the impact of labour market deregulation is realised on two levels (Deakin and Wilkinson, 1991). A first level concerns the direct effects on factors like wages, employment, wage inequalities, the productivity of labour,

labour costs, monitoring costs, profitability, labour standards and the organisation of production relations at the firm-level. The second level, of indirect effects, concerns human capital formation, consumption, investment, the labour intensiveness of production (capital-labour ratio), the nature of product market competition (quality- or price-based competition), output growth, and the organisation of production at the economy-wide level.

Another difficulty in dealing with the effects of labour market regulation is because it can be utilised in the service of two largely unrelated objectives. First, labour market regulation is a means of protecting the most vulnerable class of agents in the production process (the workers) from the market-power of large employers. In that sense, this first objective is more socially oriented than economic. It ensures a minimum of working (health and safety) conditions and determines the rules under which capital and labour can compete for a higher share of the output. Finally, it guarantees a minimum level of security enjoyed by the workers.[51] In fact, this is the ultimate reason why labour market regulations exist in the first place (Sengenberger, 1994a).

The second objective (which is more about deregulation than regulation) concerns the efficient operation of the production process and the achievement of better economic outcomes. From this viewpoint, labour market regulation (or deregulation) is a means of increasing economic efficiency and achieving more optimal levels of factors' utilisation, investment (in both human and physical capital) and output. Therefore, when evaluating the importance and impact of specific labour market regulation policies (or, more

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[51] In many respects: labour market security, employment and job security, work and income security, labour reproduction security and labour representation security (Standing, 1995).

broadly, labour organisation regimes), one must remember the different and often divergent forms and objectives of labour market (de)regulation.

On the basis of these considerations, one can take a second look at the role of different labour market institutions. Indeed, some labour market performance indicators are adversely affected by certain labour market regulation instruments and policies. For example, unionisation without co-ordination between employers and workers appears to create unemployment and notable downward wage rigidities (Nickell, 1997a), with detrimental effects on growth. But unions, on the other hand, if they function in a "corporatist" (i.e., decentralised wage bargaining) environment, can also improve economic performance by increasing, for example, on-the-job training (Booth and Chatterji, 1998). Most of labour market "rigidities" also help reduce wage inequalities. The importance of a more even distribution of incomes and wages for economic growth is an open debate in the literature (e.g.: World Bank, 1991; Persson and Tabellini, 1994; Benabou, 1996), but its social importance is unquestionable.

Another labour market "rigidity", which has both positive and negative effects, is employment security ("hiring and firing" legislation). Increased employment security and job-tenure can lead to higher work commitment and increased on-the-job training and firm-specific acquisition of skills, with beneficial effects on productivity and, ultimately, on growth. Conversely, increased employment security can provide incentives for shirking and a potential obstacle to labour mobility. This has a potentially negative impact on productivity, the diffusion of technology (knowledge spill-overs) and on the adjustability of the size of the workforce to demand shifts. Such effects are expected to hinder economic growth.

There is no reason here to continue drawing examples of labour market regulations which have possible contradicting effects. The existence of regulatory aspects that lead to opposing outcomes, as well as of contradicting effects within single regulations, is not at odds with economic intuition. Therefore, the question about the regulation of labour markets should not be judged as a black-or-white dilemma that can then lead to complete approval or total rejection of deregulation. This issue is rather, as Campbell (1994, p.151) suggests, "a systemic matter, i.e., 'which standards?', 'how structured?' and 'how implemented?'". In other words, the challenge is to find the appropriate level and type of regulation to facilitate an economically dynamic and socially acceptable operation of labour markets, after taking into account the local specificities that can make some labour market arrangements work and others to fail.

An interesting point should be made here. For both neo-institutionalists and regulationists, the existence of regulation norms in the operation of labour markets is not necessarily related to government. As Streeck (1989) reminds us, there can be no social interaction (the labour process included) without the presence of certain norms (institutionalised, or not) governing this interaction. In this respect, the neo-liberal search for deregulation is in fact a search for a new regulation regime. Neoclassical analysis, with its static orientation, often fails to observe this reality. This is probably the main reason why it is difficult to direct empirical and theoretical research towards exploring the appropriate levels and types of labour market regulation that can produce the best possible economic outcomes. This realisation creates a potential for the integration of neoclassical and non-orthodox perspectives into a less fragmented theoretical understanding of the economic role of labour market regulation and flexibility.

CHAPTER FOUR

LABOUR MARKET FLEXIBILITY IN THE OCED

4.1. Introduction

In the previous chapters we have extensively discussed the context in which labour market deregulation and flexibility have become issues of increased importance, the nature of labour market regulation and flexibility and the various forms that they can take, as well as their relationship to economic performance at a theoretical level, with reference to the predictions of alternative economic approaches. Following these discussions, a number of alternative and conflicting possibilities for the role of labour market regulation on economic performance were identified. In this chapter we want to provide some empirical evidence for the relationship between economic conditions and labour market regulation, at the national level, using a cross-country analysis. With this exercise we can gain some useful information that can help us understand better what the relationship between these labour market regulation indicators and economic performance is in practice. Although the main purpose of the present study is an analysis of the regional dimension of this relationship, drawing on international empirical evidence, which is based on official cross-country data, is an exercise of essential importance, before we conclude our theoretical discussion of the issue and focus on the regional dimension.

Hence, in this chapter we investigate empirically the relationship between labour market regulation conditions in the OECD countries and their economic performance. We pay particular attention to the relationship between regulation and

wage inequalities, separating the latter from the empirical analysis relating to the other measures of economic performance. This is mainly for three reasons. First, there is a conceptual difference between wage inequality and aggregates like productivity, employment growth and unemployment. Although the latter are pure economic variables (with unquestionable social relevance, however), wage inequality is probably mainly a social issue.[52] Second, there is a practicality issue, as the literature on the determinants of (wage) inequalities is very different from that on the economic effects of labour market flexibility and regulation. Finally, there is also a technical issue, as the questions that are asked regarding the relation between wage inequalities and labour market regulation differ from those regarding the relation between the latter and economic performance. This, of course, will be made clearer in the following sections of this chapter. Before that, in the next section we discuss the problems related to undertaking an empirical investigation on the issue at a macroeconomic level, mainly problems related to data availability and data quality. Then, we draw on the experience of the OECD countries regarding their economic performance, the regulation and flexibility of their labour markets and their performance in terms of within-country wage dispersion. Section 4.4 presents the empirical analysis of the relationship between wage inequality and labour market regulation, while section 4.5 presents the same analysis, but between the latter and a number of indicators of economic performance. The last section relates the evidence of the empirical analysis to the theoretical discussions of the preceding chapters.

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[52] This is not to neglect the extended literature that exists on the issue of (wage and income) inequalities and economic growth (for example, Persson and Tabellini, 1994; Glomm and Ravikumar, 1994; Benabou, 1996; and from a different perspective, Dunford, 1995). Despite the potential significance, however, of inequalities for growth, the former remain effectively a socio-economic issue.

4.2. Aggregate data and macroeconomic studies

4.2.1. Aggregate data

Despite the centrality of the issue of labour market flexibility and deregulation and their economic effects, little empirical research has been conducted at an aggregate macroeconomic level. This is mainly because of the limited quantitative information that is available at both the national and international levels. Cross-country comparisons and evaluations of the national regulatory frameworks of the labour market are difficult to make and of questionable reliability, as there are significant differences in the definitions of the various labour market intervention measures but, more importantly, as the cross-country differences are mainly qualitative rather than quantitative. Constructing data on a time-series dimension is also very problematic, especially when these data refer to labour market regulation rather than to labour market flexibility.[53] This is presumably the reason why, although such information is quite easy to obtain, there has been little effort in the literature to construct time-series measures of labour market regulation either for one single country or for a selection of countries. Additionally, national statistical bodies do not produce measures to labour market flexibility either in absolute terms or in a comparative time-series fashion.[54]

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[53] As it has already been discussed, not only are there conceptual and theoretical differences between the two concepts, but there are also differences in their variability over time. For the moment, it is sufficient to say that while regulation is a policy variable which changes in discrete points in time, flexibility is a response to policy and, hence, is a much more continuous variable.

[54] The UK has a short-lived index of labour market flexibility derived from data obtained by the Quarterly Labour Force Survey (QLFS). This index is based on the number of people self-reporting a flexible employment relationship (calculated as a share to total employment) and naturally excludes many of the factors that would normally be considered as elements of the regulatory framework of a labour market. Similarly, the Bureau of Labor Statistics (BLS) in the United States produces some measures of contingent and alternative employment, based on data derived from the Current Population Survey. Other countries have data of much poorer quality, if any.

Naturally, then, it is effectively impossible to undertake a macro-econometric time-series analysis for a single country. Alternative methods of empirical investigation, including testing for a trend-break in relevant time-series data after the implementation of deregulation policies, or cross-country comparisons of the trend behaviour of economic aggregates for countries with similar economic bases but different labour market regulation settings (Gorter and Poot, 1998), could be implemented but the inferences that can be made from them are limited. Hence, the main method of investigation of the issue at a macroeconomic level is cross-country econometric analysis.

The only source of official quantitative and comparable information regarding the degree of labour market regulation across a set of countries is the OECD (OECD, 1994, 1996, 1997 and 1999; OECD database on Benefit Entitlements and Gross Replacement Rates; OECD database on Permanent-Temporary Employment; OECD database on Labour Market Structures). The ILO also maintains a database on Key Indicators of the Labour Market (KILM), but this is only vaguely related to issues of labour market regulation and flexibility.[55] Some other indicators of the degree of flexibility in a labour market have been produced by a number of studies, based on individual survey data. Hunter et al. (1993) have used the ELUS survey to produce a number of measures related to flexible forms of employment (contingent employment) in Britain, in an attempt to test empirically the so-called "flexible-firm model", developed by Atkinson (1984).[56]

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[55] One of these indicators (KILM12: the time-related underemployment rate), however, is a good proxy for internal numerical flexibility.

[56] Employers' Labour Use Strategies survey, 1987. This survey was carried out by the Social Science Branch of the Department of Employment (see Wood and Smith, 1989, for further details about the survey).

Gorter and Poot (1998) have used national published data to compare the effects of labour market deregulation in New Zealand and the Netherlands. Metcalf (1986) has assessed the employment effects of labour market flexibility in the UK and other OECD countries using quantitative information produced by the study of Coe and Gagliardi (1985) for the OECD. Another source of information for quantitative assessments of the relation between labour market flexibility and economic performance is the study of Emerson (1988), for a number of OECD economies. A cross-country analysis based on survey data (Survey on the Work Environment in Europe, Eurostat, 1991) has been used by Smulders et al. (1996) to assess and compare the working conditions in 12 EU countries. Finally, the 1992 Employment in Britain Survey (see Gallie et al., 1998 for a survey description and relevant analysis) is another useful source of relevant information for the UK.

At the microeconomic level, of course, numerous studies have used survey data to measure different elements of labour market flexibility in a country (mostly minimum wages and trade unionism) and assess their impact on some economic indicators (usually employment and wage dispersions). However, the nature and the sources of these measures do not allow for such information to be used in cross-country comparisons or in international macroeconomic studies. Data comparability is apparently the main problem.

4.2.2. Macroeconomic studies

Because of this lack of appropriate available information, at least in quantitative terms, most of the few empirical macroeconomic studies in the literature have used the OECD indexes (e.g.: Nickell, 1997a; Grubb and Wells, 1993; Nickell and Layard, 1998), sometimes amending them with some additional country-specific

information (e.g.: Keodijk and Kremers, 1996). The main advantages of using the OECD information are the reliability of their source, their comparability across a relatively large number of countries and their availability at different points in time. There are, however, disadvantages related to the OECD indexes. First, not all data are organised in a comparable fashion. For example, data on minimum wages are available even at an annual basis (but data on minimum wage legislation are available as a three-categories index), while data on temporary employment and employment protection legislation are only available for approximate time periods (early 1980s, late 1980s, early 1990s). Second, not all data are available for the same selection of countries. Third, as a consequence, there is only a small selection of countries for a limited number of observations in time that can be used in an empirical macroeconomic analysis. The main problem, however, relates to the nature of the indexes produced by the OECD. Almost all of these indexes are country rankings, based on cross-country comparisons. It follows, then, that these indexes do not measure the degree of regulation or flexibility in a country in absolute terms, but only relatively to a group of other countries. Hence, the inclusion or exclusion of some countries from the estimating sample severely affects the distance between the sample countries. Moreover, by being rank variables, the OECD indexes give no indication of the distances between the regulatory frameworks among countries. This will have an impact on the results of any statistical analysis except in the special case where the distance between countries in terms of labour market regulation experiences is constant for all countries. In any other case the true cross-country differences in labour market regulation and flexibility will be inconsistently distorted (as there is sometimes a positive and sometimes a negative bias).

Another problem with the OECD data is that they are not updated regularly. At present, the most recent publicly available OECD information covers the period up to the mid-1990s. Since then, significant changes have occurred in many OECD countries, especially in terms of their economic performance. Undoubtedly, the lack of more recent information regarding labour market regulation limits the power of the empirical investigation.

Having made these points, the OECD indexes are still the best-quality data available on labour market regulation at an international level. Hence, it is these data that we use in the empirical investigation that follows. As already mentioned, before actually presenting the empirical analysis, we first review the economic performance and labour market regulation experience of the OECD countries of our sample.

4.3. OECD economic performance and regulation experience[57]

Labour market deregulation, as a means of achieving higher labour market flexibility, has been increasingly advancing in most of the industrialised countries, with the USA, Canada and the UK in the forefront. Other countries, like the Netherlands, Denmark, Australia and New Zealand have followed, implementing new measures in their labour markets, in terms of lower real minimum wages, freer hiring-and-firing legislation, decentralisation (or individualisation) of the wage bargaining process or reductions in the levels and duration of unemployment benefits. However, the experience of labour market regulation differs substantially across OECD countries, especially in a qualitative sense. As with regulation, changes have also occurred in the distribution of wages within countries. Wage dispersions

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[57] This section is only intended to make a brief presentation of labour market regulation and economic performance in the OECD. For more detailed reviews see the OECD Jobs Study (1994) and also Saint-Paul (1996), Siebert (1997) and Nickell and Layard (1998).

started widening in some countries from the mid-1970s[58] and this process accelerated during the 1980s in most of the OECD economies, although the pattern of increasing wage inequalities was not uniform across them (OECD, 1993). The tendency of increasing (or, not decreasing) wage dispersions also continued at least into the first half of the 1990s (OECD, 1996).

4.3.1. Wage dispersions

According to OECD data (OECD, 1993, Table 5.1), wage dispersion rose in the 1980s in Australia, Austria, Belgium, Canada, France, Japan, the Netherlands, New Zealand, Portugal, Spain, Sweden, the UK and the USA. In the UK and the US, the increase in wage inequality was much more remarkable and persistent (OECD, 1996). Increasing wage inequalities continued to characterise countries like Italy, New Zealand, Portugal, Austria, France and Sweden into the 1990s, especially for the upper half of the distribution of wages. On the other hand, wage inequalities started subsiding in Canada, Belgium, Japan and Finland (OECD, 1996). Table 4.1 shows three measures of wage inequality for three time-periods for 18 OECD countries.[59] The construction and content of these measures is explained in section 4.4.1 and is thus not discussed here.

As noted above, this evidence should be treated with caution, since cross-country comparisons depend partly on the definition and measurement of the inequality indexes on which they are based. Nevertheless, what is clear for most of the OECD economies is that earnings dispersions are considerable and show no

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[58] Raj and Slottje (1994) have shown for the case of the US the existence of a structural break in the trend behaviour of income inequality in the late 60s and early 70s, which is a robust across different inequality measures.

[59] It was impossible to collect comparable wage inequality data for Spain, the nineteenth country of our sample. For this reason, although Spain is included in the economic performance analysis, it is excluded from the analysis regarding wage inequalities.

strong signs of a long-run declining tendency. In some countries the increase in wage dispersion is not only the outcome of higher wage increases for the highly-paid workers, but of an absolute decrease in the real earnings of the low-paid.

Table 4.1: Three measures of wage inequality for a selection of OECD countries

	9th-to-5th decile			5th-to-1st decile			9th-to-1st decile		
Country	'84-'88	'89-94	'84-'94	'84-'88	'89-94	'84-'94	'84-'88	'89-94	'84-'94
Australia	1.72	1.77	1.74	1.68	1.66	1.67	2.89	2.94	2.91
Austria	1.67	1.65	1.66	1.65	1.67	1.66	2.76	2.76	2.76
Belgium	1.76	1.57	1.66	1.39	1.38	1.38	2.45	2.17	2.31
Canada	1.71	1.73	1.72	2.23	2.18	2.20	3.81	3.77	3.79
Denmark	1.55	1.57	1.56	1.40	1.38	1.39	2.17	2.17	2.17
Finland	1.69	1.73	1.71	1.51	1.46	1.48	2.55	2.53	2.54
France	2.12	2.13	2.12	1.62	1.61	1.61	3.43	3.43	3.43
Germany	1.65	1.64	1.64	1.42	1.37	1.39	2.34	2.25	2.29
Holland	1.66	1.66	1.66	1.56	1.56	1.56	2.59	2.59	2.59
Italy	1.56	1.65	1.60	1.45	1.60	1.52	2.26	2.64	2.45
Japan	1.70	1.73	1.71	1.64	1.60	1.62	2.79	2.77	2.78
N.Zealand	1.64	1.79	1.71	1.74	1.77	1.75	2.85	3.17	3.01
Norway	1.49	1.50	1.49	1.45	1.32	1.38	2.16	1.98	2.07
Portugal	2.13	2.40	2.26	1.61	1.72	1.66	3.43	4.13	3.78
Sweden	1.57	1.62	1.59	1.34	1.36	1.35	2.10	2.20	2.15
Switzland	na	1.64	na	na	1.49	na	na	2.44	na
UK	1.78	1.86	1.82	1.70	1.74	1.72	3.03	3.24	3.13
USA	1.99	2.01	2.00	2.05	2.13	2.09	4.08	4.28	4.18
All*	1.73	1.76	1.75	1.61	1.62	1.61	2.81	2.88	2.85

*: This is an unweighted average. Does not include Switzerland.

To complete the picture, a tendency that has been named the "disappearing middle" has been apparent. The numbers of people receiving either higher than average or lower than average wages has increased remarkably since the early 80s, especially in countries like the US, the UK and Canada. Definitionally, of course, since these data show earnings, they reveal nothing about incomes of the non-employed and so are incomplete as indicators of overall (income) inequality.

4.3.2. Regulation and economic performance

A categorisation of different country experiences in terms of their labour market regulation is a difficult task as is a categorisation of them in terms of their economic performance, as some countries may perform better in one field but worse in others. Nevertheless, a short discussion of the labour market experience across countries is necessary as this facilitates the understanding of the differences and similarities of different forms of labour market regulation. For reasons of simplicity, but with the risk of misrepresentation, we can divide our sample countries into five groups. The first group consists of the Scandinavian countries (Sweden, Norway and Finland), Austria and -to a lesser extent- Germany. These countries had in the 15-year period of our study highly regulated labour markets, with high minimum wages and relatively high employment protection and labour standards. With the exception of Finland, their labour market performance (growth in real wages, unemployment and wage inequality) was very strong for most of the period under study (but many experienced a deterioration of labour market performance in the second half of the 1990s). Their output and productivity growth rates were also above average. On the other hand, employment growth in these countries has been rather slow. Attempts to introduce greater labour market flexibility started in these countries more recently but, for most of the period of this study (1980-1994), this was not the case.

Another group of countries where labour markets were highly regulated is constituted by Belgium, Italy and Spain. In these countries, though, the labour market performance was much bleaker. Substantially high unemployment rates and slow employment growth were the main characteristics of this group of countries for the whole of the study period. Importantly, these countries experienced above average and even high rates of economic and productivity growth. France, Portugal, Denmark

and the Netherlands make up the third group of countries with intermediate overall labour market regulation scores. These countries had generous compensation for the unemployed (apart from France), high labour standards and strong trade unions (only France and Denmark), but employment protection (not in Portugal) and minimum wages (not in France) were set at more moderate levels. Their overall economic performance has been close to the OECD average, with relatively slow employment growth but good productivity records (apart from the Netherlands). Portugal had high rates of output growth but was also the poorest country in terms of per capita GDP.

Table 4.2: Indexes of labour market flexibility (1980-1994)

Country	Repl. Rate	Labour standrds	Empl. Protect	Union cover.	Centra-lisation	Union density	Coordi-nation	Min. wage	Flexibility index
Australia	17	13	16	8	8	10	11	3	75.4
Austria	14.5	7.5	5	1	2.5	6	18	2	39.8
Belgium	10.5	10.5	4	5	2.5	5	9	2	39.3
Canada	12	15.5	17	17	18	12	1.5	3	90.5
Denmark	1	15.5	15	13	6.5	3	15	3	58.8
Finland	8.5	7.5	10	2	1	2	13	1	29.9
France	13	4.5	7	4	11	19	6.5	1	47.9
Germany	8.5	4.5	6	3	11	13	18	2	45.0
Italy	19	2	1	7	14	8	5	1	42.2
Japan	10.5	17	12	18	18	16	18	3	87.2
Holland	4	7.5	11	9.5	11	15	9	2	54.5
N. Zealand	18	13	18	16	16	7	3	2	82.0
Norway	6.5	7.5	9	11.5	5	4	16	1	35.5
Portugal	6.5	10.5	3	11.5	11	10	6.5	2	48.3
Spain	4	2	2	9.5	6.5	18	9	1	31.3
Sweden	2	2	8	6	4	1	13	1	20.9
Switzerlnd	4	13	14	15	11	14	13	2	64.9
UK	16	18.5	13	14	15	10	4	3	87.2
USA	14.5	18.5	19	19	18	17	1.5	3	100.0

Notes: Countries are ranked (1-19) according to their degree of flexibility. For *minimum wages* countries are categorised in three groups where a high value stands for a low minimum wage. The *replacement ratio* is the ratio of the average unemployment benefit over the average wage. *Labour standards* is a composite index reflecting regulation on working time, fixed-term contracts, minimum wages and workers' representation rights. *Employment protection* reflects the strictness of national hiring-and-firing legislation. *Union coverage* is the share of employees covered by union agreements on wage bargaining. *Union density* is the share of union members to total civilian employment. *Centralisation* is an index reflecting the level at which wage bargaining takes place (firm, industry, region, country). *Co-ordination* is simply an evaluation of the degree of co-ordination between workers and between employers in the wage bargaining process. For more information on these indexes, see the Appendix.

Table 4.3: Measures of economic and labour market performance (avg., 1980-1994)

Country	GDP per capita[a]	GDP growth[b]	Empl. growth[b]	Unempl rate[b]	Producti-vity[a]	Productivi-ty growth[b]	Empl/Pop ratio	Performance index
Australia	15,529	3.1	2	8.5	37.70	1.3	0.412	65.9
Austria	18,736	2.6	0.8	4.9	44.46	0.9	0.421	68.1
Belgium	18,050	2.1	0.4	11.2	49.25	1.6	0.367	54.9
Canada	18,325	2.4	1.5	9.7	42.66	1.1	0.430	57.1
Denmark	24,230	1.9	0	9.9	48.43	1.6	0.500	54.9
Finland	23,870	1.2	-1.7	8.1	51.40	3.0	0.464	67.6
France	19,453	2.1	0.2	10.2	51.20	1.7	0.380	59.9
Germany	19,166	2.8	0.6	7.7	51.42	-0.2	0.373	70.9
Italy	18,038	2	-0.2	9.6	48.52	2.2	0.372	53.8
Japan	21,849	3.3	1.1	2.5	44.78	2.3	0.488	97.3
Holland	17,450	2.7	1.7	7.4	45.05	0.2	0.387	65.9
N. Zealand	12,244	1.4	0.4	6.8	29.52	0.0	0.415	33.5
Norway	26,266	2.8	0.3	4.2	56.05	2.6	0.469	100.0
Portugal	6,271	3.3	0.3	6.3	14.20	2.2	0.441	60.4
Spain	11,573	2.9	0.7	19.8	37.80	2.4	0.306	58.2
Sweden	24,679	1.2	-0.8	3.6	50.81	2.1	0.486	70.9
Switzerland	30,192	1.7	1.4	1.6	59.80	0.4	0.505	87.9
UK	15,648	2.3	0.5	9	35.96	1.6	0.435	47.3
USA	20,100	2.5	1.6	6.5	45.39	1.2	0.443	78.0

Notes: [a]Thousands of US dollars, in 1990 prices and exchange rates; [b]Percentage points.

The rest of the 19 OECD countries of our study had rather flexible labour markets. Nevertheless, their performance in terms of economic outcomes was not always satisfactory. Canada, the UK, New Zealand and Switzerland had moderate to poor performance in terms of economic outcomes and the first three also had rather poor labour market performance. Switzerland, despite its low rates of growth and the fact that it had the most regulated labour market in this group, had an exceptional labour market performance. The last group consists of Australia, Japan and the USA. This group is characterised by very high labour market flexibility, minimal levels of employment protection and job security, low minimum wages and low levels of compensation for the unemployed. The labour market and overall economic performance of these countries was above average, with low rates of unemployment

and high rates of employment growth,[60] at least in relative terms, although wage inequalities grew sharply (especially for the USA).

This categorisation of countries is useful for the conceptualisation of the different labour market experiences in the OECD, but is to a significant extent subjective and might hide interesting information. In our empirical analysis we use a number of more detailed measures of labour market flexibility rather than an aggregate index. Table 4.2 presents the ranking scores on these more detailed indexes for 19 OECD countries. Table 4.3 shows how these countries have performed in terms of some main economic and labour market indicators.

The last column in each table presents a composite index based on the combined scores each country receives when ranked according to its performance on the detailed labour market flexibility and economic performance indexes. These two indexes take the value of 100 for the best performing country and all other countries' performances are expressed as percentages of the best score. Reading the last column in Table 4.2, one can see that the USA, Canada, the UK, Japan, New Zealand and Australia have been the economies with the most flexible labour markets. A group of intermediate countries consists of Switzerland, Denmark, the Netherlands, Portugal and France. In the rest of the countries, the regulation of their labour markets is relatively high, so they can be viewed as having relatively rigid labour markets. Turning to the last column of Table 4.3 we see that Norway, Japan, Switzerland, the USA, Sweden and Germany had a very good overall economic performance while

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[60] One must be very careful with what employment growth really stands for and how it is measured, as in most of the cases the biggest portion of the new jobs created were part-time jobs and the results seem to depend on the business cycle. For example, employment grew in New Zealand at an annual rate of 3.2% between 1991 and 1996, but only at 1% p.a. between 1986-1997. Moreover, as the growth of part-time jobs was 3.9% p.a., the full-time equivalent employment growth was only 0.4% p.a. (Gorter and Poot, 1998).

New Zealand and the UK had the poorest performance among the 19 OECD countries of our study.

4.4. Labour market flexibility and wage inequality

In chapter three we reviewed in some detail the expected effects of labour market regulation on economic performance and wage inequality. In brief, unions are expected to reduce wage inequality, although some widening of the union-nonunion wage gap is also possible. Deregulation of minimum wages and decentralisation should lead to a widening of wage inequality. On the other hand, the expected impact of deregulation in hiring-and-firing, working time arrangements, unemployment benefits and the mobility of labour is much more ambiguous. In this section we provide empirical evidence to help evaluate the impact that such elements of labour market regulation have had on wage inequality in the OECD during the 1980s and early 1990s.

4.4.1. Considerations for the empirical analysis

Our empirical investigation uses a macro-analytical approach to examine how different characteristics of national labour markets affect wage inequality. In such a context, theory does not suggest any specific relation determining wage inequalities. As mentioned earlier, occupational, individual, locational and industry-specific characteristics are important at the micro-level, but they still leave a significant part of the variance of the distribution of wages unexplained. The impact of factors like international trade and female labour force participation has been shown to be significant in some studies but insignificant in others. Hence, for the purpose of our study, the specification of the model referred more to the choice of its functional

form, than to the choice of the explanatory variables. Nevertheless, we did experiment with some measures of the structure of the production system ("openness to trade" and share of manufacturing, services and industry in total employment),[61] as well as with different labour market variables (unemployment rate, employment-population ratio and growth rate of the labour force), trying to control for exogenous macroeconomic conditions. None of these variables proved to be of any significance in explaining cross-country differences in wage inequality. Table 4.4 presents the correlation coefficients between the three measures of inequality presented earlier and the aforementioned candidate control variables.

Table 4.4: Correlation between inequality and the structure of the economy

Inequality measures	Share of agriculture	Share of industry	Share of services	Share of man/ture	Openness to trade	U-rate	Empl/pop ratio	L-force growth
WDIS95	0.191	-0.036	-0.046	0.264	-0.188	0.232	-0.141	-0.041
	(0.46)	(0.89)	(0.86)	(0.31)	(0.47)	(0.36)	(0.58)	(0.87)
WDIS51	0.013	-0.203	0.206	-0.189	-0.446	0.236	-0.024	0.330
	(0.96)	(0.43)	(0.43)	(0.47)	(0.07)	(0.35)	(0.93)	(0.18)
WDIS91	0.097	-0.160	0.124	0.004	-0.420	0.266	-0.074	0.192
	(0.71)	(0.54)	(0.64)	(0.99)	(0.09)	(0.29)	(0.77)	(0.45)

Notes: significance levels in parentheses.

As none of the correlation coefficients is statistically significant (with the exception of the openness variable for the lower-tail inequality measure and marginally at the 10% level), we decided to exclude these variables from our analysis. Hence, our sample consists of 18 OECD countries, for two time-periods (1984-1988 and 1989-1994). Wage inequality data were collected from the OECD Employment Outlook (1993, 1996) and they refer to the last year of each time-observation.[62] Three measures of wage inequality have been used. The ratio of the fifth to the bottom (first) decile of the distribution of wages, the ratio of the ninth to the fifth deciles and

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[61] Data on "openness" were taken from the Penn World Tables (version 5.6), while data for employment shares were collected from various issues of the OECD Main Economic Indicators.

the ratio of the ninth to the first deciles. According to the OECD, these indexes are in general considered to be preferable to the standard deviation of the distribution of wages, or other inequality measures, like the Gini coefficient or the Theil index, especially for cross-country studies (OECD 1993, Annex 5.A). They also enable us to take a look *inside* the wage distribution and see how even are the effects of labour market flexibility (if any) across the distribution of wages. The results support this methodological approach, showing that, in general the impact of differences (changes) in labour market regulation and flexibility is greater for the lower-paid workers.

As our explanatory variables, rather than using one aggregate measure of labour market flexibility, we used seven different indexes of labour market characteristics, which all proxy for different aspects of labour market regulation.[63] Nickell (1997a) has shown that different elements of labour market flexibility have very different effects on the unemployment rate. Our earlier theoretical considerations suggest that the same will hold for its wage inequality effects. It is more plausible that "the effect of a single institutional arrangement can only be understood in its interaction with other institutional rules" (Siebert, 1997, p.39). Additionally, we also included some squared terms of these indexes in our estimated equations, as the existence of non-linearities is suggested in the literature even by different economic approaches (e.g.: Piore, 1990; Herzenberg et al., 1990; Sengenberger and Campbell, 1994; Fields, 1990; OECD, 1995). We originally considered estimating our equations using the Random Effects GLS method (Baltagi, 1995), since for cross-sectional panel data, the two observations corresponding to the two sample periods for each

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[62] Hence, we actually test how the regulatory environment of labour markets in the last five years has affected the dispersion of wages. The reason for this is that we assume that the impact of labour market regulation takes some time to be realised in terms of wage inequality.

country cannot be treated as independent (Greene, 1993). After experimenting with different estimation methods, however, we ended up using OLS as our estimation technique. This was supported by all the specification tests, as reported in Table 4.5 (Panel B). Since the specification of the model cannot be derived a priori, the decision as to which variables should enter the estimated equations in both levels and squares was based on a backward stepwise selection procedure. In general, only employment protection, occupational mobility and spending on ALMPs did not require the inclusion of a squared term.

4.4.2. Empirical results

The last two rows of panel B present the results from the Breush-Pagan chi-square test for random effects and an F-test test for omitted time-specific effects, respectively. The results indicate that we cannot reject the hypothesis that there are no significant time-specific or country-specific (random) effects, suggesting that OLS is the most appropriate estimation method.[64] For all three equations, the goodness of fit as measured by the adjusted R^2 (first row of Panel B) is high, ranging from 83% to 92%, and the Durbin-Watson statistic is satisfactorily close to 2 (second row). They all pass the Shapiro-Wilk test for normality (third row) and the Ramsey RESET test for omitted variables (fourth row), which is a further indication of the good specification of the equations. Finally, with the exception of the case of the upper-tail inequality, which is the weakest relationship, the estimated residuals are

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[63] For details about the indices see Appendix A.4.
[64] The possibility of country fixed-effects was not tested, for two reasons. First, because the country-specific effects (if any) could not be fixed, as in terms of their labour market experience our sample countries cannot be considered as forming one group (Siebert, 1997). Second, because the use of a fixed-effects specification would create problems of collinearity between the fixed effects and the constant-across-time regressors, as some of our explanatory variables show no within-group (between time-periods) variation.

homoskedastic according to the Cook-Weisberg chi-square test that we applied (fifth row).

Table 4.5: The impact of labour market regulation on wage inequality

	Variables	**Overall Inequality** (9th-to-1st decile)	**Upper-tail Inequality** (9th-to-5th decile)	**Lower-tail Inequality** (5th-to-1st decile)
PANEL A	**Constant**	3.657 (7.140)***	1.020 (6.505)***	2.681 (11.711)***
	Spending on ALMPs	-0.00093 (-0.215)	-0.00176 (-0.858)	0.001709 (0.874)
	Labour standards	0.345515 (3.118)***	-0.01905 (-1.592)	0.155597 (3.305)***
	Square of Labour standards	-0.04001 (-3.290)***	-	-0.01575 (-3.014)***
	Co-ordination in wage bargaining	-1.03004 (-4.532)***	0.009218 (0.465)	-0.61025 (-5.793)***
	Square Co-ordination in wage bargaining	0.111695 (4.404)***	-	0.06773 (5.647)***
	Employment protection	0.083424 (7.843)***	0.046351 (9.287)***	0.001225 (0.254)
	Job mobility	0.057275 (7.025)***	0.028443 (8.347)***	0.008073 (2.105)**
	Treatment of unemployed	-0.00128 (-3.120)***	0.001433 (1.995)*	-0.00215 (-3.018)***
	Square of Treatment of unemployed	-	-5.20E-06 (-2.176)**	5.28E-06 (2.232)**
	Unionism	-0.02046 (-7.213)***	-0.00751 (-6.378)***	-0.0019 (-4.679)***
	Square of Unionism	5.95E-05 (5.250)***	2.41E-05 (4.907)***	-
Statistics				
PANEL B	**R^2-bar**	0.92	0.83	0.87
	DW	2.49	1.94	1.89
	Normality test (Shapiro-Wilk)	z=-0.550 (0.709)	z=-1.339 (0.910)	z=0.546 (0.292)
	RESET test (Ramsey)	F(3,20)=1.50 (0.246)	F(3,21)=3.63 (0.030)	F(3,20)=2.03 (0.141)
	Heteroskedasticity test (Cook-Weisberg)	Chi2(1)=0.53 (0.466)	Chi2(1)=7.61 (0.006)	Chi2(1)=0.38 (0.536)
	Test for random effects (Breush-Pagan)	Chi2(1)=1.97 (0.160)	Chi2(1)=0.95 (0.329)	Chi2(1)=0.50 (0.481)
	F-test for omitted time effects	F(10,23)=0.176 (0.679)	F(11,24)=0.181 (0.674)	F(10,23)=0.005 (0.942)

Notes: t-statistics (panel A) and probabilities (panel B) in parentheses. *, ** and *** show statistical significance at the 10%, 5% and 1% levels, respectively. For definition of variables see Appendix.

The first part of Table 4.5 (panel A) presents the empirical findings. The first column refers to the total measure of inequality (9th to 1st decile), while the second and third columns present the results for the upper-tail (9th to 5th) and lower-tail (5th to 1st) inequality, respectively. As can be seen in the table, spending on ALMPs is the only policy variable that does not seem to significantly affect wage inequality. All other variables have a statistically significant impact on overall wage inequality, in consistence with the priors set out in chapter three. Nevertheless, high labour standards seem to result in higher wage inequalities, at least among the low-paid. An explanation for this seemingly counter-intuitive finding could be that -controlling for other labour market characteristics- labour standards compensate for an uneven wage distribution. Tempting though it may be to conclude that, the analysis employed in this study is not sufficiently disaggregated really to support such conclusions. Firm-level studies would be needed to investigate in more detail such an hypothesis. Here it can be no more than a plausible conjecture. As with labour standards, co-ordination (among employers and among workers) in wage bargaining does not affect the upper-tail inequality. Nevertheless, as expected, this variable has a negative impact on overall wage inequality. Labour markets with wage setting environments that promote co-ordination exhibit less inequality, especially at the bottom-half of the wage distribution.

Employment protection seems to be a significant determinant of wage inequality for the top-half of the wage distribution (increasing disparities). For high-wage earners, this result is not counter-intuitive. Higher employment protection means higher employment stability with the result that wage determination (and, hence, inequalities) will depend more on the hierarchical structures of the internal labour market, increasing inequalities. For low-wage earners, employment protection

is insignificant. This result seems superficially to invalidate the original hypothesis that employment protection increases workers' power to bargain for a more equal pay (or higher wages). Nevertheless, employment protection has a positive sign only after controlling for other factors, including job mobility. The coefficient for the latter is positive and significant in all equations, indicating that more flexible labour markets exhibit higher wage inequality. Hence, controlling for other elements of regulation, job stability contributes to a narrower distribution of wages.

The last two rows of Panel A present the estimated coefficients for two of the more intensively studied labour market "rigidities", namely unionism and the way the unemployed are treated. Unionism has a clear negative impact on wage inequality (significant at the 1% level for all inequality measures). This result indicates that countries with higher unionisation rates or higher rates of union coverage have a narrower distribution of wages. The effect of unionism is the strongest and most robust result obtained, and it is also very robust across the different inequality measures. Hence, it offers further support for the results obtained by other researchers using different methodological approaches (e.g.: Gosling and Machin, 1993; Fortin and Lemieux, 1997) about the role of trade unions in achieving a narrower wage distribution. In contrast, the "treatment of the unemployed" variable has a very differentiated impact between upper-tail and lower-tail inequality. Higher unemployment benefits (in level and duration) have a negative impact on overall wage inequality, and they mainly reduce the dispersion of wages in the bottom half of the wage distribution. This is as expected, as a generous treatment of the unemployed would increase the reservation wage (and, hence, the minimal market wage), compressing the distribution of wages at the bottom. For upper-tail inequality, there is no reason to expect any negative effect of unemployment benefits. Despite this, our

findings indicate that, for this category of wage-earners, unemployment benefits increase wage inequalities! One potential explanation for this apparently paradoxical finding can be that higher unemployment benefits are correlated with lower (median) wages.[65] If wages at the top of the distribution are not affected, then upper-tail inequality would increase, and this would appear to be related to the more preferential treatment of the unemployed.

Two points are worth making in conclusion. The first relates to the difference between the effects of the various labour market institutional characteristics in relation to the two "disaggregated" measures of wage inequality. For inequality in the upper half of the wage distribution, it is only unionism, firing-and-hiring legislation (employment protection) and unemployment benefits that matter. For inequality at the lower half of the distribution, co-ordination in wage bargaining and labour standards are also important, while employment protection is not. The second point is about the role of employment protection and labour standards. According to our estimates, these two elements of labour market regulation do not seem to reduce wage inequality for the low-paid. (The negative correlation between inequality and labour standards is reversed when we control for other labour market regulation characteristics). This is in sharp contrast with the predictions of the opponents of labour market deregulation, who expect these two elements to be among the major factors that help narrow wage inequalities.

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[65] A simultaneity scenario would have to be employed to justify this. If one assumes that countries with high unemployment rates are forced to treat the unemployed better, and if unemployment increases the incidence of low-pay (OECD, 1996) and, hence, lowers the median wage, then high unemployment benefits will be correlated with lower median wages.

4.5. Labour market flexibility and economic performance

In this section we investigate the role of labour market flexibility on economic performance, for the same sample of OECD countries. There are only a few studies that try to assess the impact of overall labour market flexibility on indicators of economic and labour market performance at an aggregate level. Koedijk and Kremers' (1996) cross-country analysis for the relationship between regulation on the one hand and output, productivity and employment growth on the other, has provided some evidence of a negative relationship between labour market regulation and output growth, but no impact on employment or productivity growth was revealed. Nickell and Layard (1998) have found trade unions and unemployment benefits to hinder employment and output growth but they suggest that employment protection and minimum wages are neutral in relation to these variables. Esping-Andersen (1998), examining the impact of overall labour market regulation on unemployment, concludes that unemployment is not affected by the regulation of labour markets. Finally, Nickell (1997a) has shown that different elements of labour market regulation have different effects on unemployment and that probably it is a very tight and careless regulation rather than any regulation that reduces employment.

4.5.1. Considerations for the empirical analysis

In the present empirical analysis we use -as before- the OECD indexes. However, we aggregate these indexes into three broader ones, measuring regulation on the determination of (i)the minimum levels of wage costs (unemployment benefits and minimum wages), (ii)average wage costs (bargaining systems and union power), and (iii)average non-wage costs and labour input adjustability (labour standards and

employment protection).[66] With these aggregations we categorise flexibility into three groups that measure the extent to which market forces are allowed to operate freely in three broad domains, facilitating a direct reference of our dependent variables to the theoretical considerations. In the case of the previous section we used as many regulation indexes as possible, in order to locate as precisely as possible the sources of increased wage inequalities. In the present case we want to locate effects which are relevant to theory. This justifies the aggregations used in the present empirical work.

We again use 6-year averages for two periods (1983-88 and 1989-94) to avoid time-inconsistency and business-cycle related problems.[67] Seven indicators measure economic performance, namely output per capita, output growth, productivity, productivity growth, employment growth, the employment-population ratio and unemployment. This is in order to get a more general picture of the effects of labour market flexibility on the economies under investigation and to enable a discussion on the probable mechanisms that are behind any identified relationships. For example, labour market flexibility can have an impact on per capita output either by affecting the productivity of labour or by changing the employment-to-population ratio. Moreover, the effects on the two last variables may be such that they cancel each other out. Examining merely the output effects of regulation can potentially hide crucial information.

In accordance with the methodologies employed in other studies (Koedijk and Kremers, 1996; Nickell, 1997a; OECD, 1997; Nickell and Layard, 1998), the

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[66] Additionally, the first two categories are each sometimes split into two components: treatment of the unemployed and minimum wages, for the first, and the bargaining system and union power, for the second. For definitions of the data used see the Appendix.

[67] Such problems arise from cross-country differences in the "timing" of implementation of labour market reforms, but also in order to avoid any business cycle effects affecting the dependent variables, the economic performance indicators.

estimating regressions do not include any economic variables as controls. The main reason for that is that we want to estimate "total-impact" effects. The labour market regulation indicators are strongly exogenous variables in the estimating relationships, expected to affect each and every one of our dependent variables.[68] In this respect, regressions specified without controls can be thought of as reduced-form equations, derived from some underlying structural relationships. The estimated coefficients are then total-impact effects. We illustrate this in the following example. Assume that productivity growth is a function of investment, employment growth and some labour market institutions. Further, assume that investment depends on the same labour market institutions (or some others, closely related to them) and on productivity, which is again a function of labour demand, wages, and unemployment. Naturally, we assume that the last three variables will also be determined by some labour market institutions and by some business cycle effects. The same can be said for employment growth as well. As all of our variables are constructed as 6-year averages so that business cycle effects are minimised, a reduced-form productivity growth equation will only contain the labour market regulation variables on the right hand side. The estimating coefficients, though, will capture the universal effect of regulation on productivity growth so that they will certainly not represent a direct effect. However, the direct effects are not what we are interested on, either in this study or from a policy perspective.

Studies focusing on the direct effects of a single regulation indicator on a single economic performance measure often indicate that these effects are non-linear (see Dorwick, 1993 for empirical evidence and Fields, 1990 or Sengenberger, 1994a

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[68] As claimed elsewhere, although in many instances labour market flexibility can be seen as an endogenous variable, this is not the case for labour market regulation, which is the measure that we use here.

for theoretical discussions). This is undoubtedly an interesting possibility. To test it, we include squared terms of the explanatory variables in the estimating regressions. With this we can see whether it is possible that too much (or too little) regulation is better (or worse) than intermediate levels. For estimating the regressions the Random Effects Generalised Least Squares procedure was used and, where appropriate, simple OLS. Alternative panel data estimation techniques (mean group and pooled mean group estimation; see Pesaran et al., 1999) cannot be utilised due to the small time dimension of the sample.

4.5.2. Empirical results

Reflecting the foregoing discussion, a number of regressions were run using three main explanatory variables: the nature of the system determining minimum wage levels (RESERV), the nature of the wage determination system (BARGAIN), and the nature of regulation-determined non-wage costs and labour input adjustability (RIGID).[69] Table 4.6 presents the results from the best performing regressions in three panels. The first two panels correspond to cross-sections for the two sample periods, while the last panel presents the results from the pooled regressions. The estimated coefficients are not sensitive to the inclusion or exclusion of right hand side variables, supporting the robustness of the results obtained. Despite the fact that the cross-sectional regressions do not return many significant coefficients, the fit of the regressions is in most of the cases satisfactory and the general impression is that labour market institutions have a significant role in the

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[69] In an earlier draft (Monastiriotis, 1999a), a cross-sectional empirical investigation was presented for the same countries but with more detailed flexibility indexes. Despite some minor econometric problems, the results obtained were very similar to those reported here.

determination of economic performance.[70] Overall, the growth and unemployment regressions perform better than the regressions in levels. The same is true for the regressions on the 1980s sample, compared to the 1990s sample. This should not be surprising. Differences in labour market regulation across OECD countries were wider in the 1980s and for this reason the rank indexes of labour market regulation that we use should perform better in this period. Additionally, it is reasonable to expect that labour market regulation has a stronger impact on the rate of change of economic outcomes than on their levels.

In the case of per capita GDP, none of the indexes is statistically significant (with the exception of the negative coefficient for the wage bargaining system in the pooled regression) and the fit of the regressions is remarkably poor. The decomposition of this relationship in the next two columns offers further support for this conclusion.[71] The only significant relationship is the negative impact of bargaining on the employment-population ratio in the pooled regression, which seems to suggest that countries with rigid wage bargaining structures tend to have lower labour force participation rates. The effects on output are largely activated through this relationship. In none of the cases is the productivity of labour found to have any connection to the regulatory framework in the labour market. This is a counter-intuitive finding, as we would expect that much of the economic effects of labour market regulation would function through labour productivity.

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[70] The reported R^2 in the pooled regressions understates the goodness of fit of these regressions, as it does not take into account the contribution of the country-effects.

[71] Per capital GDP equals productivity times the employment-to-population ratio.

Table 4.6: Labour market regulation and economic performance, basic analysis

Variables	GDP per capita	Product-ivity	Empl-to-pop	GDP growth	Pr/vity growth	Empl. Growth	Unempl rate
1983-1988							
RESERVE	1.99 (4.10)	1.94 (4.14)	1.11 (0.86)	-0.16** (0.06)	-0.015 (0.013)	-0.09 (0.07)	0.08 (0.07)
RESERVE SQUARE	-1.11 (3.12)	-0.90 (3.06)	-0.88 (0.66)	0.11** (0.04)	-	0.07 (0.05)	-
RIGID	-0.26 (0.41)	-0.66 (1.66)	-0.11 (0.09)	-0.01* (0.006)	0.02* (0.01)	-0.03*** (0.01)	-0.40* (0.19)
RIGID SQUARE	-	0.59 (1.46)	-	-	-	-	0.37** (0.16)
BARGAIN	-1.05 (1.08)	-5.90 (7.96)	-0.12 (0.23)	0.03* (0.01)	-0.41** (0.19)	0.47*** (0.15)	0.16 (0.10)
BARGAIN SQUARE	-	4.05 (6.15)	-	-	0.35** (0.15)	-0.38*** (0.11)	-
R^2	0.11	0.14	0.29	0.53	0.42	0.68	0.36
DW	2.15	2.19	2.09	2.51	2.12	1.33	2.21
White	1.11	2.00	2.04	0.38	0.87	0.58	0.99
1989-1994							
RESERVE	12.36 (13.92)	8.85 (11.57)	1.63 (1.13)	-0.10 (0.10)	-0.24** (0.11)	0.03 (0.18)	0.16* (0.07)
RESERVE SQUARE	-9.10 (10.63)	-6.15 (8.84)	-1.39 (0.90)	0.07 (0.08)	0.17* (0.09)	-0.02 (0.14)	-
RIGID	-1.01 (2.45)	-1.21 (2.04)	-0.10 (0.08)	-0.006 (0.007)	0.001 (0.008)	-0.01 (0.01)	-0.42** (0.15)
RIGID SQUARE	1.02 (2.39)	1.29 (1.99)	-	-	-	-	0.38** (0.13)
BARGAIN	-17.79 (15.73)	-15.25 (13.07)	-0.11 (0.21)	0.02 (0.02)	0.08*** (0.02)	0.14 (0.25)	0.13 (0.09)
BARGAIN SQUARE	13.01 (11.67)	11.39 (9.71)	-	-	-	-0.14 (0.19)	-
R^2	0.13	0.15	0.38	0.15	0.51	0.43	0.49
DW	2.55	2.54	2.01	1.83	2.28	1.48	2.10
White	0.43	0.71	1.51	1.81	0.79	0.50	1.16
1983-1994							
RESERVE	0.88 (0.62)	0.74 (0.64)	-0.03 (0.04)	-0.16*** (0.05)	-0.12* (0.06)	-0.12* (0.07)	0.08 (0.13)
RESERVE SQUARE	-0.79* (0.42)	-0.61 (0.45)	-	0.11*** (0.04)	0.07 (0.05)	0.10* (0.05)	-0.06 (0.09)
RIGID	1.10 (1.47)	0.54 (1.26)	0.39 (0.30)	-0.009** (0.004)	0.01 (0.01)	-0.02*** (0.005)	-0.30** (0.15)
RIGID SQUARE	-1.05 (1.34)	-0.35 (1.14)	-0.46* (0.27)	-	-	-	0.30** (0.14)
BARGAIN	-1.10*** (0.31)	-2.52 (3.52)	-0.25*** (0.08)	0.03*** (0.01)	0.05*** (0.02)	0.39*** (0.12)	0.15*** (0.06)
BARGAIN SQUARE	-	1.49 (2.70)	-	-	-	-0.33*** (0.09)	-
R^2	0.05	0.01	0.27	0.36	0.36	0.52	0.32
DW	-	-	-	1.94	-	1.40	-
White	-	-	-	1.07	-	0.59	-
Breusch-Pagan	19.28*** (RE-GLS)	18.42*** (RE-GLS)	16.68*** (RE-GLS)	2.22 (OLS)	4.86** (RE-GLS)	0.49 (OLS)	14.73*** (RE-GLS)

Notes: standard errors in parentheses. *, ** and *** show significance at the 10%, 5% and 1% levels, respectively. The cross-sectional regressions (first two panels) have been estimated with OLS, while the pooled regressions as indicated in the last row. The Breusch-Pagan test is a test for random effects, a significant value showing significance of the random effects. White is an F-test for heteroskedasticity with a significant value indicating mis-specification problems. DW is the Durbin-Watson statistic.

The next three columns present the estimated effects of regulation on growth. As noted already, the relationships seem to have been stronger in the mid-1980s than in more recent years. The pooled regressions have a satisfactory fit and -with the exception of the productivity growth equation- country specific (random) effects are insignificant. Regulations related to unemployment benefits and minimum wages seem to have a negative but convex effect on growth. For our sample this suggests that intermediate countries have experienced lower growth rates than both weakly and strongly regulated countries. For the case of employment growth, the in-sample forecasting suggests that tight regulation results in faster rates of employment growth, ceteris paribus. Rigidities related to the determination of non-wage costs and the easiness of adjustment of labour inputs have a linear negative effect on output and employment growth. However, the negative output growth effect must be activated merely through the employment growth effect, as our results indicate that productivity growth is not affected. The findings regarding the growth effects of the wage bargaining system are again quite surprising. The latter has a linear positive impact on both output and productivity growth rates. The estimated coefficients for the employment growth equation suggest that employment growth is faster in very flexible bargaining structures compared to very rigid ones, but intermediate levels of regulation are superior.

The last column presents the estimated results for the unemployment equation. The evidence from the cross-sectional regressions is again mixed, so we focus on the results from the pooled regression. Regulation on unemployment benefits and minimum wages does not seem to impact on unemployment rates, suggesting that at an aggregate level the expected negative relationship between

unemployment and the determination of reservation wages is, if anything, not particularly strong. Moreover, rigidities relating to employment protection and labour standards seem to lead to lower levels of unemployment. However, tight wage bargaining systems are found to increase unemployment.

Table 4.7: Labour market regulation and economic performance, five indexes

Variables	GDP per capita	Productivity	Emp/pop	GDP growth	Prod/vity growth	Empl. growth	Unempl rate
TREAT	-0.19*	-0.12	-0.04	-0.007	-0.01	0.008	0.013
	(0.11)	(0.10)	(0.03)	(0.006)	(0.01)	(0.007)	(0.02)
MWAGE	0.05	0.042	0.008	-0.003	-0.003	0.003	-0.004
	(0.05)	(0.047)	(0.014)	(0.002)	(0.003)	(0.003)	(0.009)
RIGID	-0.20	-0.004	-0.15**	-0.002	0.012	-0.016**	0.04
	(0.33)	(0.29)	(0.06)	(0.007)	(0.01)	(0.008)	(0.03)
UNION	-0.48**	-0.112**	-0.13**	0.004	0.003	0.013	-0.005
	(0.23)	(0.055)	(0.06)	(0.007)	(0.003)	(0.008)	(0.009)
BRGN	-0.56	-0.075	-0.30***	0.011	0.027*	-0.025**	0.196***
	(0.38)	(0.34)	(0.08)	(0.01)	(0.016)	(0.011)	(0.05)
UNION SQUARE	0.143	-	0.06***	-0.002	-	-0.007**	-
	(0.10)		(0.02)	(0.003)		(0.003)	
R^2	0.09	0.003	0.67	0.23	0.29	0.46	0.52
DW	-	-	-	2.00	-	1.54	-
White	-	-	-	0.90	-	0.66	-
Breusch-Pagan	18.02*** (RE-GLS)	18.22*** (RE-GLS)	15.12*** (RE-GLS)	0.62 (OLS)	6.46** (RE-GLS)	0.25 (OLS)	16.32*** (RE-GLS)

Notes: standard errors in parentheses. *, ** and *** show significance at the 10%, 5% and 1% levels, respectively. The Breusch-Pagan test is a test for random effects, a significant value showing significance of the random effects. White is an F-test for heteroskedasticity with a significant value indicating mis-specification problems. DW is the Durbin-Watson statistic.

It is interesting to investigate further the relationships estimated in Table 4.6, as it is possible that the results obtained are dependent on the aggregations of the data. For this reason, the pooled regressions presented above, are replicated using more detailed regulation indexes. Specifically, RESERVE and BARGAIN are decomposed into four new variables: treatment of the unemployed (TREAT), minimum wages (MWAGE), union power (UNION) and centralisation/coordination of wage bargaining (BRGN). The results from the new regressions are reported in Table 4.7. In general, the results are similar to the ones reported in Table 4.6. This

can be reasonably viewed as an indication of the robustness of our findings. The fit of the GDP per capita and productivity regressions is again very poor. The estimated negative effect of BARGAIN is largely due to union power and less to the BRGN variable. Union power has a significant negative effect on employment, productivity and output. This is in accordance with much of the empirical literature and economic intuition. The view of unions as potential efficiency- and productivity-enhancing devices (Freeman and Medoff, 1984) is not supported by the data.

On the other hand, productivity and output growth are hardly affected by any measure of regulation. This may come as a surprise, as the regressions of the more aggregate indexes had a better fit. Plausibly, then, this suggests that no single institution is by itself a determinant of growth, but the whole context their interplay creates has adverse effects on the growth rates of the economy. The employment equation has a much better fit now, largely because the effects of the two components of BARGAIN are not of equal size (although they have the same sign). The same is true for the unemployment equation. The effect of RIGID is on average zero (when a squared term is not included) and the impact of BARGAIN is merely due to the centralisation of wage bargaining (BRGN). In the employment growth equation unions are found to have a (marginally insignificant) positive effect, but centralisation in wage bargaining has a strong negative impact. Consequently, union power does not seem to affect unemployment when wage bargaining is coordinated and decentralised. This finding is at odds with much of the economic orthodoxy. We interpret it, though, as evidence suggesting that unions do not have damaging effects, provided that the institutions that they create do not.

4.6. Putting the evidence together - Conclusions

The empirical evidence presented in the previous sections revealed a wide range of information regarding the impact of labour market regulation on wage inequalities and economic performance. Despite the fact that the same or very similar data have been used in other research (e.g.: Grubb and Wells, 1993; Nickell, 1997a; Nickell and Layard, 1998), the advantage of the present analysis is that the results we obtained seem more organised and related to the predictions of economic insight.

Concerning the effects on wage inequality, the empirical evidence showed that while labour market deregulation in general tends to increase wage inequality, especially for the low-paid, not every aspect of labour market deregulation is detrimental to equality in wages. Trade unions, unemployment benefits and co-ordination in wage bargaining help narrow the distribution of wages. On the other hand, high labour standards and employment protection, especially for high-wage earners, are connected with wider wage dispersions, but only when we control for job mobility and union power. These findings shed light on the trade-offs and choices that are involved in labour market deregulation, but they also show specifically where policy measures should be aiming, so as to contribute towards more flexible labour markets while avoiding potential socially unpleasant side-effects.

As with the wage inequality effects, our empirical analysis of the role of labour market regulation on economic performance suggested that there is a variety of mechanisms in place, generating effects with different impacts. Specifically, our results suggest that there is no "one truth" but rather multiple and, often, diverse mechanisms and effects. Labour market flexibility seems to be in many cases almost as detrimental to economic performance as labour market regulation. Unemployment benefits and minimum wages do not seem to be responsible for the bad economic

performance of highly regulated labour markets. Rigid wage bargaining systems are an impediment to productivity, employment and growth, but unions -although they reduce productivity and labour supply- are not responsible for unemployment and can even boost employment and productivity growth. Employment protection and high labour standards seem to reduce employment and employment growth, but these effects do not translate into a reduction of the levels or growth rates of output or productivity.

The results obtained so far can be summarised as follows. Labour market regulation seems to have a minimal impact on output and productivity. Any effects are activated merely through labour supply, where rigid wage bargaining systems seem to have a negative effect. The latter, however, have a significant positive effect on the growth rates of employment, productivity and output. They also tend to produce more equal wage distributions. Adverse growth effects of regulation are found for the cases of unemployment benefits and minimum wages and less so for employment protection and labour standards. The last two elements of labour market regulation in effect seem to reduce unemployment and possibly to increase wage inequalities. Overall, labour market regulation is found to have some significant effects on wage inequalities, limited effects on unemployment, labour supply and employment growth, and negligible effects on output, productivity and their growth rates.

Keeping the efficiency-versus-equality trade-off in mind, some tentative implications can be drawn. Our empirical findings suggest that it is possible to achieve a combination of labour market regulations that will improve economic performance while also reducing wage inequality. Rigid wage bargaining systems can be beneficial to both, provided that complementary measures are taken to

increase labour mobility and effort and reduce unemployment. Minimum wages and unemployment benefits can be successfully integrated into such a wage bargaining system, so as to further reduce wage inequality, but then additional attention should be drawn on alleviating their possible adverse effects on growth. Employment protection and labour standards, on the other hand, seem to be harmful to both equality and growth and should thus be probably left at relatively low levels.

Although the results obtained in this chapter are not conclusive enough to dismiss any particular theoretical approach, in many respects they question the orthodoxy of the advocates of (any kind of) labour market deregulation. The evidence presented here is sufficient to suggest that the issue of labour market regulation and deregulation is a matter related more to the appropriate combinations and qualities of labour market institutions that can generate better economic outcomes, than to the "optimal" degree of flexibility as such. In the absence of conclusive empirical results, however, the possibility remains that labour market flexibility can be the source of at least as many problems as it can solve.

APPENDIX A.4: Description of the labour market regulation variables.

1. Data sources: The original source of all data used is the OECD. Economic data were derived from the OECD Statistical Compendium, obtained by the British Library of Political and Economic Science (LSE). Data on wage inequality were obtained from OECD (1993 and 1996). Most of the data on labour market regulation indexes were taken from Prof. S. Nickell, who kindly made available to us his dataset. Some data, however, were directly obtained from the OECD, being made available to us in electronic format by D. Grubb, J. Martin and P. Swain, to whom I am grateful.

2. Construction of variables and indexes: For the empirical investigation 6-year averages were computed and then used in the regressions, as explained in the text. The indexes of labour market regulation are composite indexes derived from more detailed data. The indexes used, were: TREAT, duration and replacement rate of unemployment benefits; MWAGE, minimum wages; RIGID, employment protection and labour standards; UNION, union density and union coverage; BRGN, centralisation of and coordination in wage bargaining; RESERVE, aggregation of TREAT and MWAGE; and BARGAIN, aggregation of UNION and BRGN. To make the aggregations, the following formula was used:

$$INDEX_{it} = \frac{1}{k} * \left(\frac{A_{it}}{\max\{A\}_t} + \frac{B_{it}}{\max\{B\}_t} + \ldots + \frac{N_{it}}{\max\{N\}_t} \right)$$

where k=A,B,…,N is the number of elements constituting the composite INDEX, the subscripts i and t index countries and time, respectively, and $\max\{X\}_t$ is the maximum value of the index X at period t. Hence, each index expresses the degree of regulation in a specific area as a percentage of the maximum value, the latter being the value for a country which is most regulated in all respects. With this formula

equal weights are given to all elements and the aggregate index is independent from the measurement units of each element. The definitions of the seven more detailed labour market regulation indexes used in the empirical analysis are provided below.

ALMP: Measures expenditure on Active Labour Market Policies. Constructed as "spending on ALMPs per unemployed, as a percentage of GDP per worker".

Labour standards: Constructed as the average of the relative position of each labour market (country) in terms of regulation on working time, fixed-term contracts, minimum wages and employees' representation rights.

Employment protection: Constructed as a ranking of countries according to the strictness of legislation concerning hiring and firing procedures.

Job mobility: It measures the share of people employed in their current job for less than two years, as a percentage of total employment. Hence, it is a measure of labour market flexibility (job mobility) rather then deregulation.

Co-ordination in wage bargaining: It is the sum of the scores each country received in terms of co-ordination between employers and co-ordination between trade unions in the wage bargaining process.

Treatment of the unemployed: Constructed as the product of two indexes, the duration of unemployment benefits (measured in years) and the replacement ratio (average unemployment benefit as a percentage of the average wage).

Unionism: It is the product of two more detailed indexes, union density (share of unionised workers to total employment) and an index of union coverage. The latter is a classification of countries into three categories on the basis of how widely are the negotiated union wages applied in the economy.

CHAPTER FIVE

DEREGULATION AND LABOUR MARKET OUTCOMES

5.1. Introduction

In this chapter we depart from the general discussion about flexibility and engage in a theoretical investigation, examining how the standard neoclassical model of the labour market is altered when a specific form of labour market rigidities (labour standards) is introduced in the analysis. Specifically, we employ a framework of perfect competition and analyse the labour market equilibrium when labour standards are allowed to enter the labour demand and supply functions. The definition we give for labour standards is a broad one, including both working conditions and general employment conditions. In other words, the term "labour standards" includes two clusters of elements. On the one hand, it includes factors like health and safety, lighting and ventilation, organisation of production, child-care facilities, lunch-breaks and sick-leave. On the other hand, it also includes some non-tangible aspects, like job- and work-security, internal promotion opportunities, workers' involvement in the decision-making and the right to unionise. We provide a detailed discussion of what constitutes labour standards and of how labour standards affect production in the next section.

The analysis presented in this chapter is not meant to cover the full range of complex dynamics that operate in a labour market in the presence of institutional

rigidities. Rather, the aim is to develop a simple framework within which to analyse the impact that a fraction of policy-imposed rigidities can have on the determination of labour market outcomes. Naturally, a number of labour market rigidities (among them, the most intensively studied, like unemployment benefits, minimum wages and unionism) are not considered in the development of the formal model, to keep the presentation of the current analysis and the exposition of the theoretical findings simple. Thus, we examine the implications of incorporating unionism, minimum wages and unemployment insurance into the model, separately. The model developed here makes labour supply and demand functions of labour standards, by introducing the latter into the profit and utility maximising decisions of the economic agents. This allows (in)flexibility to affect the slope and position of the labour demand and supply curves, rather than affecting the labour market equilibrium exogenously.

The structure of the chapter is as follows. The next section provides the definition that we will use for labour standards and considers their nature as a production cost and as an element affecting workers' utility. The model is presented in Section 5.3. We derive the demand and supply functions and investigate their behaviour in the wage-employment space, examining how the labour market described by our model responds to changes in regulation and in economic conditions, in comparison to the standard neoclassical model. In section 5.4 we discuss a number of extensions for our model, allowing for further rigidities in the labour market, related to unionism, minimum wages and unemployment insurance. This allows also an examination of labour market duality. The chapter concludes with a summary of the theoretical findings.

5.2. Labour standards and the labour market

As mentioned already, the term "labour standards" describes two broad groups, namely conditions of work and conditions of employment. We make the distinction between these two groups in order to discuss in more depth their constituent elements and their characteristics. The first group includes well-defined, often material aspects. It refers to the conditions of work, including health and safety standards, the intensity and organisation of the production process, and the availability of child-care facilities, lunch-breaks, leave and holidays, and other arrangements that are of benefit to the workforce (e.g., lighting, space, access to a telephone or a coffee machine).

The second group that we consider refers to more abstract elements that are not always directly observable. Such elements could be related to general worker representation rights, participation in the decision-making and the right to organise. They could also include the existence of internal promotion structures, commitment to employment protection (job-stability) from the side of the management, as well as agreements on maximum lengths for the working day and working week.

From the way that these two groups are defined it is obvious that they exhibit a considerable degree of diversity, both within and between them. However, as we discuss below, they share a significant number of similarities, in many levels. This allows one to consider them -at some level of abstraction- as a homogenous entity and justifies their treatment as a single variable in the analysis that follows. To illustrate this, we turn at the examination of how these elements are integrated in and affect the production process. There are three levels at which the importance of labour standards can be considered. First is the fact that they constitute significant production costs. Second, they are also production amenities that affect the efficiency

of production and thus total factor productivity. Finally, they affect the (dis)utility that is associated with participating in production.

5.2.1. Labour standards in the utility function

Let us first look at their impact on worker utility. Naturally, although one cannot rule out the possibility that basic facilities like ventilation or a coffee machine give direct utility to a worker, the main underlying mechanism in operation is that they make work less repelling. Thus, with better working and employment conditions, workers must have a less strong preference on leisure compared to the time spent working. At an extreme, if production takes place in an ideal environment where all workers' needs are catered for, it is reasonable to expect that the disutility of work and, thus, the utility derived from not working will be diminished. Being able to enjoy a lunch-break at work, with catering provision, in a safe and healthy environment, is undoubtedly going to increase the attractiveness of work and thus reduce the disutility associated with it. The same holds for the availability of child-care, sick leave and short holidays (at short notices). In the same way, the ability to work at a "reasonable" pace undertaking non-monotonous tasks that allow for worker involvement and team-working, also tends to make work more enjoyable. Among the more abstract elements, the feeling of work security and stability, the right to unionise and the guarantee of a maximum amount of overtime (even if this is never reached), are all factors that reduce the disutility of work. It is not necessary to compare a 19th century sweatshop or a Fordist assembly-line factory with a modern production unit to illustrate the role of labour standards in making work more enjoyable. The literature on worker satisfaction suggests a direct link between the two, which is very

robust empirically and not refuted theoretically (Freeman, 1978; Gordon and Denisi, 1995; Brown and McIntosh, 1998; Appelbaum et al., 2000).

The implication of the above considerations for the analysis that follows is that labour standards are an important component in workers' utility function. Although the constituent elements considered above are very diverse, they are very homogenous in terms of their role as utility-enhancing factors. They can thus be treated as a single entity, or a single composite variable in the same way that consumption or leisure are treated. We accept the that view labour standards can have a direct positive effect on utility. However, much more central is our observation, consistent with the above discussion, that labour standards affect the elasticity of substitution between working time and leisure. The simplest way to model this relationship is to assume that workers discount leisure by the value of labour standards, so that an increase in the latter would reduce the value in utility terms of the former. This effectively implies that improvements in labour standards reduce the demand for leisure and thus increase the supply of labour-hours. We examine this relationship more formally in the next section.

5.2.2. Labour standards in the production function

We now turn at the side of the firm and examine the role of labour standards in production. Although one can arguably view labour standards as a factor affecting labour effort and labour productivity, in line with the efficiency wages literature and probably in the fashion of the Akerlof (1982) gift-exchange model, the line of reasoning we pursue here is different. With perfect information and under the assumption of homogenous labour, it is more comprehensive to view labour standards as a factor that impacts on the way in which production takes place. This must be true

for both working conditions and the conditions of employment. Thus, we view the arrangements that determine the conditions of work and employment as something that affects the efficiency of production and thus total factor productivity (for a similar specification in the context of unionism, see Clark, 1980).

For example, the availability of child-care facilities or lunch-breaks must allow for production to be organised in longer shifts. High health and safety standards must allow for a more intensive production process with less frequent disruptions (e.g., due to accidents or sickness). The organisation of production (assembly-line, multi-tasking, team-working, etc) has a self-evident impact on total factor productivity and the way and pace at which production meets product demand. Specific conditions of employment affect the accumulation and stock of job-specific skills and allow for production innovations that would normally be expected to increase production for fixed quantities of capital and labour. In practice, labour standards tend to enhance product quality and assist product and process innovations, thus allowing firms to engage in dynamic strategies of quality-based competition (Brosnan and Wilkinson, 1988; Sengenberger and Campbell, 1994).

On the other hand, there is also an issue of balance that has to be taken into account. Although labour standards should always improve the efficiency of production, it is a rather oversimplifying approach to assume that this relationship is constant for different levels of labour or capital productivity. In the same way that more productive assets have higher insurance premiums, similarly where the marginal product of labour is higher, labour standards should also be higher.[72] This implies that the efficiency of labour standards depends on the wage rate and, hence, that the

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[72] Real-life experience is full of examples that support this view. The working space of a CEO is not more comfortable than that of a secretary only because the former is more skilled or has greater monopoly power than the latter. If such a pattern is consistently observed throughout the economy, then it must be that a comfortable working space increases the productivity of a CEO by more than it does for the productivity of the secretary.

optimal -from a firm's perspective- level of labour standards offered, would change accordingly to changes in equilibrium wages. Although this might seem to lead to a very complex model of determination of production and profit maximisation, in the next section we will derive a model consistent with the present discussion that has a very straightforward structure. Before that, however, we need to consider the third dimension of labour standards, that is, their role as production costs.

5.2.3. Labour standards in the cost function

The discussion conducted thus far has illuminated the role that labour standards take as a production cost. The provision of facilities and equipment that enhance efficiency and reduce the disutility of work cannot come without a cost. This, of course, does not refer only to tangible elements, like a coffee machine, a computer-monitor filter, a canteen or a nursery. Although it is much easier to conceptualise how tangible elements affect production costs, it is true that the most significant production costs are related to the more abstract elements within the "conditions of employment" group.

Thus, engaging workers in the decision-making or in the design of the production process involves costs associated with both direct expenses (e.g., questionnaires, ballots, notice-boards) and foregone opportunity costs due to time lost (e.g., meetings, negotiations). Allowing for a union can reduce some of these costs by making the interaction between the management and workers more efficient (Freeman and Medoff, 1984). However, this would raise other costs, related to the recognition of a union (provision of an office and other facilities, or increased risk of strikes). Of equal importance are aspects related to the organisation of production. An assembly-line production structure involves fewer costs in terms of monitoring,

supervising or training. Production based on team-working and multi-tasking requires a complex structure of monitoring and evaluation which, although might enhance production efficiency, undoubtedly adds to the costs of production.

It is important to stress the nature of the costs that are associated to the provision of labour standards. As it should be evident form the above discussion, much of labour standards are fixed costs, which are independent of the number of workers and, more importantly, of the number of hours they work. For example, the fixed costs of operating a canteen or a nursery are much greater than the variable costs of serving less or more people. The provision of good ventilation and of coffee machines in the workplace is independent of the number of employees, as is the existence of worker involvement mechanisms or the commitment to job protection. It has to be said, of course, that if a firm doubles its workforce its costs for labour standards will naturally rise. However, within reasonable ranges of employment variation such costs should remain constant.

This effectively implies that labour standards are of a public-good nature, so that increasing the amount consumed by one worker does not affect the amount consumed by others. An alternative way to think about labour standards is to consider them as part of the non-human capital that is engaged in production, but for which workers have clear preferences. Capital is fixed in the short-run and not directly related to the size of employment. However, if a firm doubled its workforce it would obviously have to also increase its capital stock. The difference between physical capital and labour standards is that the latter affect output indirectly, by their impact on production efficiency and worker utility. Again, these considerations will be dealt with formally in the next section.

5.2.4. Labour standards and labour market regulation

We conclude this section by stressing the relationship between labour standards as defined here and the issue of labour market flexibility and regulation, which is the focus of this thesis. Here we have defined labour standards as a labour-related fixed production cost, whose optimal level is determined by the profit and utility maximising behaviour of firms and workers. However, for most of the elements considered, policy regulations exist that determine minimum levels and qualitative issues of implementation. This clearly applies to the elements within the "conditions of employment" group, i.e., to elements like worker representation rights, union recognition, promotion and redundancy regulations, as well as regulations on overtime and shift-work. Nevertheless, it also applies to elements related to working conditions. The more obvious cases in this group are regulations on health and safety, on leave and holidays, and on other benefits (for example, the right for workers to purchase products or services they produce at a favourable price).

Less clear is how policy can directly affect the provision of such labour standards like the availability of a nursery or of a canteen. Even for such elements, however, policy has the discretion to impose specific regulations, for example by enforcing large employers to provide catering for the workers. More importantly, in some cases it is possible that the existence of specific regulations will dictate changes in the labour standards offered, even in seemingly unregulated areas. For example, if regulations force firms to recognise and consult unions, maybe employers will find it inevitable (and more cost-effective) to directly engage workers in the decision-making, even if this is not an obligation dictated by regulation.

Following these considerations, the relationship between labour market regulation and the provision of labour standards is based on the fact that policy can

affect the levels of the latter and, thus, alter the equilibrium that would otherwise obtain in the labour market. It is effectively for this reason that it is important to investigate how equilibrium is determined in a perfectly competitive labour market when labour standards are taken into account. As it will be shown in the next section, this investigation leads to the derivation of a labour demand equation that is perfectly consistent with what is often referred to as the third of the Marshall-Hicks "laws of derived demand", which suggests that the slope of labour demand depends on the share of non-wage production costs to the total costs of production. In the model presented next, variations in labour standards affect the slope and position of the labour demand curve, thus altering the equilibrium levels of wages and employment.

5.3. A labour market model with labour standards

In this section we formally model a competitive labour market, incorporating the notion of labour standards as was discussed in the previous section. Workers are assumed to be homogenous in terms of preferences and skills. Firms are price takers in the labour market and determine their levels of employment by solving their profit maximisation problem. Production takes place with the interaction of capital and labour hours, under some working conditions (labour standards).

5.3.1. Labour demand

Assuming a Cobb-Douglas production technology, the production function can be written as:

$$Y = eH^{a_1}K^{a_2} \tag{1}$$

where Y is real output, H is employment measured in hours, K is capital (in real terms) and e is a term capturing technological efficiency. Production exhibits

decreasing returns to scale for each individual factor of production, i.e., Y_L, Y_K >0 and Y_{LL}, Y_{KK} <0.

We consider technological efficiency to be a function of working and employment conditions, in other words, to depend on the level of labour standards. Following our discussion in section 5.2.2, the impact of labour standards on technological efficiency is itself a function of the wage rate, due to the fact that more productive workers make more out of a given amount of labour standards. Thus, technological efficiency can be described with the following relation:

$$e = B_0 S^{b_1 + b_2 w} \tag{2}$$

where $B_0 > 1$ (so that its natural logarithm, $b_0 > 0$) is a technology parameter, w is the natural logarithm of the wage rate (in real terms), S is the real cost of labour standards, $b_1 < 0$ and $b_2 > 0$. Following the discussion of the previous section, technological efficiency must be increasing in both labour standards and the wage rate, but for both at a diminishing rate or, in other words, e_S, $e_W > 0$ and e_{SS}, $e_{WW} < 0$. As will be shown later, this is a necessary assumption in order for labour demand to be downward sloping. The restrictions that satisfy this assumption can be easily calculated as

$$e_S > 0 \Rightarrow b_1 + b_2 w > 0 \quad or \quad w > -\frac{b_1}{b_2} \tag{2'}$$

and

$$e_{WW} < 0 \Rightarrow 1 + b_2 s > 0 \quad or \quad s < \frac{1}{b_2} \tag{2''}$$

Labour standards are a fixed production cost (independent of employment) but production also incorporates the costs of employing labour and capital. Thus:

$$C = WH + rK + S \tag{3}$$

where C is total production costs, r is the interest rate (price of capital) and all variables are in real terms.

Given the form of the production and cost functions, real profits (Π) will be given by:

$$\Pi = B_0 S^{b_1 + b_2 w} H^{a_1} K^{a_2} - WH - rK - S \tag{4}$$

By solving the profit maximisation problem of the firm, we can derive an expression for the firm's demand for labour (measured in hours). The first-order conditions for the maximisation problem are:

$$\frac{\partial \Pi}{\partial H} = \frac{\partial Y}{\partial H} - \frac{\partial C}{\partial H} = 0 \quad \Rightarrow \quad \frac{\partial Y}{\partial H} = W \tag{5a}$$

$$\frac{\partial \Pi}{\partial K} = \frac{\partial Y}{\partial K} - \frac{\partial C}{\partial K} = 0 \quad \Rightarrow \quad \frac{\partial Y}{\partial K} = r \tag{5b}$$

$$\frac{\partial \Pi}{\partial S} = \frac{\partial Y}{\partial S} - \frac{\partial C}{\partial S} = 0 \quad \Rightarrow \quad \frac{\partial Y}{\partial S} = 1 \tag{5c}$$

Using (5a), taking logs and solving for the natural logarithm of labour-hours we obtain:

$$h = \frac{b_0 + \ln(a_1)}{1 - a_1} + \frac{a_2}{1 - a_1} k + \frac{-1}{1 - a_1} w + \frac{b_1}{1 - a_1} s + \frac{b_2}{1 - a_1} ws \tag{6}$$

or, for simplicity of notation and assuming that capital is fixed in the short-run,

$$h = m_0 + m_1 w + m_2 s + m_3 ws \tag{6'}$$

where h, k, w and s are the natural logarithms of labour-hours, capital, the wage rate and labour standards, respectively, and m_0, $m_3 > 0$ and m_1, $m_2 < 0$ (because $b_1 < 0$ and $a_1 < 1$).

We can now determine how labour demand will respond to changes in labour standards. The slope of labour demand in the wage-employment space will depend on the values of s, m_1 and m_3. Specifically,

$$\frac{\partial h}{\partial w} = m_1 + m_3 s = \frac{-1}{1-a_1} + \frac{b_2}{1-a_1} s \tag{7}$$

which due to (2'') is always negative and

$$\frac{\partial^2 h}{\partial w \partial s} = \frac{b_2}{1-a_1} > 0 \tag{8}$$

Hence, when labour standards increase, the elasticity of labour-hours with respect to the wage rate will become less negative and thus the demand curve in the wage-employment space will become steeper. It follows that labour markets with worse working conditions (lower values for *s*) will have flatter labour demand curves.

There is more to be said, however, about the position and slope of the labour demand curve, in relation to changes in labour standards. To show how exactly the demand curve moves after deregulation (or, more precisely, when labour standards fall), we can calculate its position at two distinct points: first, when wages are zero (demand crosses the employment line) and, second, when employment is zero (demand crosses the wage line). To examine the first case, we solve (6) for *w=0*.

$$(6) \quad + \quad w = 0 \quad \Rightarrow \quad h = \left(\frac{1}{1-a_1}\right)\left(\ln(a_1) + b_0 + a_2 k + b_1 s\right) \tag{9}$$

where $b_1<0$ and thus higher labour standards will be associated with lower levels of employment (ceteris paribus). Hence, with deregulation the demand curve moves outwards and crosses the employment line (horizontal axis) further to the right.

Turning at the second case, we now solve (6) for *h=0*.

$$(6) \quad + \quad h = 0 \quad \Rightarrow \quad 0 = \left(\frac{1}{1-a_1}\right)\left(\ln(a_1) + b_0 + a_2 k - w + b_1 s + b_2 ws\right) \Rightarrow$$

$$\ln(a_1) + b_0 + a_2 k + b_1 s = w(1 - b_2 s) \Rightarrow$$

$$w = \frac{\ln(a_1) + b_0 + a_2 k + b_1 s}{1 - b_2 s} \tag{10}$$

We can now compare the "maximum" wage for different values of "s", say high (H) and low (L):

$$w_H - w_L = \frac{\ln(a_1) + b_0 + a_2 k + b_1 s_H}{1 - b_2 s_H} - \frac{\ln(a_1) + b_0 + a_2 k + b_1 s_L}{1 - b_2 s_L} \Rightarrow$$

$$w_H - w_L = \frac{[b_2 (\ln(a_1) + b_0 + a_2 k) + b_1](s_H - s_L)}{(1 - b_2 s_H)(1 - b_2 s_L)} \tag{11}$$

where $s_H\text{-}s_L>0$ (by definition) and $1\text{-}b_2 s>0$ (from (2'')). Thus, we have $w_H\text{-}w_L>0$, or $w_H>w_L$, which implies that the intersection point between the wage-axis and the demand curve will be higher the higher the level of labour standards. Hence, deregulation will force labour demand to become flatter, as Figure 5.1 illustrates. The point at which all the labour demand curves cross is the point at which the two inequalities (2') and (2'') seize to hold and become equations. Thus, in what follows we restrict our analysis to the area of acceptable wage rates, that is, above the horizontal line where $w = -(b_1/b_2)$.

Figure 5.1.: Labour demand for different levels of labour standards
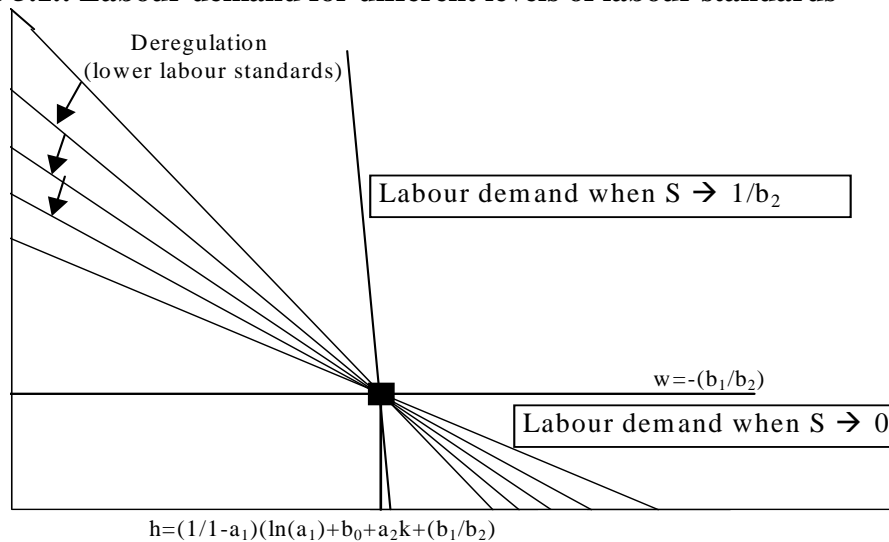
What is more important to note here is that, according to the model developed so far, economies with lower levels of labour standards will have (ceteris paribus) more elastic labour demand curves. Interestingly, this is also consistent with the Marshall-Hicks law of derived demand which states that the demand for labour is more inelastic the higher the share of non-wage labour costs (in our case, labour standards) to total production costs.

Another significant property can also be derived from the solution of the profit maximisation problem of the firm. Using (5c) we can obtain an expression which makes labour standards a positive function of output and the wage rate:

$$(5c) \quad \Rightarrow \quad (b_1 + b_2 w)\frac{Y}{S} = 1 \quad \Rightarrow \quad S = (b_1 + b_2 w)Y \tag{12}$$

We can take the total derivative of (12) with respect to the wage rate (**W**), in order to establish a relationship between labour standards and wages:

$$\frac{\partial S}{\partial W} \quad = \quad b_1 \frac{\partial Y}{\partial W} + b_2 Y \frac{1}{W} + b_2 w \frac{\partial Y}{\partial W} \quad = \quad b_1 s b_2 \frac{Y}{W} + b_2 \frac{Y}{W} + b_2 w s b_2 \frac{Y}{W} \quad =$$

$$= \quad b_2 \frac{Y}{W}(sb_1 + sb_2 w + 1) \quad = \quad b_2 \frac{Y}{W}[1 + s(b_1 + b_2 w)] \tag{13}$$

which is positive since **$1+sb_1$>0** and **$w \geq$ 0**. It follows that (in the absence of regulation) more advanced economies will have higher equilibrium levels of labour standards, compared to more backward ones. The implication of this is that labour market rigidities related to high labour standards will be more harmful to backward economies. The policy prescription that follows is that labour market deregulation should be a more urgent priority in backward economies, as deregulation can increase efficiency in these economies faster than it can do in advanced economies.

5.3.2. Labour supply

To generate equilibrium in the labour market described by our model, we also need to examine the behaviour of workers and derive a relationship for labour supply. We specify the utility function of the representative worker assuming that she derives utility from the consumption of goods and leisure. Consistent with our discussion in section 5.2.1, we also assume that the utility derived from leisure depends on the value of the labour standards the worker enjoys when working. Specifically, we assume that the individual discounts the amount of leisure that she "consumes" by the labour standards that she would enjoy if working. Thus, we can write:

$$U = u(X, f(Z)) \tag{14}$$

with

$$f(Z) = \frac{Z}{1+S} \tag{15}$$

where X is total consumption (of goods), Z is leisure and $U_X > 0$, $U_Z > 0$ so that

$X_Z = \dfrac{\partial X}{\partial Z} < 0$. Workers maximise their utility subject to a budget constraint

$$X \leq WH \tag{16}$$

and a binding time constraint

$$T = Z + H \tag{17}$$

where T is a fixed amount of time (e.g., the 24-hour day). Thus, the maximisation problem can be written as:

$$\max U = u(X, \frac{Z}{1+S}) \quad subject\ to \quad X \leq W(T - Z) \tag{18}$$

which yields the following first-order conditions:

$$\frac{\partial L}{\partial X} = \frac{\partial U}{\partial X} - \lambda = 0 \quad \Rightarrow \quad \frac{\partial U}{\partial X} = \lambda \tag{19}$$

$$\frac{\partial L}{\partial Z} = \frac{1}{1+S}\frac{\partial U}{\partial Z} - \lambda W = 0 \quad \Rightarrow \quad \frac{\partial U}{\partial Z} = \lambda W(1+S) \tag{20}$$

where λ is the constraint coefficient of **L**, the Lagrangian function for (18). Using the first-order conditions and the budget constraint (i.e., using (19), (20) and (16)) and solving for **Z** we can derive the demand for leisure of the representative worker:

$$Z = z(W,S) \tag{21}$$

with Z_W, $Z_S < 0$. Using (17) we can then derive an expression for labour supply:

$$T - H = z(W,S) \quad \Rightarrow \quad H = h(W,S) \tag{22}$$

with H_W, $H_S > 0$. Thus, the supply of labour hours derived from the utility maximisation behaviour of the representative worker will be a positive function of the wage rate and the level of labour standards offered in the labour market. Assuming for simplicity a log-linear labour supply function, we have:

$$h = n_0 + n_1 w + n_2 s \tag{23}$$

with $n_0 < 0$ and n_1, $n_2 > 0$, so that labour-hours supply will be upward sloping in both the wage-employment and the labour standards-employment spaces. In contrast with labour demand, the slope of the labour supply curve (in the wage-employment space) does not depend on the level of labour standards, but its position does. Thus, an increase in labour standards will cause an outward shift to the labour supply curve, but will not affect its slope. It follows that labour markets with lower levels of labour standards will have more restricted (higher) labour supply curves.

5.3.3. Labour market equilibrium and labour market regulation

We can now turn to the graphical demonstration of the determination of the equilibrium levels of employment and wages. Equilibrium will be determined by the interaction of the demand and supply curves. Figure 5.2 presents this graphically,

plotting labour demand and supply in the wage-employment space. Equilibrium is at point *E*, with a wage-rate equal to *w* and employment equal to *h*.

As noted earlier, the present model allows an analysis of the labour market effects of labour market intervention. Assume (contrary to the stylised facts but for ease of analysis) that for some exogenous reason policy wants to impose higher labour standards, either in the form of improved working conditions, or in the form of higher job security (or both). Firms and workers cannot cancel the policy, but they will react to the new regulations by altering their labour market behaviour. Thus, the labour market equilibrium will be altered.

Figure 5.2: Labour market equilibrium and the effects of (de)regulation
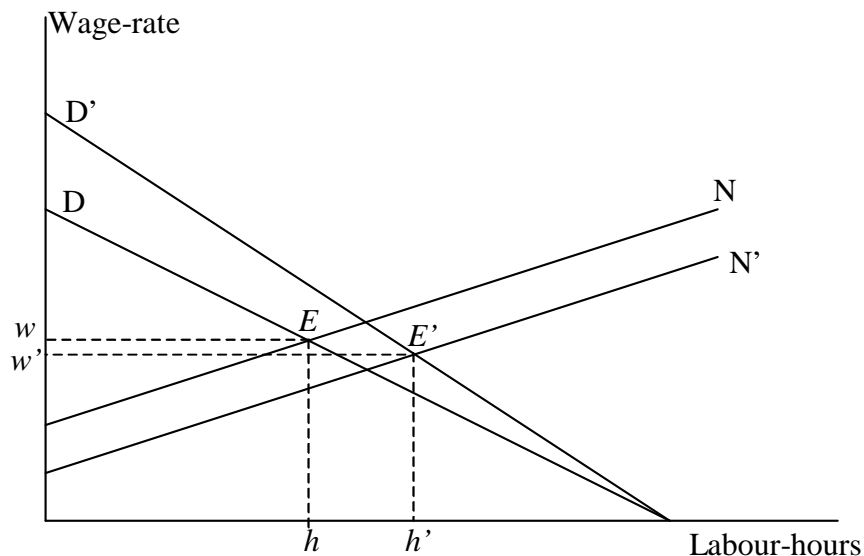
The process is as follows. Higher labour standards will increase the utility from working and will thus increase labour supply. In terms of Figure 5.2, this shows as a downward shift of the labour supply curve from *N* to *N'*. Firms will now face higher production costs, but they will also experience higher total factor productivity in their production. The result of that, according to (6) and our discussion in 5.3.1, will be an outward shift and an increase in the steepness of the labour demand curve.

The new equilibrium will be at **E'**, where employment is higher (**h' < h**). Wage rates (**w'**) might fall or increase (Figure 5.2 shows a reduction in the wage rate), depending on the impact that the change in labour standards (regulation) had on the position of the supply curve and the slope of the demand curve. Thus, the model presented here predicts that enhancing labour market flexibility (i.e., introducing labour market deregulation) will have adverse effects on employment, although it can have positive wage effects.

However, withdrawing the policy-imposed regulations on the level of labour standards will not necessarily increase profits or economic efficiency. In chapter two we argued that deregulation is not synonymous to flexibility. Rather, deregulation is a condition for flexibilisation, but it is neither sufficient, nor necessary. The model we have developed here allows us to illustrate this by examining the optimal level of labour standards in an un-regulated labour market and the condition under which, in a regulated labour market, deregulation will successfully lead to enhanced flexibility.

If a labour market is relatively rigid, deregulation will only lead to enhanced flexibility if adjusting to the lower levels of labour standards (that are now feasible due to deregulation) is profitable for firms. Thus, the condition for success in deregulation is that profits and labour standards are inversely related. In algebraic terms, $\partial \Pi / \partial S < 0$. Solving this inequality, we obtain the following condition:

$$\frac{\partial \Pi}{\partial S} < 0 \quad \Rightarrow \quad (b_1 + b_2 w) B_0 S^{b_1 + b_2 w - 1} H^{a_1} K^{a_2} - 1 < 0 \Rightarrow$$

$$S^{1 - b_1 - b_2 w} > (b_1 + b_2 w) B_0 H^{a_1} K^{a_2} \Rightarrow$$

$$S > \left((b_1 + b_2 w) B_0 H^{a_1} K^{a_2} \right)^{\frac{1}{1 - (b_1 + b_2 w)}} \tag{24}$$

Thus, irrespective of whether policy allows labour standards to fall or not, the optimal level of labour standards will depend on the structure of the economy.

5.3.4. Labour market adjustment

It is interesting, of course, to examine the predictions of the model developed here, regarding the ways in which different labour markets (flexible or rigid) respond and adjust to a similar economic shock. To perform our analysis, we assume that a negative employment (demand) shock hits the two economies. As was illustrated in Figures 5.1 and 5.2, a regulated labour market (high labour standards) will have a steeper labour demand curve, compared to a flexible one. Thus, the negative demand shock will generate a greater decline in employment and wages in a flexible labour market compared to a regulated one, as long as labour supply is relatively elastic (as shown in Figure 5.3, where $h_{1R}h_{0R} < h_{1F}h_{0F}$).

Figure 5.3.: Labour market adjustment and labour standards flexibility
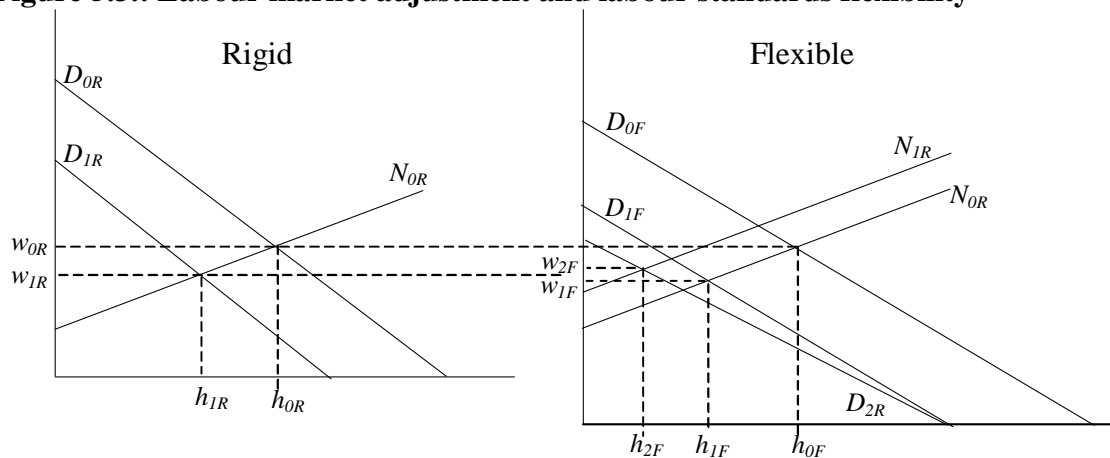
However, while in the regulated labour market the shock will hit with its full impact (i.e., no further adjustment after the decline in employment and wages), a flexible labour market will slowly adjust to the shock. The decline in the wage rate will lead to a reduction in labour standards (because $\partial S / \partial W > 0$), forcing the labour demand curve to shift its slope further to the left and shifting the labour supply curve

upwards. These movements will help wages recover, but it will reduce employment further. The slopes of the demand and supply curves and the sensitivity of labour demand and supply to labour standards and the wage rate will determine where the new equilibrium will be (possibly even above the initial wage rate, but at lower employment levels).

It needs to be noted that the adjustment process related to changes in labour standards will not be instantaneous. Lower wage rates will generate declines in labour standards, resulting in changes in the positions of the labour demand and supply curves. As is shown in Figure 5.3, this will bring wage rates up, thus triggering the same adjustment process, only this time in the opposite direction. However, since wage rates do not return to their initial levels, this time the impact of this adjustment mechanism will be smaller. This process will be repeated, until a new stable equilibrium is obtained (shown as (h_{2F}, w_{2F}) in Figure 5.3). Thus, rather than adjusting instantaneously, the flexible labour market described by our model will experience a process of oscillatory convergence towards the new equilibrium, until it reaches an optimal combination of labour standards and wage rates.

Apparently, the impact of the shock on wages in the flexible labour market will be smaller than in the case of the rigid labour market (especially after the secondary response in the former, where wages can actually increase as a result of the negative demand shock), although the employment loss will normally be greater. However, the most important observation here is that after the shock hits any of the two economies, if policy allows further flexibilisation (further reductions in labour standards), this will help labour market adjustment and transmit the impact of the shock towards employment loss, as opposed to wage changes. In terms of the right-hand panel of Figure 5.3, with completely unregulated labour standards, the impact of

the shock will be (h_{2F} - h_{0F}, w_{2F} - w_0) compared to (h_{1F} - h_{0F}, w_{1F} - w_0) if the level of labour standards was fixed. We will return to this observation later, in our analysis of regional labour market adjustments.

5.4. Extensions

The model developed in the previous section has a number of important features. By introducing labour standards in the labour demand and supply functions it was possible to show how regulation of labour standards can affect labour market outcomes and the way in which labour markets adjust to economic shocks. Further, we were able to come to some conclusions about the characteristics of the labour demand and supply curves in different economies. Thus, other things equal, more regulated labour markets have steeper labour demand curves, with the implication that in flexible labour markets the impact of an economic shock is concentrated more on employment (as opposed to wages). Additionally, more advanced economies have higher equilibrium levels of labour standards and, hence, labour market deregulation is more important for backward economies.

This analysis assumed that the only type of rigidities in the labour market were the policy-imposed high levels of labour standards. In this section we focus on some possible extensions of this model, which we believe to be of particular interest. We introduce in the analysis some additional labour market institutions, namely unionism, minimum wages and unemployment insurance. We examine the impact that such institutions have on labour market equilibrium under both a rigid and a flexible setting and investigate the adjustments that are triggered from the introduction of such rigidities into the model. First, we allow unions to set wages above the equilibrium levels throughout the economy (full coverage) and examine

how different labour markets react to such a distortion. Following that, we relax the assumption of full coverage and examine how labour market duality (in the form of inequalities in labour standards) can arise in the presence of unionism. Finally, we turn at the impact of a policy-imposed increase in the value of either the minimum wage rate or the replacement ratio of unemployment benefits (or, of course, both). Our analysis compares a rigid with a flexible labour market, which are assumed to start with identical wage rates but different levels of employment, and examines the difference in their response to institutional distortions.[73]

5.4.1. The impact of unionism in the case of full coverage

As discussed in chapter three, the literature provides ample theoretical and empirical evidence suggesting that unions tend to be associated with higher wages, other things equal. The main reason for that is that unions have significant bargaining power and a powerful device of threat (strikes). Here we do not want to consider the process under which unions can impact on wages. Rather, we take the wage-increasing function of unions for granted and simply proceed to examine the impact of a union-imposed wage increase in our model. In this sub-section we make the assumption that unions are powerful enough so that the union-imposed wage increase can cover the whole economy (full coverage).

We describe a rigid and a flexible labour market in the two panels of Figure 5.4. The initial equilibrium is at a wage rate w_0, with employment (measured in hours) h_{0R} and h_{0F} in the rigid and the flexible labour market, respectively. Assume that unions impose an identical increase in the wage rate in both economies, bringing

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[73] The two labour markets are put together only for presentational reasons. Thus, there is no migration or other adjustment *between* them, since they simply represent two distinct cases, rather than two labour markets within the same economy.

the new wage rate to w_U. In the rigid labour market this will reduce employment to h_{1R}, generating unemployment equal to $h_{1R}h_R$, which is greater than the employment loss since workers are willing to supply more working hours for the new wage rate.

Figure 5.4.: The impact of a union-imposed wage increase
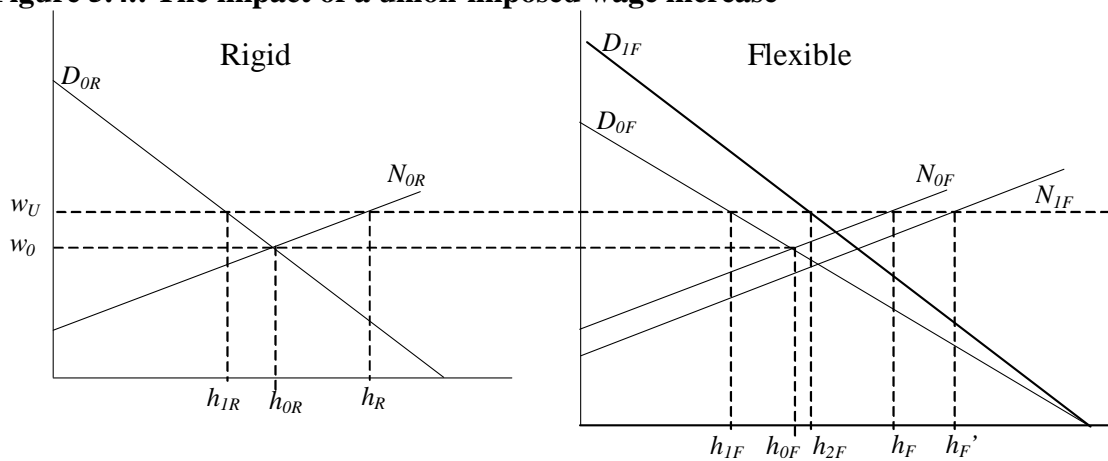
In the first instance the same mechanism operates in the flexible labour market. With the wage rate at w_U, employment drops to h_{1F} and unemployment (measured in hours) is $h_{1F}h_F$. Note that the employment loss in the flexible labour market (and also unemployment) is greater due to the fact that the labour demand curve there is flatter (assuming that labour supply is relatively elastic). However, in the absence of regulation firms can adjust freely their levels of labour standards, so as to achieve a more profitable (dis)equilibrium.[74] With higher wage rates, labour standards will increase, thus generating an outward shift in the labour demand curve (from D_{0F} to D_{1F}) and the labour supply curve (from N_{0F} to N_{1F}). The result of these movements will be a reduction in the original employment loss and probably in

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[74] It is difficult to sustain that regulation can impose maximum levels of labour standards. In this sense, the same mechanism can operate in the rigid labour market following the union-imposed wage increase. However, in the presence of rigid regulations, firms might be reluctant to increase their levels of labour standards fearing that they will be unable to reduce them to their original levels should they require to. The argument is in the same line with that suggesting that high firing costs limit employment expansion during economic upturns, in fear of extensive labour hoarding when economic circumstances deteriorate.

unemployment. Although employment can actually increase beyond the pre-union equilibrium (Figure 5.4 shows exactly that, with $h_{2F} > h_{0F}$), the magnitude of unemployment ($h_{2F}h_{F'}$) will effectively depend on how large is the response of labour supply to the change in labour standards. The finding that a union-imposed wage increase can increase employment is a very significant property of our model, since it can provide a theoretical justification for a number of empirical findings in the literature of the economics of unions (Booth, 1995).

Thus, in a flexible labour market, the impact of a union-imposed wage increase will be less severe. Moreover, the action of unions will result in increases in both wages and labour standards, something that is consistent with the stylised facts. The adjustment mechanism related to changes in the levels of labour standards will help diminish the initial response to the union-imposed wage increase, thus helping the economy recover. This finding has an obvious but extremely significant implication. If one type of rigidity is present in a labour market (e.g., unionism), then the existence of unregulated areas elsewhere (e.g., in labour standards) can compensate for the existing "rigidity" and improve economic outcomes. This is fully consistent with the view that intermediate levels of regulation (in terms of extent; not of intensity) are preferable to corner solutions. In a sense, this further suggests that the balance between regulation and flexibility, in other words, of "how much regulation is appropriate", can be found across the various flexibility elements, rather than within each of them, as luck of regulation in one can possibly substitute for a strict regulation in another.

5.4.2. The impact of unionism in the case of partial coverage (two sectors)

The analysis of the role of unionism of the previous sub-section assumed that unions have full coverage, so that the wage increase they achieve is applied throughout the economy. More realistic is the assumption that the economy is split into two sectors, one where all employees are union members and a second where no union members are employed. Introducing this assumption in our model generates labour market duality in the form of inequalities in (wages and) labour standards. We show this graphically, after first reviewing briefly a few key references in the literature of dual labour markets.

5.4.2.1. The literature of dual labour markets

The theory of Dual Labour Markets originates from the institutionalist literature on discrimination (Doeringer and Piore, 1971). Within this, dualism exists because firms are reluctant to offer high-quality jobs to specific segments of the labour force, specifically to women and ethnic minorities. Working conditions, employment protection, labour standards and wages are lower in the secondary sector. The primary sector is characterised by job rationing (barriers to entry), higher wages and internal promotion structures, but also by unemployment.

In a series of papers, Oswald (1982a, 1982b, 1984, 1985) has provided a more rigorous framework to show how unionism in the presence of duality can increase wages in the primary (unionised) sector above the competitive equilibrium and reduce secondary-sector wages below it. Apart from the implied wage differentials, Oswald has shown that in the presence of unemployment benefits (or high minimum wages) involuntary unemployment will emerge in the secondary sector. The idea that

unionism generates duality in the labour market has recently been incorporated in formal mathematical models (e.g., Roberts, Staehr and Tranaes, 2000).

In a very different context, the ideas developed in the efficiency wage literature about an equilibrium wage, which is above the market clearing level, so that involuntary unemployment may persist in equilibrium, have been very useful in the empirical and theoretical investigation of the dual labour markets thesis. Extending the work of Stiglitz (1984), Yellen (1984) and Shapiro and Stiglitz (1984), Bulow and Summers (1986) have produced "a theory of dual labour markets" that in fact explains why and when duality will prevail. The basic assumptions of this model are that workers (although homogenous) can employ one of two possible effort regimes (high and low) and that the cost of monitoring workers' effort differs across firms or industries. By implication, the model shows that industries with high monitoring costs must offer higher wages in order to induce their workers not to cheat by shirking. As a result, involuntary unemployment, high wages and job security co-exist in the primary (difficult-to-monitor) sector, while market clearance characterises the (easy to monitor) secondary sector. A number of papers develop similar models of incentives-based (or effort-regulation) dual labour markets (Rebitzer and Taylor, 1991a and 1991b; Rebitzer and Robinson, 1991).

A general drawback common to all these models is that they often neglect to offer an explicit economic mechanism for the emergence of duality. Some models simply presume duality and attempt to investigate its implications. Models based on the existence of union power are technically appealing but they lose much of their explanatory power if the assumption is made that unionised segments of the economy are related to low-skill and low-productivity sectors.[75] The pure effort-based models

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[75] The same is true for the standard Insider-Outsider model with unions (Lindbeck and Snower, 1988).

of dual labour markets (Bulow and Summers, 1986) effectively predict duality merely on the basis of the existence of variable monitoring costs between sectors categorised ad hoc as primary and secondary. If this assumption is relaxed, as some empirical literature seems to recommend (Rebitzer and Robinson, 1991), then there is no reason for firms to offer higher wages and job security to primary employees. Some variations of the effort-based models overcome this drawback. For example, Rebitzer and Taylor (1991b) develop a model where uncertainty in product demand is combined with the dichotomy between low and high effort to produce labour market duality. Again, however, the existence of duality is fully dependent on the assumption that secondary sector workers exhibit low levels of effort, which is hard to justify considering that in the same model these workers are perfectly (and costlessly) monitored and receive their marginal product.

5.4.2.2. Unionism and labour market duality

The model developed here allows labour market duality to emerge endogenously, merely by the wage-increasing actions of a non-full-coverage union. Moreover, the form of duality observed is not related solely to wage inequalities (as, for example, in Oswald, 1982a), but mainly to differences in the levels of working and employment conditions enjoyed by workers. Thus, the union sector becomes a sector of high labour standards, good working conditions and increased job-security (as well as higher wage rates), while the non-unionised sector becomes a sector of relatively unprotected, casual jobs with low labour standards.

Assume that the economy is split into two sectors, with identical equilibrium wage rates, as presented in the two panels of Figure 5.5. Further assume that a union is formed in one of the sectors (left panel) and, as was the case before, that it imposes

a wage increase bringing the wage rate from w_0 (the initial equilibrium) to w_U in the unionised sector (by assumption this wage increase will not roll-over to the non-union sector) and thus initially reducing employment to h_{1U} and generating unemployment equal to $h_{1U}h_U$. Facing higher wage rates, firms in the union sector will respond by increasing their levels of labour standards, thus altering their labour demand schedule (from D_{0U} to D_{1U}). Correspondingly, higher labour standards will induce increases in labour supply, shifting the labour supply curve outwards (from N_{0U} to N_{1U}).[76] At the new (dis)equilibrium, wages in the union sector are w_U, employment (in hours) is h_{2U} and unemployment is $h_{2U}h_U$'.

Figure 5.5.: Partial union coverage and labour market duality
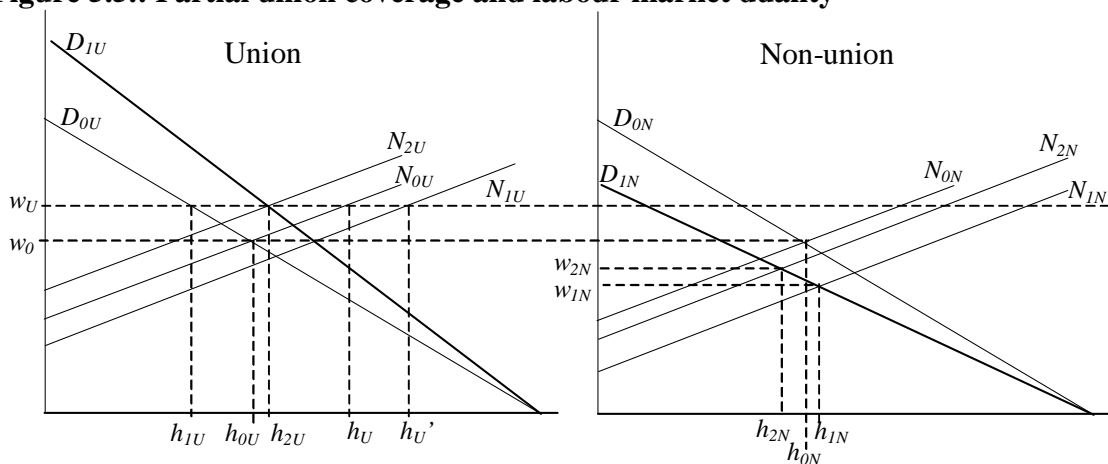
The displaced workers (more precisely, the lost hours of work) will move to the non-union sector, thus increasing labour supply there from N_{0N} to N_{1N} and reducing labour supply in the union sector (to N_{2U}) to bring it into equilibrium (w_U, h_{2U}). In the non-union sector these movements will bring wage rates down and trigger reductions in labour standards as a response from the non-union firms. Thus, the labour demand curve will move from its original position (D_{0N}) to D_{1N}. Lower labour

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[76] We ignore the impact that higher wage rates and labour standards in the union sector will have on labour supply in the non-union sector, since any impact will be temporary, due to the high unemployment observed in the union sector.

standards will discourage some workers from supplying labour-hours, thus re-adjusting the position of the labour supply curve (from N_{1N} to N_{2N}) until a stable equilibrium is reached (shown as (w_{2N}, h_{2N}) in Figure 5.5).

At this level, labour standards are higher in the union sector compared to the initial equilibrium (since D_{IU} is steeper than D_{0U}), while in the non-union sector they are lower (since D_{IN} is flatter than D_{0N}). Wage rates are also higher in the union sector ($w_U>w_0$), while in the non-union sector they are lower ($w_{2N}<w_0$), so that union wage rates are strictly higher than non-union wage rates ($w_U>w_{2N}$). The employment effects in both sectors are ambiguous, but it is possible that both sectors will experience employment expansion (Figure 5.5 shows a reduction in employment in the non-union sector).

Thus, the union-imposed wage increase in the case of partial union coverage has generated duality in the labour market, with unionised workers obtaining a "primary employee" status (higher wage rates and improved working and employment conditions), while non-unionised workers are losing-off, experiencing a deterioration in their labour standards (entering secondary or casual employment) and their wages.

5.4.3. Unemployment insurance and minimum wages

Let us now turn to the case of a policy-imposed increase in the replacement ratio (value of the unemployment benefit relative to the wage rate) or in the minimum wage rate, assuming no unions in the economy. Higher unemployment benefits and minimum wages tend to increase the workers' reservation wage and thus reduce labour supply for any given level of wage rates. As Figure 5.6 shows, this will be translated in an upward shift of the labour supply curves in both economies (from N_{0R}

to N_{1R} and from N_{0F} to N_{1F}). This will initially reduce employment and increase wages everywhere. Due to the fact that the flexible labour market has a flatter labour demand curve and assuming that labour supply is relatively elastic, employment contraction will be greater in the flexible labour market while the increase in the wage rate will be smaller. Hence, the new equilibrium will be (w_{1F}, h_{1F}) and (w_{1R}, h_{1R}) in the flexible and rigid labour markets, respectively, with $w_{1F} < w_{1R}$.

Figure 5.6.: The impact of unemployment insurance and minimum wages
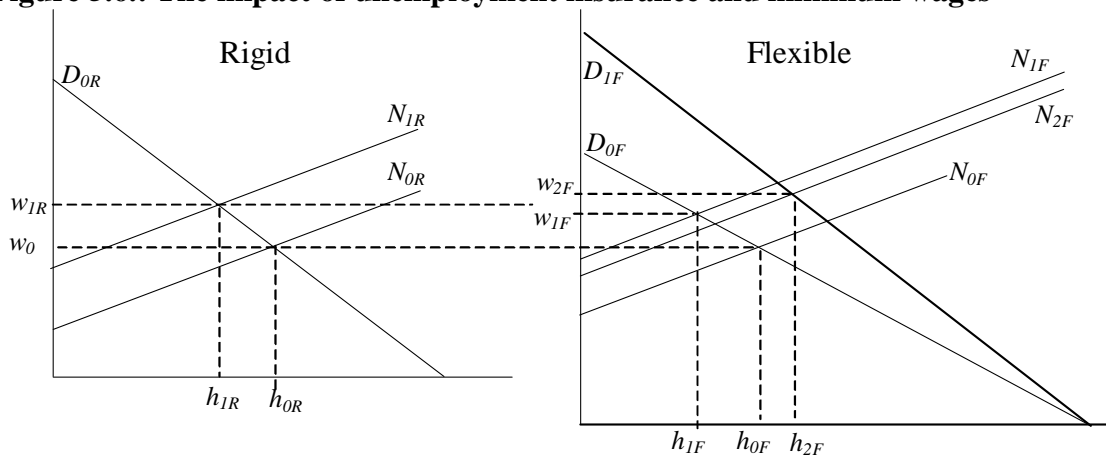
Although the new equilibrium in the rigid labour market will be stable, the flexible labour market will experience further adjustment. With higher wage rates labour standards will also rise, making labour less elastic (moving from D_{0F} to D_{1F} in Figure 5.6), but helping labour supply recover (moving from N_{1F} to N_{2F}).

The new equilibrium is indeterminate, in the sense that the new wage rate (w_{2F}) can be anywhere above w_0 and the new employment level (h_{2F}) can in fact be either to the right or to the left of h_{0F} (Figure 5.6 shows an expansion of both wage rates and employment). Clearly, the adjustment of labour standards will refrain the wage increase that followed the decline in labour supply and normally will not be enough to offset the negative employment effect. Possibly, both the new wage rate

and the new equilibrium labour hours will be between their initial value and the value obtained immediately after the increase in unemployment benefits.

However, other outcomes are also possible. Among them, the two most interesting are probably the observations that the new wage rate can be even below w_{0F} (which would suggest that the increase in the reservation wage effectively generated a reduction in the equilibrium wage rate and would only happen if the responsiveness of labour supply to changes in labour standards is much greater than its responsiveness to changes in minimum wages or unemployment benefits) and that the final employment effect can be positive (so that $h_{2F} > h_{0F}$). Since such cases are possible, the model presented here can provide a theoretical justification for such controversial empirical findings like the observation that increases in minimum wages generate ambiguous and sometimes positive employment effects (as found, for example, in Card, 1992, and Card and Krueger, 1995).[77]

It needs to be noted that the adjustment mechanism described here reduces the negative employment effect that would prevail in a rigid (in terms of labour standards) labour market (as in the left panel of Figure 5.6). Thus, a flexible labour market will be affected less severely by the increase in the reservation wage compared to the rigid labour market. In such a case, as was the case with the union-imposed wage increase, the tentative conclusion can be drawn that in the presence of one type of rigidity (here, unemployment insurance), policy can generate better economic outcomes by relaxing regulations in other areas (labour standards).

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[77] In their book, Card and Krueger effectively suggest that the observed "empirical anomalies" cast doubt on the traditional minimum wage model, implicitly stressing the need for alternative theoretical formulations on the issue.

5.5. Conclusions

In this chapter we developed a model of perfect competition in the labour market, based on the notion of labour standards, which were allowed to impact on output, utility and production costs. We initially developed a technical understanding of the role that labour standards play in the determination of the equilibrium in a simple competitive labour market with homogenous labour. Then we introduced trade unions into the analysis to show how the equilibrium would change when an institutional factor is allowed to have an impact in the labour market. We examined two different cases and showed how the wage-increasing role of a non-full-coverage union can generate duality in the labour market. Further, we examined the impact of other institutional factors, like unemployment benefits and minimum wages, providing a theoretical justification for some controversial empirical findings identified in the literature.

In concluding this chapter, it is important to discuss the relevance of the model(s) developed here to our discussion of the previous chapters. Specifically, we want to discuss how the insights developed in this chapter, into the way that labour markets operate after explicitly accounting for the role of labour standards, can help us understand better the economic role of labour market flexibility and (de)regulation.

In chapter two we argued that deregulation and flexibilisation are not identical, as the former is a change in labour market policy while the latter is a response to such a change. Hence changes in flexibility will occur only to the extent that economic conditions and considerations make such a response profitable. We illustrated this formally here, in the analysis of the labour demand and supply

schedules under deregulation. We showed in section 5.3.3 that the effectiveness of deregulation should depend on the slopes and positions of the labour demand and supply curves and, of course, on the extent of deregulation.

In chapter three we reviewed the theoretical and empirical literature to discuss the potential labour market and other economic effects of labour market deregulation and flexibility. Although the model developed here is static, its relevance to the preceding discussion is clear. Labour market deregulation, if successful, can increase profitability, thus generating resources for investment and possibly raising labour productivity.

The wage effects of a successful labour market deregulation policy, as predicted by the model presented here, are ambiguous. This may seem at first to be a controversial finding. However, at the level of empirical enquiry, as we saw in chapter three, studies have often found the effects of labour market flexibilisation to be negligible or even negative. The model developed here offers some theoretical justification for such findings.

Another controversial prediction of the model is the robust negative employment effect of deregulation. However, it must be noted that this effect is specific solely to deregulation of labour standards and not of other elements that are considered to raise wages above their equilibrium levels (e.g., minimum wages, unemployment benefits and union power).

The model has also a clear implication regarding inequalities. In the presence of unions, a weak regulation of labour standards (i.e., flexibility) creates the potential for inequality in the labour standards offered (duality), as well as in wages, even with homogenous labour. However, the model developed here is not appropriate for

making any inferences about the long-run output effects, although it is intuitively reasonable to infer that with increases in profitability, output will also increase.

The discussion has had little reference thus far to the regional dimension of the issue under investigation. But this was unavoidable for three inter-related reasons. First, the issue of labour market deregulation and flexibility refers largely to the economic behaviour of national political entities (governments) and relates to international economic developments. For this reason, it would be inappropriate to examine the regional interactions instigated by deregulation without looking first at the national economic picture. Second and as a consequence, to maintain a reference with the relevant literature, which is developed mainly at the scale of national economic analysis, our discussion had to start from using the same spatial scale. We did so at an empirical level in the previous chapter and at a theoretical level in this chapter. Last but not least, and again as a consequence of the previous point, the a-spatial analysis developed thus far was necessary because of the relative scarcity of theoretical models in the literature to analyse and explain the economic role of labour standards and their changes (deregulation). Given this absence of formal theoretical support, it became essential to first develop an understanding of how labour market outcomes are determined in the presence of labour market rigidities, initially ignoring the notion of space.

Having accomplished that, we can now proceed with the regional analysis. Chapters seven and eight encompass the empirical analysis of the relationship between labour market flexibility and economic performance at the regional level (for the UK). Chapter six builds on the previous ones and develops a framework for the empirical analysis. We discuss the relevance of the issue for regional economies and how our theoretical considerations are transformed by the particular characteristics of

a regional approach. Moreover, we develop further insights into the relationships that emerge at the regional level, in order to provide a foundation for the empirical analysis that follows.

CHAPTER SIX

A REGIONAL APPROACH

6.1. Introduction

Throughout the previous chapters we have argued that the trend towards greater labour market flexibility and the relevant policy measures (labour market deregulation) are the outcomes of forces and developments occurring at an international (social, economic, technological and ideological) level and being manifested at the national level. In chapter one we argued that increased economic uncertainty and volatility in the international economic system in an era of globalisation have created conditions that seem to necessitate greater flexibility in the product and labour markets. As the organisation of production moves towards less rigid systems of flexible specialisation (and, together with the decline in manufacturing and industrial production, away from the traditional mass production model), newer -and more flexible- forms of configuration of labour relations are required. Technological developments help (automation and computerisation of production and the increased importance of knowledge and its diffusion), as do the developments in politics and ideology (the global dominance of capitalism and neo-liberal ideology). In chapter two we discussed how the applications of these new forms of labour relations in practice may be driven by a strategic or pragmatic (non-strategic) approach by firms, or even by a systemic nation-wide economic restructuring. In all cases, the implication was that changes in labour market

regulation and flexibility are universal and fairly exogenous to the local or regional arenas of economic organisation.

There are at least three arguments that can challenge such a view. First, labour relations like all social relations are organised at a much smaller scale than that defined by national boundaries. Second, labour market conditions (again, like all economic conditions) differ between places within a country –sometimes substantially. Third, even if the previous two points can be ignored at some level of abstraction, it is possible that the re-organisation of labour relations (deregulation) and the change in economic conditions that it can generate have a spatially uneven impact on labour market equilibria. From such a perspective, labour market deregulation and the resultant flexibilisation of the labour market can upset the balance between regional economies such that the aggregate performance of their national economy will be affected.

In general, one can think of the following schema of regional interactions related to the issue of labour market flexibility and deregulation. Local labour markets have their own specific mixes of labour relations and wider cultural and socio-economic traditions and conditions (historical unemployment rates, production structures, export orientation of production, etc), which generate their own local-specific degree (and quality) of labour market regulation and flexibility. Hence, even if a universal force is applied to all localities, the specific local responses will vary, reflecting the variety of initial conditions existing across local economies in labour relations and labour market conditions. Ultimately, the need for flexibilisation and deregulation will be felt differently in different localities and the responses to these different needs will themselves exhibit a large degree of variation. The variety of local responses will generate a re-configuration of the national economic system and

change the distribution of economic conditions and opportunities among the localities of the state.

Moreover, changes in and spatial variations of labour relations will have a significant influence on how local labour markets adjust to regional and national economic shocks. The extent of labour market flexibility can affect the adjustability to shocks of factors like migration, labour force participation, firm relocation and wage movements, as we will extensively discuss later in this chapter. Further, it can affect their importance as regional adjustment mechanisms, as such. Plausibly, high levels of flexibility can increase the responsiveness of wages (wage flexibility), at the same time altering the importance of migration for regional adjustment. Or, in the case of a sector-specific shock, higher flexibility in the form of sectoral labour mobility will reduce wage pressures in the sector hit by the shock, thus reducing wage flexibility.

Additionally, regional variations in labour market flexibility can alter the relative attractiveness of each and every region. Thus, regional adjustments towards the equalisation of economic opportunities might be hindered. In this case, regional differences in flexibility can be viewed as differences in productive amenities, with higher levels of flexibility being connected to lower utility levels for the working population (as dictated in the previous chapter), but also to a stronger growth potential. If flexibility acts as a productive amenity, regional variation in its levels will produce and sustain regional disparities in economic outcomes. If such a scenario is plausible, then it is interesting for academic research -and necessary for policy- to employ a regional perspective in the examination of the impact of labour market flexibility and regulation.

A few more considerations need to be made at this point, regarding the importance of regional as opposed to more aggregate analyses. The first is about scale. If the impact of flexibility on economic performance differs in intensity with either the level of flexibility or the specific mix of labour market regulation (or of course, both), if in other words the economic effects of labour market flexibility are not linear, then we should expect that an aggregate national-level analysis will lead to conclusions that do not necessarily reflect the relationships existing in reality.[78] Therefore, if the appropriate unit of analysis -that is, the field where most social and economic interactions take place- is the region, a national-level analysis will produce distorted results.[79]

The second consideration relates labour market flexibility to the design of regional economic policy. As it has been suggested in the literature, the general policy towards labour market flexibility has a specific regional policy context. Regional policies -at least in the UK- have shifted from assisting backward regions by directing public and private investment "where most needed", to trying to increase labour market flexibility throughout the country (Armstrong and Blackaby, 1998; van der Laan and Ruesga, 1998). In the UK, where the political climate was towards relaxed economic intervention, expenditure on regional assistance fell by more than half in the period 1983-1990 (Martin and Tyler, 1992).[80] Such a re-design of regional

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[78] This is a standard aggregation problem, which is beyond the problems related to the specification of the empirical research. Technically speaking, the problem arises from the fact that (for meaningful values of x and k) $\sum_{i=1}^{n} \left(x_i^k \right) \neq \left(\sum_{i=1}^{n} x_i \right)^k$. If non-linear arguments of a labour relations variable, x, are related to an economic outcome, y, and the actual economic interactions occur at the regional rather than the national level, then even if all regions are totally homogenous (which is itself a questionable assumption) the aggregation of the analysis at the national level will bias the results.

[79] This observation, of course, necessitates a coherent definition of the region, or the spatial scale at which the socio-economic phenomena under investigation can be more accurately examined. A discussion of this issue and of the reasons that led us to select the Standard Statistical Region as our unit of analysis in the empirical investigation of chapters seven and eight will be presented in the next section.

[80] On the other hand, expenditure on urban programmes more than doubled in the same period (Martin, 1993b).

policy, to the extent that it actually occurred, reflects the belief of policy-makers that poor economic performance in backward regions is at least partly due to the presence of significant labour market rigidities between and within regions. Furthermore, it reflects the belief that removing such rigidities is a necessary -if not sufficient- condition for improving economic performance in these backward regions and achieving real regional convergence. Deregulation was thus expected to increase local and cross-local responsiveness to differing regional economic conditions. In the words of Armstrong and Blackaby (1998, p.81), "[i]ndeed, there is a sense in which the reform of labour market institutions became one of the main government responses to the existence of spatial economic disparities in the UK".

It is particularly interesting from this perspective to examine the issue of labour market deregulation or flexibility and economic performance beyond the aggregate national level, and instead focus on the regional and local levels. That is precisely the theoretical investigation we pursue in the remaining sections of this chapter. In chapter seven we will look at the regional economic performance of the UK over the last two decades and discuss a number of measures of labour market flexibility that we constructed at the level of the UK Standard Statistical Regions (SSRs). In chapter eight we conduct an econometric analysis of the economic impact of labour market flexibility and of the hypotheses related to the regional dynamics of labour market flexibility.

The remainder of this chapter is organised as follows. In section 6.2 we discuss the issue of the appropriate spatial scale and the reasons for selecting the SSR as our spatial unit of analysis. Section 6.3 outlines the specificities of regional (as opposed to national) economies and economic research and discusses the processes of regional adjustment and equilibrium. Section 6.4 looks at labour market flexibility

and investigates the ways in which changes in and spatial variations of flexibility impact on the responsiveness and significance of the mechanisms of regional adjustment. In section 6.5 we look closely at the issue of labour standards and investigate theoretically the regional dynamics that are triggered with their deregulation, following the model presented in chapter five.

6.2. Selection of the spatial scale

As noted earlier, the selection of the spatial scale at which the analysis of the economic effects of labour market flexibility occurs is crucial for the accurate measurement of these effects. Analysis at the national scale can mask lower-level dynamics and interactions and hide information necessary for our understanding of the issue. This is not to undermine the importance of country-level empirical studies and non-spatial theoretical models. Depending on the level of abstraction at which one approaches the issue, non-spatial analysis can offer -and indeed has offered- valuable insights into the question about the economic impact of labour market flexibility and regulation. But the non-spatial analysis does have clear limitations, related to its inability to take into account and explain spatial interactions and the dynamics they create.

Although analysis at any scale lower than the national can be assumed to circumvent such problems, this is not always the case. The aggregation and heterogeneity problems identified in the previous section can plausibly bias the inferences drawn from an empirical analysis that fails to address the issues at the appropriate spatial scale, even if spatial interactions are explicitly taken into account.

In trying to identify the appropriate spatial scale for the investigation of the economic impact of labour market flexibility and regulation, certain criteria must be

put forward. First, the spatial units of the empirical analysis must exhibit an acceptable degree of homogeneity in their main socio-economic and labour market characteristics. The spatial units must be sufficiently homogenous regarding the institutions and regulations that govern their labour markets, not only to produce reliable estimates of the relationships under investigation, but also for a correct measurement of the degree of labour market flexibility itself.

Second, the spatial units must be relatively self-contained. This is crucial for the correct estimation of the investigated effects. The spatial units must correspond to the actual mini-economies on the basis of which national economic activity is organised. This implies that the selected spatial units must maximise the internal flows and minimise the external flows of labour, capital, intermediate and final products. This relates to but is not identical to the homogeneity criterion.

Third, spatial units must correspond to established conceptual divisions of space and be large enough for a theoretically relevant and policy-informing investigation to be undertaken. An empirical analysis based on spatial units smaller than a critical size might produce a number of complexities that can possibly render impossible the explanation of the phenomena under investigation. As an example, imagine that the neighbourhood was selected as the spatial unit of analysis. Even if significant relationships were revealed, these would be of questionable validity, as it is indeed questionable whether the social and economic dynamics related to labour market flexibility and deregulation are organised (and manifested) at such a small scale.

The last criterion is strictly technical. The spatial units selected for the analysis must be such so that good-quality data can be obtained or constructed. There is no reason to increase the accuracy of the empirical investigation by selecting a

more theoretically appropriate spatial scale, if this is to be at the expense of accuracy in terms of data quality and availability.

Putting these criteria aside, four candidate spatial units were considered for the empirical analysis. These are the administrative region (NUTS1, SSR, or Government Office Region -GOR), the county (NUTS3), the travel-to-work area (TTWA) and the functional urban region (FUR). The first two of these spatial units are based on technical definitions while the last two are derived from more functional classifications.[81] Each of these spatial units has some advantages and disadvantages in relation to the criteria set out above. Administrative regions tend to be relatively large and self-contained. However, they are quite heterogeneous, as they include a diversity of areas (urban and rural areas, high and low unemployment areas, and so forth). On the other hand, in terms of data quality and availability, this is the most complete statistical unit. The county is very similar to the administrative region in relation to its advantages and disadvantages. Counties are smaller and more homogenous. Nevertheless, data quality and availability is a larger problem at this scale, especially for the 1980s. More importantly, the technical definition of the county makes it unlikely that this spatial unit will meet the second of the identified criteria (self-containment).

The main drawback of our third candidate spatial unit, the travel-to-work area, is related to data availability. Apart from the definitional change of TTWAs between 1981 and 1991, statistical information for these units is not collected directly. Rather, it is derived from aggregations based on ward-level data. It follows that most of the relevant data are only available for census years, if at all. On the other hand, TTWAs

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[81] We do not present here the exact definitions and technical and functional characteristics of these spatial units, as this information is widely available from national and international statistical bodies. For more details see the regional statistical publications of the ONS (e.g., Regional Trends), the Eurostat (e.g., Regio database) and, for FURs, Hall and Hay (1980) and Cheshire and Hay (1989).

are self-contained and sufficiently homogenous areas that correspond better than any other candidate spatial unit to the concept of a local labour market.[82] Putting aside data-related problems, this is probably the most appropriate unit of analysis. It is probably preferable even to the functional urban region (FUR), the last candidate spatial unit. The FUR suffers from effectively the same problems of data quality, data availability and consistency over time. More than any other spatial unit, however, it resembles the concept of a relatively self-contained mini-economy, although it is not necessarily as homogenous as the TTWA.

Overall, from a theoretical perspective, the TTWA is the most useful spatial unit. The relationships under investigation -the determination, organisation and economic impact of labour market flexibility- are organised at the level of the labour market, which the TTWA represents. Following our definition of labour market flexibility as "the local response to labour market regulation under local-specific socio-economic conditions", it is clear that the majority of the flexibility effects (apart from any spatial dependence effects) will be concentrated inside a labour market area. This effectively guarantees that, with the use of TTWAs as the spatial unit of analysis, the criterion of self-containment is met (due to the very definition of the TTWA), while relative homogeneity is simultaneously achieved. An alternative to the use of TTWAs is the use of FURs, since they both share many advantages. However, both spatial units impose severe limitations onto the empirical research, since data of the type that our empirical analysis requires are not available for such areas on a time-series basis.

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[82] However, see in this respect the interesting discussion about the issue of defining and conceptualising a local labour market area in Martin (2001).

This brief discussion of our candidate spatial units reveals that, despite setting out specific selection criteria, we were not presented with a real choice. Data availability and quality (last criterion) indicate that the only spatial unit we could use in a regional-level historical study (time-series and cross-sectional analysis) is the administrative region. Although this choice is not ideal, it may be noted that the above discussion has uncovered additional merits of using the administrative region as the spatial unit of analysis. Administrative regions are sufficiently self-contained (second criterion) and large enough (third criterion) to make the empirical results meaningful. Despite having in many cases more than one centre (e.g., Scotland, Northwest or Southwest) and a clear urban-rural dichotomy, (heterogeneity; for example, Scotland or Wales), administrative regions are clearly related to conceptual divisions of space (especially for Scotland and Wales) and can thus be seen overall as mini-economies.

Possible biases in our analysis due to the selection of such a spatial unit mainly refer to two cases. First, to cases where part of an administrative region is economically connected more to a neighbouring region than to its own region. Second, to cases where an administrative region has two distinct labour markets with significant differences in their institutional settings and economic outcomes. For the UK, the second case seems not to be a particular problem. Institutional settings and labour market performance seem to be largely homogenous within UK regions, as in many respects the economic geography of the UK more closely resembles a North-South divide (Blackaby and Manning, 1990; Blackaby and Murphy, 1995) than a rural-urban or other dichotomy. If within-regions heterogeneity is a serious problem, however, this is most likely to describe regions such as Scotland, Wales and probably the Southwest.

Conversely, the case of cross-regional linkages is a much more likely problem. Cross-regional linkages characterise to a large extent Wales (with south Wales being economically connected to parts of the Southwest and north Wales having strong economic links with the Northwest) and probably Scotland and the North region. For the Midlands and East Anglia they seem to be less of a problem. The openness of Wales is problematic with respect to our selection of the spatial unit of analysis, but it can only have a limited impact (bias) on the obtained results. This is especially true for our panel-data (time-series and cross-sectional) analysis, as this openness will only have an impact if it is not constant over time.

Another potential problem related to the cross-regional linkages issue concerns the case of Southeast and Greater London. There is a large degree of homogeneity between these two regions in many respects.[83] However, our empirical analysis controls for spatial dependence and thus for the case where economic outcomes in one region contemporaneously affect economic outcomes in other regions. For this reason, it is quite unlikely that our results will be biased because of such spatial linkage effects.

To conclude, the selection of the administrative region (in particular, the Standard Statistical Region, as this is the primary spatial unit for which data are reported for most of the study period) as the spatial unit of analysis in the empirical work, although dictated by data availability, is clearly the best decision. Other spatial units might be theoretically more relevant, but this should not discourage the use of the administrative region as the spatial unit of analysis (especially since our controls for spatial dependence should safeguard our results from the most obvious source of bias suggested by our theoretical criteria). Further research at a smaller spatial scale,

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[83] Note that almost the entire Southeast region belongs to the Functional Urban Region of London.

probably the TTWA, would complement rather than replace the analysis conducted here.

6.3. Regional specificity, regional adjustment and equilibrium

It is standard practice to contrast regional with national economies on the basis of their openness (Armstrong and Taylor, 1993). Regional economies are much more open to other regional economies than national economies are with respect to each other. Flows of goods, people and resources are much more intensive between regions than across states and the typical barriers hindering mobility on a cross-national scale (language, religion, culture, currency, institutional or legal restrictions, purchasing power, etc) are much less significant in a cross-regional context. This is also true within the context of member countries of supra-national institutions, such as the European Union (Armstrong and Taylor, 1993). Therefore, the analytical perspective often applied in economic analyses of national economies (basically, the assumption of a closed economy) is potentially misleading and often inappropriate for regional analysis.

More important is the difference between how national and regional economies react to specific economic developments. For example, at a national level inflation can be tackled (at least in the short-run) with the use of monetary instruments such as money supply and the exchange rate. These instruments are not available to the designers of regional policies. On the other hand, regional economies have available a number of adjustment mechanisms that are less operative in national economies. Capital and labour mobility are two such mechanisms. A high unemployment region will experience (net) out-migration, as people will, in the longer-run, move to more prosperous regions in search of better employment

opportunities. Labour supply will decline in the less prosperous region, even with sticky wages, thus reducing unemployment in the region and resulting in cross-regional convergence in unemployment rates.[84] Because international migration is much smaller than inter-regional migration, at a national level this adjustment mechanism is of minor importance, with the implication that a decline in the national unemployment rate can only come from either a decline in the real wage or from real productivity growth.

Despite the absence of tools available to national policy, the mechanisms of regional economic adjustment can guarantee a stable cross-regional equilibrium in well-functioning labour markets, in the sense that any economic shocks (national, regional or sectoral) will be quickly reduced and eventually eliminated. In other words, regional disparities in wages or unemployment rates cannot persist for long periods of time if the adjustment mechanisms are allowed to operate without failures.

The main mechanisms for regional economic adjustment are worker migration, changes in economic activity rates (labour force participation), firm relocation, job creation and destruction, and wage movements.[85] Among these mechanisms, the most important and best studied is migration. As stated above, when unemployment differentials arise (say, due to a demand or a technology shock), worker movements will tend to reduce these differentials. Much debate exists in the literature as to which are the main determinants of migration (see for example Harris and Todaro, 1970 and Greenwood, 1997). Standard migration theory, based on gravity models, assumes that workers respond to regional differences in economic opportunities, moving from high-unemployment regions to low-unemployment ones

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[84] This, of course, is a rather simplistic view of the operation of regional labour markets, as it does not account for any dynamic agglomeration or any other cumulative causation effects.

[85] Wage movements is both a (qualitative) mechanism of adjustment itself and a mediating factor that triggers changes in other (quantitative) mechanisms, like migration.

(Oliver, 1964). Wage differentials can also generate migration, with higher wages in a region attracting more workers from outside the region. Other labour market incentives to migrate include regional differentials in employment growth and labour force participation rates (Weeden, 1973). In any case, people will move from backward areas to more dynamic ones. This will reduce labour supply in the high-unemployment (and/or low-wage) regions, thus reducing unemployment (and/or increasing wages), until a cross-regional equilibrium is achieved. More dynamic regions will experience labour supply pressures and, thus, increases in employment and declines in wages.

A similar mechanism operates in the case of firm relocation and job creation. High unemployment (low wages) will create an incentive for businesses (controlling for productivity differences) to increase labour demand, thus increasing both wages and employment. Again, the mediating factor is wage movements. If wages in a high unemployment region are sticky, the incentive for firms to increase their demand for labour in the region will vanish. This leaves worker migration (due to the unemployment differentials) as the only viable mechanism of adjustment. Reductions in labour force participation will also occur (as well as out-migration), but this is a much less desirable response to a negative economic shock and it is thus in the interest of policy to restrain it.

Unfortunately, the empirics of regional labour market adjustment offer a much bleaker picture than the one implied by the above theoretical discussion. In practice, substantial unemployment differentials exist and they are remarkably persistent (Blanchard and Katz, 1992; Decressin and Fatas, 1995; Jimeno and Bentolila, 1998; Baddeley et al., 1998; OECD, 2000). Empirical evidence for the USA suggests that the impact of a region-specific negative employment shock will take as much as five

years to diffuse (Blanchard and Katz, 1992; Bertola and Ichino, 1996). The immediate response to such a shock is a small decline in labour force participation and a larger increase in unemployment. However, migration responds rapidly to such a shock and is by far the most important mechanism of adjustment. In Europe -and in the UK in particular- migration responses are much smaller and much slower. Unemployment differentials have a much longer persistence, even beyond the first decade (Alogoskoufis and Manning, 1988; Baddeley et al., 1998 and 2000; Mare and Choy, 2001). Migration rates in Europe are a fraction of those in the USA and so is the responsiveness of migration to changes in regional employment (Pissarides and McMaster, 1990; Blanchard and Katz, 1992; Thomas, 1994; Decressin and Fatas, 1995; McCormick, 1997; Baddeley et al., 1998; Mauro et al., 1999; OECD, 2000b).

A variety of factors can account for the persistence of regional disparities and the inefficient operation of the adjustment mechanisms, especially in Europe. Among those factors that are outside the influence of labour market policy, the most important is housing market arrangements (Cameron and Muellbauer, 1998; Oswald, 1999). Other factors include capital market imperfections, uncertainty, the existence of substantial fixed costs related to migration and firm relocation, the demographic composition of the population and other non-market (cultural or psychological) factors. However, empirical evidence suggests that by far the most significant impediments to labour market adjustments are related to labour market policies and institutions, most of which reduce the responsiveness of wages to differentiated employment outcomes, although direct effects (not via wages) can also be identified (Edin et al., 1991; Antolin and Bover, 1997; Mauro and Spilimbergo, 1998). The most pronounced impediment to regional adjustment is the presence of a number of wage-setting institutions, mainly related to the structure of the wage bargaining

system (centralisation, co-ordination), the presence of unions (union power and coverage), minimum wage legislation and the replacement ratio and duration of unemployment benefits (via its impact on reservation wages). A large literature exists that attributes the existence of high and persistent unemployment in Europe (in comparison to the USA) exactly to these factors (Layard et al. 1991; Bean, 1994; Nickell and Bell, 1996; Saint-Paul, 1996; Nickell, 1997a; Siebert, 1997).

We will discuss in detail the specific process under which these factors act as an impediment to regional adjustments in the next section. However, it needs to be stressed here that regional inequalities might be also caused by factors other than the persistence of imbalances that are due to economic shocks and inflexible labour market arrangements. Despite the equilibrating mechanisms that operate across regions, regional economies exhibit a significant degree of heterogeneity.[86] For example, regions can differ in terms of economic outcomes, like unemployment and inflation rates or employment and output growth. They may also be dissimilar in terms of general socio-economic conditions, like employment-to-population ratios, female labour force participation, skill composition and average education levels, production structures, average firm sizes and industrial composition of output.

Furthermore, their socio-demographic indicators, such as average family sizes, urban density and migration may be different as well. Regional differences may also be present in social and economic attitudes and traditions, such as attitudes towards work (or specific patterns of work, for example, part-timing and temping), production effort, labour supply, managerial strategies and entrepreneurship. Such differences may further be reflected in aspects like labour demand and supply

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[86] Regional heterogeneity is the outcome of spatial segmentation, spatial (distance) frictions, variation in spatial dynamics and the uneven spatial distribution of economic shocks (Fischer and Nijkamp, 1987).

elasticities, investment in human and physical capital, etc. One final significant source of regional heterogeneity is differences in socio-economic and particularly labour market institutions (Peck, 1992; Storper, 1993; van der Laan and Ruesga, 1998). The traditional and rather persistent cross-regional differences in unionisation rates in the UK (Martin et al., 1996) is one such example of regional heterogeneity in labour market institutions.

It needs to be noted that the aforementioned regional differences may not always be the outcome of market failures and externalities that prevent adjustment mechanisms from generating equilibrium. Perhaps it is more appropriate to think of such differences as systemic and stable. From this perspective, the interaction (co-existence) of regional inequalities in a set of social or economic indicators with another set of regional inequalities may result in a stable inter-regional equilibrium (see Adams, 1985 and Baddeley et al., 2000, for simple models illustrating this view and Martin, 2001, for a wider discussion of the issue). For example, low relative wages in a region might be sustained (and not eliminated through migration) if this region offers better amenities that compensate for the low wages.[87] Regional inequalities in unemployment rates may be stable if high unemployment regions have denser social networks to assist the unemployed, or more Keynesian labour market institutions to compensate the labour force for its higher -relative to more prosperous regions- probability of falling out of employment. Regional differences in female labour force participation rates may be stable when co-existing with regional differences in female labour productivity, in production structures (industrial composition), or in urban densities. In technical economic terms, this might be

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[87] Such amenities can be of various forms: locational (proximity to ports or other countries), environmental (cleaner air and less congestion), institutional (job security or higher labour standards), or cultural (entertainment attractions).

regarded as typical of the existence of convergence clubs at a regional level (Quah, 1996).

Our knowledge of how important such factors are empirically for the persistence of regional disparities is not yet fully developed. However, it seems clear that, at least to some extent, regional economic disparities can be self-sustainable even in the most efficient labour markets and that, in such a case, not much can be done to remove them. To be clear about it, if a region experiences higher unemployment due to the existence of relatively denser social networks and family support traditions, it would be socially undesirable for policy to destroy such a social infrastructure in order to increase the responsiveness of migration to unemployment (and thus eliminate the regional unemployment differentials).

Before closing this section, a brief discussion of some other impediments to regional adjustment must be added. Numerous studies have shown (e.g., Gordon, 1995; Mauro and Spilimbergo, 1998; Bailey and Turok, 2000) that the probability of migrating, as well as the elasticity of migration to changes in employment, are not constant across different sub-groups of the labour force. Skilled and more educated workers are more likely to migrate and so do male, single and relatively young workers.[88] If average human capital declines with out-migration, then the decline in labour supply in a high unemployment region will not help improve economic conditions there. The decline in the quality of the workforce will reduce productivity and thus increase unit labour costs, making the area less attractive to new firms. This will keep wages low and unemployment at relatively high levels. In such a process, the high-unemployment region will experience a further decline in economic activity, while more prosperous regions will expand faster. This will create a cumulative-

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[88] Evidence also suggests that these workers tend also to migrate faster and further.

causation effect and cause further regional divergence. The presence of institutional or other impediments to regional adjustment, in that case, can act in favour of achieving a stable cross-regional equilibrium (see Booth and Chatterji, 1998 and Faini, 1999, for technical discussions of such processes).

6.4. The regional dimension of labour market flexibility

We saw in the previous section that a number of elements related to labour market flexibility (e.g., unions or unemployment benefits) can act as impediments to the mechanisms of regional adjustment. In this section we will discuss the mechanics of this process and examine under which specific assumptions flexibility can accelerate or hinder regional convergence. Before doing so, it is important to examine first how the levels of labour market flexibility can vary in space, given uniform (national) regulations in the labour market.

6.4.1. Regional variations in labour market flexibility

We argued in the introduction of this chapter that although labour market (de)regulation is a national policy, it can also be used (as it seems to have been the case in the UK) as an instrument for regional economic policy. This perspective is under the assumption that the effects of a uniform deregulation policy will exhibit regional variation and, more importantly, will trigger cross-regional dynamics that will activate the mechanisms of regional adjustment. However, the regional importance of labour market regulation is not limited to the regionality of its effects. Despite the national character of labour market regulation, the application of such regulations exhibits considerable regional variability, which is related to the existing patterns of cross-regional heterogeneity. In other words, the particular ways in which

these policies are applied and the actual levels of flexibility that obtain in each region depend on and reflect the specific characteristics (initial conditions) of each region.

In practice, most of the labour market policies related to factors that we identify as elements of labour market flexibility are constant across space (in nominal terms). Minimum wages, the levels and duration of unemployment benefits, regulations regarding working conditions and work arrangements, fire-and-hire legislation, regulations on worker representation rights and on trade unionism, are all decided at a national level and are applied evenly throughout the country. Only a few elements show regional variation at this level, including *housing* regulations and factors related to *skills-acquisition* (active labour market policies, training programmes and vocational education).

On the other hand, the local responses to uniform labour market policies (i.e., the observed levels of flexibility) are variable. Table A.6.1 (see Appendix) presents the full list of labour market flexibility elements presented in chapter two, looking this time at their regional variability and providing a description of the main causes for this variability (last column). *Work arrangements* (temping, part-timing, sub-contracting, multi-tasking, etc) depend on the sectoral and labour force composition of each regional economy, on specific demand pressures and profit margins, as well as on family structures and other socio-demographic conditions. *Labour standards* (representation, holidays, etc) depend on factors such as union power, the degree of co-ordination between the management and the workforce, the share of the services sector on total regional employment, and the particular economic conditions in the region (e.g., demand pressures). *Unionism*, too, varies with sectoral and occupational composition (for example, manual labour-intensive occupations are traditionally more

unionised), but it is mainly dependent on the social attitudes and history of each region.

Regional, sectoral and occupational *mobility*, as well as mobility between jobs (job tenure) will mainly depend (for given economic conditions) on the skill composition of the labour force and the diversity of the production structure of each regional economy. The *wage elasticity* of unemployment will in general reflect the heterogeneity of regional economies. The existence of sources of incomes alternative to the wage (i.e., capital rents), strong social networks and high reservation wages in some regions will tend to reduce the flexibility of wages in their economies. The *duration of unemployment benefits* is probably the only element that is universally applied, although regional variations in long-term unemployment rates might create regional variations in the importance of benefit duration. The levels of unemployment benefits (*replacement ratio*), however, will depend on the average wage of each region, as well as on the regional family structures, since replacement rates are decided nationally and vary with family size. Most importantly, of course, they will depend on regional price levels and, more precisely, on cross-regional differences in price levels. Finally, the real *minimum wage* will be regionally variable, as minimum wages are -most of the times- set at a national level, while average wages and price levels vary among regions (or even among places within regions).

Regional variations in labour market flexibility, of course, will in turn produce regionally variable economic outcomes. The combination of variable labour market flexibility landscapes and regionally uneven labour market regulation effects can constitute a fairly complex picture of regional labour market interactions and dynamics. Modelling all of these interactions would require a full model of regional and cross-regional social and economic behaviour, something that is beyond the

scope of our study. At a technical level, such complications will be considered and dealt with in chapter eight, where the empirical analysis of labour market flexibility and regional economic performance is presented. In the remainder of this section we discuss the implications of labour market regulation and flexibility on regional economic performance and regional disparities, looking at the impact that (in)flexible labour market arrangements have on the mechanisms of regional adjustment. In the next section we expand this discussion, examining the regional effects of a negative demand shock in a rigid and in a flexible labour market, as predicted by the model developed in chapter five. Inevitably, this discussion is limited to the effects of flexibility in labour standards, as this is the focus of our model. Many of the inferences made, however, are also applicable to other elements of labour market flexibility, the effects of which are discussed -in less technical terms- next.

6.4.2. The impact of flexibility on regional adjustment

There are two broad cases that it is interesting to examine. The first follows the discussion of the previous sub-section and looks at the impact that regional variations in the levels of flexibility will have on regional disparities. The second assumes that the levels of flexibility are constant across space and examines regional adjustment to a region-specific negative demand shock, when labour market rigidities are present. Other scenarios (e.g., the effects of a negative shock in a relatively flexible and in a relatively rigid region, or of a national shock) follow directly from these two cases and are thus not examined here. For each of the two cases, we discuss separately the role of flexibility in the determination of wages and of labour-input flexibility (see chapter two for definitions of these terms), because of the differences in the mechanisms that are of relevance for each category.

6.4.2.1. Regional dynamics when flexibility differs across regions

To examine this scenario, assume that the two regions are in equilibrium and that tight regulation guarantees the equalisation of the regional levels of flexibility. Assume now that deregulation occurs, so that the levels of flexibility rise in both regions. With regional differences in socio-cultural characteristics (e.g., family sizes, attitudes towards flexi-working) and economic structures (e.g., firm sizes and sectoral compositions), it is expected that the actual levels of flexibility that will obtain after deregulation will differ between the two regions. However, the slopes and positions of the labour demand and supply curves in each regional labour market will not change, as far as the assumption that labour demand and supply are both functions of labour market flexibility (as was shown in the model developed in chapter five) is relaxed.

Under these assumptions, following deregulation, wages and unemployment rates will be the same in the two regions, but one region (say, A) will have a more flexible labour market compared to the other (say, region B). Let us first consider the case of flexibility in wage determination. With higher flexibility in its labour market, region A will become more attractive to potential employers (firms) but less attractive for workers. To the extent that attractiveness generates cross-regional flows of factors of production, it should be expected that firms will tend to relocate to region A, while workers will tend to migrate to region B. Thus, labour demand will increase in A and decline in B.

In contrast, labour supply will increase in B and decline in A. This will lead to a wage increase in A and a fall in wages in region B, the less flexible region. The employment effects in the two regions are ambiguous, since they depend on the

slopes of the demand and supply curves, as well as on the relative sizes of worker migration and firm relocation. (i.e., the shifts of the two curves). This process will generate regional wage differentials, with higher wages in the more flexible regions. These differentials will be stable, since they will reflect regional differences in productive amenities.[89]

Now assume that deregulation leads to regional disparities in the area of labour-input flexibility, again with region A exhibiting the higher levels of flexibility. As was the case with flexibility in wage determination, labour-input flexibility can only be seen as a productive amenity, since we have assumed that it does not affect the shape of the labour demand and supply curves. In this case, again, firms will be attracted by the more flexible labour market (region A), thus increasing their labour demand there. However, this time region A will be more attractive also for workers, since higher levels of labour-input flexibility imply higher employment opportunities (increased "employability").[90] Thus, under our assumptions, region A will also experience an increase in labour supply. This process will result to a decline in economic activity in region B and in an expansion of employment in region A.[91] This time the wage effects will be ambiguous, as they will depend on the slopes of the labour demand and supply curves and on the relative sizes of firm relocation and worker migration. As was the case before, whatever regional differentials obtain, they will be stable, since they will reflect regional differences in productive amenities, rather than represent a temporary imbalance.

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[89] Also, these will be compensating differentials and will not reflect differences in labour productivity between the regions. It is interesting to keep this in mind during the empirical investigation. A negative correlation between wages and flexibility at the regional level might simply reflect the amenity-character of flexibility (and, thus, the existence of compensating differentials) and should not be taken without doubt to imply lower labour productivity in rigid labour markets.

[90] If one assumes that labour-input flexibility is unattractive for workers (e.g., due to lower employment security), then the final effect will be as in the previous case.

It is necessary to note at this point that the exact responses of firms and workers to regional differentials in the levels of flexibility will in reality depend on the reasons that made these differentials possible. For example, if these differentials are mainly due to regional differences in firm sizes and sectoral shares, one should expect responses from the side of the firms (relocation) to be minimal. Conversely, if they are due mainly to regional differences in workers' preferences (and factors like family size and structure, or occupational shares), one should expect that the workers' response (migration) would be less important. However, the general patterns identified in the discussion above will still hold. Thus, the main conclusion to be drawn from this analysis is that, under the assumptions made, labour market deregulation can lead to stable (permanent) regional economic disparities.

6.4.2.2. Regional imbalances with homogenous levels of flexibility

As we discussed in section 6.3 (and technically illustrate in section 6.5), when a region is hit by a negative economic shock, in the absence of any labour market or other rigidities, a number of mechanisms are activated (mainly migration) that help bring the regional economies into a new equilibrium. The presence of inflexibilities in the determination of wages (i.e., high and long-term unemployment benefits, minimum wages protection, high unionisation rates and centralised wage bargaining structures) makes such adjustment mechanisms less operative.

Imagine a region that is hit by a region-specific economic shock, which results in higher unemployment. The newly unemployed will now have to choose (considering for simplicity but without loss of generality a two-period situation)

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[91] Note here that, following our analysis, wage-determination flexibility tends to create regional wage differentials, while labour-input flexibility tends to create regional differences in employment rates.

between (i) staying in their region of residence, receiving an unemployment benefit b and having a probability $1-u_H$ of returning to work in the next period, and (ii) migrating to a lower unemployment region, where they will receive a wage $w>b$ with probability $1-u_L$ and an unemployment benefit b with probability u_L (where $u_L<u_H$), bearing at the same time a migration (adjustment) cost c. Obviously, with rigid wage-setting institutions, wage adjustments -if any- will be slow. Firms will face higher-than-expected wages and so employment will decline by more than what was due to the initial shock. Given this, some firms might choose to relocate to another region, further reducing labour demand in the troubled region. Clearly, to generate regional adjustment, more out-migration is now necessary, than what would be originally required, should wages were more responsive to the shock. However, with generous unemployment benefits, the incentive for workers to migrate is diminished.[92] Even if wages do actually fall, unemployment benefits will still restrain out-migration, especially so since the wage decline will increase the importance of the unemployment benefit (i.e., the replacement ratio –see Table A.6.1).

In any case, irrespective of whether wages in the high unemployment region fall or not, or of the assumption regarding perfect knowledge about the conditions in the two regions, the probability of migrating will be inversely related to the level of the unemployment benefit. At an extreme case, with highly generous unemployment benefits such that $w=b$, the newly unemployed will not migrate even if unemployment in another region is zero! Even if they are actually offered a job, their net returns from migrating will be lower than those from staying (on the dole!): $b>w-c$. Hence, at low

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[92] For direct empirical evidence on this, see Antolin and Bover (1997).

levels of flexibility, unemployment will be sustained in the region and regional unemployment differentials will emerge.[93]

A policy designed to reduce regional inequalities can try and direct investment towards the high unemployment regions or provide re-training to the unemployed to improve their probability of finding a job in their own region. An alternative (and more cost-effective) measure would be to lower the value and duration of unemployment benefits (at a national scale), so that the barriers to migration can be lifted. In fact, this is what has happened in the UK since the early 1980s. Under this perspective, labour market deregulation, although a national policy, can have a regional impact by improving regional economic adjustment processes and fostering regional convergence.[94]

In contrast with flexibility in the determination of wages, labour-input flexibility allows adjustments from within the region. With high levels of flexibility, a negative economic shock will result in comparatively greater job losses, but the laid-off workers will be more likely to get a (flexible) job somewhere else in the regional economy. Thus, one can think of labour-input flexibility as a device that helps reduce

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[93] Interestingly, the same effect can be triggered by the implementation of active labour market policies (ALMPs), which substitute for traditional passive policies. A number of studies have shown that ALMPs have significant lock-in effects, similarly to passive labour market policies, by decreasing the unattractiveness of unemployment and thus reducing the incentive to migrate (Edin et al., 1991; Butner and Prey, 1998; for contradicting empirical evidence see Fredriksson, 1999).

[94] Of course, such an analysis assumes that migration rates are constant across different groups of workers. Relaxing this assumption, it can be shown that out-migration from the high unemployment region (or, equalisation of unemployment rates) does not guarantee the amelioration of economic performance in this region (see Faini, 1999). As the probability of migration increases with skills (Mauro and Spilimbergo, 1998), it is possible that a low unemployment benefit might drive the most skilled out of the backward region, lowering labour productivity there and hindering its prospects for economic recovery (assuming that the unemployment benefit-to-wage ratio is constant across skill levels). Furthermore, the prospect of migration can make the unemployed reluctant to invest in training and acquire new skills, while a well-administered unemployment benefits system (which could include compulsory re-training and job-brokering) might help increase human capital and employability for the temporarily unemployed. In such a way, unemployment benefits may act as a temporary measure to retain the most skilful inside the high unemployment region and turn a plight (unemployment) into an opportunity (skill-acquisition).

the impact of a shock, rather than as something that accelerates the adjustment to it, as was the case with flexibility in the determination of wages.

To examine the process under which labour-input rigidities affect regional adjustment, imagine now that a region is hit by a negative demand shock, while the (national) labour market is inflexible in terms of labour-input adjustability (regulations on temping, firing costs, etc). If firms, following the negative demand shock, cannot adjust their levels of employment easily, adjustment can only occur in the form of job destruction (firms going out of business) and reductions in wages.[95] Job destruction will not be followed by firm relocation (to another region) and thus it will cause an absolute fall in welfare. In contrast, the downward wage adjustment (if possible) will create an incentive for workers to out-migrate. If, however, the existing labour-input inflexibilities include (the lack of) sectoral, occupational and geographical mobility, adjustment will only be partial. Inward investment (firm immigration) will also be insufficient, since labour-input flexibility is assumed to be low in all regions. In such a case, the region of focus will experience an absolute decline in economic activity, with lower wages and higher unemployment. This result will not be cumulative, but it will be permanent. Again, the conclusion is that flexibility assists regional adjustments and, thus, regional convergence.

6.5. Deregulation in labour standards and regional dynamics

Our discussion in the previous section assumed that the elasticity of labour demand and supply was not affected by changes or regional differences in the levels of flexibility. Rather, labour market rigidities were an external factor that affected the decision to migrate to or to invest in another region. In other words, the analysis was

conducted within the framework of a standard perfect competition model (with two regions). In this section we want to see how flexibility is predicted to affect regional adjustments and equilibria when one employs the framework developed in chapter five. We want to investigate what happens to regional disparities when labour supply and demand are assumed to be functions of labour standards. For simplicity, we will assume throughout this section that our two regions are homogenous (in both socio-economic conditions and levels of flexibility) and that the only labour market rigidities present are those related to labour standards. Our analysis will examine the effects of a region-specific negative demand shock, using the simple model developed in section 5.3, in order to avoid the complexities that arise from introducing unionisation (as in section 5.4.1), labour market duality (as in section 5.4.2), or unemployment benefits and minimum wages (as in section 5.4.3).

Assume initially that labour market regulation is very strict, so that all firms in all regions have identical levels of labour standards (set at a high value). With no further frictions and rigidities, the regional labour markets will be in equilibrium, as migration will guarantee the equalisation of the marginal product of labour and unemployment rates throughout the country. We describe the cross-regional equilibrium in Figure 6.1. Regions A and B are in equilibrium, with identical wage rates ($w_A = w_B$) and employment h_A and h_B, respectively. Assume that a negative demand shock hits region B, causing labour demand to move to the left (from D_B to D_B'). With clearing markets, wage rates in B will fall to w_B', triggering worker migration towards A.[96]

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[95] This observation shows how important other forms of flexibility (in this case, financial liberalisation) are for regional adjustments, at least in the presence of labour market rigidities.

[96] Because the present analysis is in terms of labour-hours, it is more precise to think of the adjustment process in terms of commuting rather than migration. However, this makes no difference in terms of the results obtained.

Thus, labour supply in B will decline (from N_B to N_B'), while it will increase in region A (from N_A to N_A'). Out-migration from B will continue until a new equilibrium is reached (at $w_A'=w_B''$). The new equilibrium will be stable and the initial shock will be absorbed by a general decline in employment and wages ($w_A=w_B>w_A'=w_B''$) and a redistribution of employment from B to A.[97] Thus, with fixed and constant-across-space levels of flexibility, and labour market rigidities not affecting the decision to migrate, the regional adjustment process is identical to that in the case of perfectly flexible labour markets (as was described in section 6.3), although the welfare loss will be greater due to the steepness of the demand curves and the fact that firms cannot adjust their labour standards to optimal levels.

Figure 6.1.: The impact of a negative shock in a rigid labour market
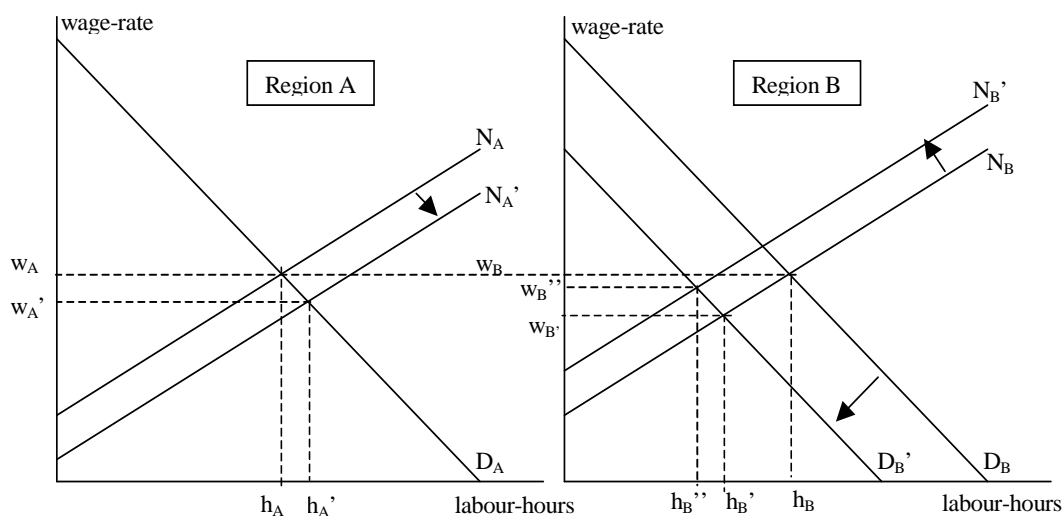
Assume now that regulations regarding labour standards are removed, allowing firms to set labour standards at their own profit maximising levels. As was shown in chapter five (see Figure 5.2), this will result in an inward shift of the labour supply curves in both regions, while the labour demand curves will become flatter.

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[97] However, it must be noted that the overall employment loss will be greater the more inelastic the labour demand or, in other words, the higher the level of labour standards.

Again, we assume that region B is hit by a negative demand shock, so that it experiences a decline in labour demand and, hence, in wage rates. However, this time migration is not the only mechanism activated. As well as out-migration, lower wage rates trigger changes in the optimal level of labour standards (as shown in eq.(13) in chapter five). This will in turn affect the slope of the demand curve (consistent with eq.(6) in chapter five) and the position of the labour supply curve (consistent with eq.(23) in chapter five). Thus, changes in the level of labour standards are in this case (in a flexible labour market when labour standards affect labour demand and supply) an additional mechanism of adjustment to economic shocks. Although it is conceptually plausible that any of the two adjustment mechanisms (migration and changes in labour standards) can respond faster, thus making the other unnecessary, first we take the view that migration movements exhibit some hysterisis (say, because of uncertainty or convex adjustment costs). This will also allow the clearer exposition of the process under which changes in the levels of labour standards act as an adjustment mechanism. Relaxing this assumption and allowing for both mechanisms to adjust partially and simultaneously, does not change the quality of the results we obtain.

As can be seen from Figure 6.2, the negative demand shock will be expressed as a shift of labour demand in region B to the left (from D_{0B} to D_{1B}). This will bring the wage rate in this region to $w_{1B} < w_{0B}$, creating regional wage differentials. However, while workers will take some time to start migrating towards region A in search for higher wages, lower wage rates in region B will force firms to reduce the level of labour standards they offer, so that $s_{1B} < s_{0B} = s_{0A}$. Thus, the new labour demand curve in region B will become flatter (like D_{2B}). Lower levels of labour standards, though, will also lead to a decline in labour supply (from N_{0B} to N_{1B}) and thus in a

relative recovery of wage rates in region B ($w_{2B}>w_{1B}$). The latter will make the two curves move back towards their original positions. The whole process will continue as an oscillating convergence process as was described in section 5.3.3, until a new equilibrium is reached. In this new equilibrium, both wage rates and employment will be below their initial levels (i.e., w_{3B} and h_{3B} such that $w_{0B}>w_{3B}>w_{1B}>w_{2B}$ and $h_{0B}>h_{3B}>h_{2B}$). Note that since the migration adjustment is slower, the equilibrium in region A will not yet be altered (thus, $w_{0A}>w_{3B}$).

Figure 6.2.: Partial adjustment in a flexible labour market (region B)
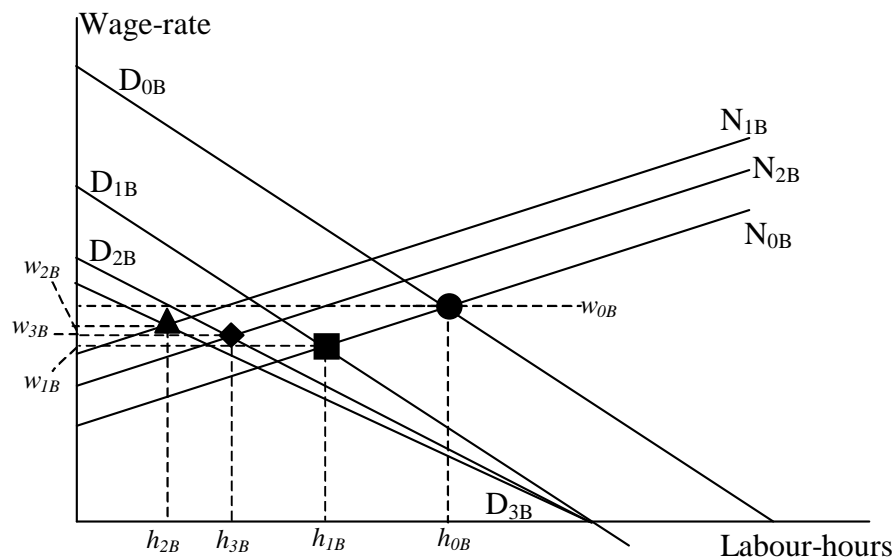
Key: equilibrium: ●, initial; ■, immediate response; ▲, secondary response; ♦, final.

At the new equilibrium both wages and labour standards will be higher in A and thus utility will also be higher there ($U_A>U_B$, because $w_A>w_{3B}$ and $s_A>s_{3B}$). Thus, workers will eventually move from region B to A, driving wage rates up in B and down in A (as N_{0A} moves to N_{1A} and N_{3B} moves to N_{4B}; not shown). The new wage changes will start bringing the two regions to an equilibrium, but will also cause new changes to the levels of labour standards offered and thus to the slopes of the two labour demand curves. This time, however, labour standards will move in the

opposite directions in the two regions, moving above s_{3B} in region B (D_B^* is steeper than D_{3B}) and below s_{0A} in region A (D_A^* is flatter than D_{0A}). The partial adjustments will continue, again with an oscillating convergence process, until a stable equilibrium is reached, with wage rates and labour standards becoming equal in the two regions ($w_A^*=w_B^*$ and $s_A^*=s_B^*$).

Figure 6.3.: Cross-regional adjustment in a flexible labour market
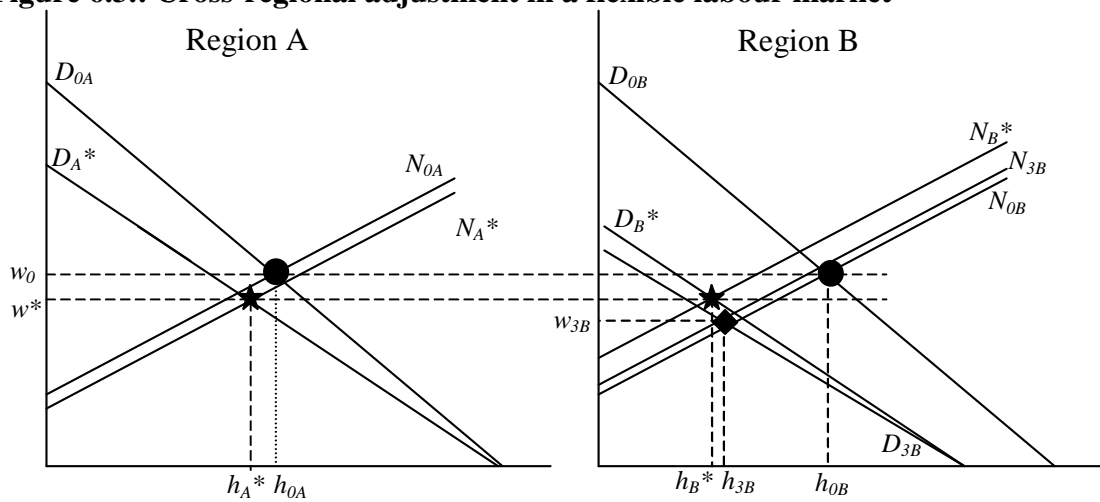
Key: equilibrium: ●, initial; ♦, after the shock / before migration; ★ , final cross-regional.

Figure 6.3 presents the cross-regional adjustment to the new equilibrium. At this new equilibrium both regions have lost employment. Moreover, wage rates are lower compared to the situation before the shock occurred, but are higher compared to a case where labour standards were not allowed to vary or before migration took place ($w_{A,B}>w_{A,B}^*> w_{3B}>w_{1B}$). Thus, again the impact of the region-specific shock is diffused in the national economy through migration, as was the case in the rigid labour market (see Figure 6.1). However, this time, with flexibility in the determination of labour standards, the impact of a shock is larger, as it is magnified by changes in the levels of labour standards.

Now let us assume that migration can occur simultaneously with changes in the levels of labour standards. As was the case before, the shock will reduce wage rates in region B, leading to a further reduction in labour standards. This time, however, while labour standards in B decline, out-migration will also occur, limiting the decline in the wage rates. It follows that the decline in labour standards will also be less dramatic. The limited fall in the levels of labour standards will nevertheless reinforce out-migration, making regional adjustment through migration even faster.

Before closing this section we need to note that the stable cross-regional equilibrium is only reached under a number of restrictive assumptions: (i) that there are no rigidities in the two labour markets, apart from the original regulation in labour standards (which is removed)[98]; (ii) that the two regions are homogenous in terms of socio-economic conditions and characteristics and, following that, in terms of the optimal levels of labour standards[99]; (iii) that workers are homogenous in terms of skills and in terms of the utility they derive from a given level of labour standards; and (iv) that migration is the major of the traditional adjustment mechanisms (e.g., as opposed to changes in labour force participation). Relaxing these assumptions will affect the nature of the equilibrium reached. For example, if we allow for regional heterogeneity, as discussed in section 6.3, a stable equilibrium can be reached with one region offering higher wages and another offering higher levels of labour standards. However, even in such a case, the process of adjustment through changes in the levels of labour standards described above, with changes in the slope of the

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[98] If we assume, as in sections 5.4 and 6.4, that there are other inflexibilities in the two labour markets that hinder migration (e.g., unemployment benefits), then the result will be persistent regional differentials in both wages and labour standards.

[99] For example, dropping this assumption, one could examine how the cross-regional equilibrium is altered if new regulations in labour standards are imposed (starting from an initial condition of no-regulation) and regions are allowed to respond differently to the new regulations (say, with one setting labour standards at the regulation levels and a second setting them above that level).

labour demand curve and in the position of the labour supply curve generating oscillatory convergence (within each region this time, due to the cross-regional heterogeneity), will still operate.

To remove regional disparities, policy-makers will have to choose between two options for regional policy. One option will be to induce a socio-economic restructuring in both regions so that heterogeneity is removed and both regions become equally flexible (in terms of labour standards offered). This will also equalise wages, but cannot be achieved through deregulation, since labour standards have already been set at profit-maximising levels. The alternative option would be to introduce new regulations in the labour market, so that labour standards are equalised in the two regions (by moving upwards). This will help wages converge, but it will destroy some employment in the more flexible region. In any case, however, although policy intervention can achieve a more equal distribution of economic opportunities across regions, it does not guarantee an overall increase in economic efficiency or welfare.

6.6. Concluding remarks

The purpose of this chapter was to examine labour market flexibility and deregulation from a regional perspective. Such a perspective is rarely found in the relevant literature. If, as we noted in chapter five, a holistic analysis (a general theory) of the economic effects of labour market flexibility is undeveloped, the regional economic analysis of the issue is missing entirely. Only a few attempts to model the regional dynamics of specific labour market institutions exist in the literature (see for example, Faini, 1999), while many studies undertaking cross-regional analyses treat

regions as simply a different unit of analysis rather than as a system within a national economy (for example, Adsera and Boix, 2000).

However, the analysis employed here is not meant to substitute for the paucity of regional economic research on labour market regulation issues. Rather, our intention was to provide a framework under which the impact of labour market rigidities (or of their absence) on regional adjustment and on economic outcomes can be understood and investigated. After reviewing the specificities of regional economies and the mechanisms of regional adjustment in the absence of labour market rigidities, we proceeded to highlight an array of dynamics that can emerge at a regional scale when various forms of labour market rigidities are present. In this context, we extended the predictions of the model developed in the previous chapter, to examine the impact of a region-specific negative economic shock when labour standards are fixed by regulation and when they are allowed to vary (flexibility).

The most interesting question requiring an answer in this type of analysis is the role of labour market flexibility and deregulation for regional economic performance and regional convergence. As we noticed, there is an implicit assumption, evident in the implementation of labour market deregulation policies, that flexibility in the labour markets fosters regional convergence. This assumes that market forces can restore any regional disequilibria and that labour market rigidities are the only externalities in the economy. The issue of spatial heterogeneity, discussed in section 6.3, is apparently not accounted for in such a perspective, as this rules out the possibility for regional disparities to be stable and systemic. We mentioned earlier that such an equilibrium is compatible with the notions of conditional convergence and convergence clubs, which have gained a place in economic orthodoxy over the last decade.

Our discussion in this chapter revealed that increasing labour market flexibility allows the mechanisms of regional adjustment to operate faster (e.g., labour-input flexibility) and more efficiently (e.g., wage-determination flexibility), thus fostering regional economic convergence. Further, that labour market flexibility itself constitutes an additional adjustment mechanism that can reduce the impact of economic shocks and, thus, make the adjustment of more traditional mechanisms less dramatic. However, once spatial heterogeneity and the existence of a number of frictions in the labour market are assumed, labour market deregulation and flexibility can be shown to have adverse regional economic effects. In other words, if the operation of regional adjustment mechanisms generate cumulative-causation-type of effects, leading to regional divergence (due to the presence of market imperfections, regional heterogeneity, or agglomeration economies), then labour market flexibility will only reinforce this process. Such a perspective suggests that, perhaps, in the presence of externalities and market failures, labour market institutions act to assist backward regions and prevent regional disparities from exaggerating further. The argument about labour market regulation being a second-best policy, given the imperfections of the markets, has been explicitly made in some of the neo-institutionalist literature on labour standards (see Sengenberger and Campbell, 1994) and was sufficiently discussed in chapter three. Interestingly, the observation that labour market flexibility can, under some specific (but plausible) conditions, lead to regional disparities in incomes and unemployment rates resembles the observation that labour market flexibility exacerbates cross-personal wage inequalities. The latter is a rather well established empirical finding, which is also supported by our empirical investigation of chapter four.

With these considerations, we proceed in the next two chapters with the empirical investigation of the relationship between labour market flexibility and economic performance at the regional level in the UK. In chapter eight we turn at the econometric investigation of the regional economic effects of labour market flexibility, controlling for the cross-regional dynamics that were identified in this chapter. For example, we explicitly test the assumption that higher levels of flexibility in a region generate wage increases in the same region but reduce wages in neighbouring regions (as discussed in sub-section 6.4.2.1).[100]

The main investigation, however, undertaken in chapter eight is about the direct effects of labour market flexibility on regional economic performance. For the purposes of this investigation, we split labour market flexibility into its constituent elements (as discussed in chapter three) and investigate the individual impacts that each of these elements has on productivity, wages, employment and output growth, wage inequalities and investment. Special focus is given on the relationship between productivity, migration and unemployment insurance, as discussed in 6.4.2.2.

Before that, in chapter seven we measure the various elements of labour market flexibility in the UK regions and examine the variation over time and across space of the levels of flexibility. Revealing the extent of regional heterogeneity in labour market flexibility and its path over time (whether it is declining or not) can inform us about the efficiency of the mechanisms discussed here. Also, it can inform us about the presence of other impediments that prevent enhanced flexibility from triggering regional adjustment and reducing regional disparities.

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[100] We examine such spatial interactions by modelling spatial autocorrelation explicitly, through various distance decay functions, but also by allowing for more general forms of spatial autocorrelation and heteroskedasticity. We provide a discussion of the economic interpretation of the spatial lags (spatial autocorrelation) and their distribution in chapter eight.

APPENDIX A.6.: Regional variation of labour market flexibility

Table A.6.1: The regional variation of the elements of labour market flexibility

Elements of flexibility	Regional variation		Sources of regional variation
	policies	outcomes	
Holidays	No	Yes	Union power, co-ordination, socio-economic conditions, sectoral composition
Lunch breaks	No	Yes	
Paid leaves	No	Yes	
Representation rights	No	Yes	Union power, co-ordination and social traditions
Right to organise	No	Yes	
In-job occ. mobility	No	Yes	Union power, co-ordination and economic conditions
Job demarcations	No	Yes	
Multi-tasking	No	Yes	
Working conditions	No	Yes	Union power and co-ordination with management
Dismissal protection	No	Yes	
Empl. protection	No	Yes	
Co-ordination	No	Yes	
Decentralisation	No	Yes	
ALMPs	Yes	-	Spending decided at the sub-regional level
Educational levels	Yes	-	
Job-related training	Yes	-	
Union coverage	No	Yes	Social attitudes, sectoral composition
Union density	No	Yes	
Union power	No	Yes	Social attitudes
Job mobility	No	Yes	Sectoral, occupational and other regional differences, skills composition, economic conditions
Occ/nal mobility	No	Yes	
Regional mobility	No	Yes	
Sectoral mobility	No	Yes	
Homework	No	Yes	Sectoral composition, socio-economic conditions
Part-time	No	Yes	
Casual	No	Yes	
Job-sharing	No	Yes	Sectoral composition, social conditions
Seasonal	No	Yes	Sectoral composition, regional peculiarities
Fixed-term	No	Yes	Sectoral composition, economic conditions
Sub-contracting	No	Yes	
Task-contracting	No	Yes	
Overtime	No	Yes	
Irregular hours	No	Yes	Sectoral composition
Weekend-work	No	Yes	
Working week	No	Yes	
Shift-work	No	Yes	
Health/safety rules	No	Yes	
Wage elasticity	No	Yes	Regional heterogeneity
Replacement ratio	No	Yes	Variation in average wages and family sizes
Minimum wage	No	Yes	Regional variation in average wages
Benefits duration	No	No	Variation in long-term unemployment rates
Housing flexibility	Yes	-	Housing regulations at the sub-regional level

Notes: The two levels of regional variation (columns two and three) are (1) regionally varying policies; and (2) regionally varying application of the regulations or regionally varying degrees of flexibility. Empty cells illustrate that a non-uniform (region-specific) policy cannot have a uniform (nation-wide) application.

CHAPTER SEVEN

FLEXIBILITY IN THE UK REGIONS

7.1. Introduction

It is a widely accepted that labour market flexibility has advanced over the last two decades in many OECD and other economies. Indeed, as has been discussed in detail in previous chapters, the 1980s experienced a global shift of economic policy (as well as political ideology) towards the relaxation of the rigidities imposed in the labour and product markets over the period of Keynesian regulation and Fordist development. The perception of policy intervention as a necessary condition for controlling economic outcomes was replaced by a more liberal view (neo-liberalism), the perception of policy intervention as detrimental to economic development and prosperity. This underlined the belief that market forces, when left free to operate, can lead to optimal economic (but also social) outcomes and that policy intervention can only distort the market clearing equilibria by generating unemployment and lowering the rates of economic growth.

Under such considerations, labour market deregulation became a major policy priority. A number of measures were introduced (or relaxed) in many countries to facilitate the flexibilisation of their labour markets. The UK in particular experienced a significant shift away from the government protectionism regime of the 1970s, for political as well as economic reasons. During the 1980s Thatcherism provided the political and ideological platforms for the deregulation of labour relations and the flexibilisation of the UK labour markets. The trend towards labour market

deregulation continued (and in some cases, intensified) in the following Conservative governments and, more importantly, in the new Labour government.

Although in more recent years legislation has been introduced attempting to re-regulate some aspects of labour relations (e.g., the re-introduction of a national minimum wage and restrictions introduced over the length of the working day and week), labour market policies still aim at the flexibilisation of labour markets (in some respects, increasingly so). Table A.7.1 (see Appendix A.7.1) reviews the main labour laws introduced in the UK since 1979, with a special emphasis on their effects on trade union power. As can be seen, these laws constituted a direct attack on labour rights and have increasingly facilitated the removal of what have been perceived as the main labour market rigidities.

From the beginning of the 1980s, the 1980 Employment Act imposed restrictions on the rights to strike and to organise in a trade union and removed some of the benefits related to unfair dismissal and maternity rights. At the end of the decade, the 1989 Employment Act further restricted such rights and imposed clauses that reduced job and employment security (dismissal protection and redundancy payments). Although the 1993 Trade Union Reform and Employment Rights Act re-defined or re-introduced some of the employment rights related to maternity leave and dismissal protection, the same act completely abolished the Wage Councils responsible for the determination of minimum levels of pay (although only for overtime and hourly wage rates and for only a few occupations, since the 1986 Wage Act). More recent Employment Acts (e.g., 1996, 1999) have re-introduced some of the previously removed employment rights. Nevertheless, labour market flexibility is still a priority for the Labour government.

The advance of labour market deregulation over the last two decades is not necessarily a proof of increased labour market flexibility. Indeed, as our earlier discussions illustrate (especially the model developed in chapter five), labour market deregulation is often a necessary but rarely a sufficient condition for the flexibilisation of labour markets. With respect to the situation in the UK, however, on aggregate, it seems that labour market deregulation triggered substantial increases in labour market flexibility. Trade union density in the UK declined from a global maximum of 54.8% in 1978 to a 60-year low of 31.7% in 1997 (Asteriou and Monastiriotis, 2000). Some authors have argued that "the vast bulk of the observed 1980s decline in union density in the UK is due to the changed legal environment for industrial relations" (Freeman and Pelletier, 1990, p.156), rather than business cycle factors (Disney, 1990), or changes in social attitudes. The replacement ratio fell by more than 35% in the period between the late 1970s and the early 1990s (Barrell et al., 1994). According to the findings of Minford and Riley (1994), the responsiveness of the unemployment rate to the level of unemployment benefits more than doubled over the same period. With respect to within-job mobility and task (functional) flexibility there is evidence (for the 1980s) to suggest that they have been rising (Daniel, 1987; Elger, 1991), although not as fast as might have been expected. Flexibility in labour standards (understood as a withdrawal of labour rights such as maternity leave, paid leave and holidays, dismissal protection and employment security) has also increased, but thus far there are limited (if any) empirical attempts to associate labour market deregulation to this decline in employment rights. However, it is clear that labour market flexibility -in the form of lower labour standards, increased casualisation of work (part-timers, temping, home-working and

sub-contracting), reduced job security and the like- has on aggregate increased in the UK over the period of labour market deregulation.[101]

Together with the shift of labour market policy towards higher labour market flexibility, as stated in chapter six, regional economic policy shifted towards the same goals. From the early 1980s, the conduct of regional policy reflected the belief that regional inequalities and poor regional economic performance can be alleviated by the natural adjustment mechanisms of the labour market. To improve their efficacy, these mechanisms require the removal of labour market rigidities. As suggested by the 1983 White Paper on regional industrial policy, "wage flexibility […] would increase the attractiveness to industry of areas with high unemployment" (DTI, 1983, p.3). The attempt to increase labour market flexibility, even to the extent that this was viewed as an indirect regional economic policy, never did obtain a clear regional dimension. As Table A.6.1 illustrated, the application of labour market policies is clearly constant through space, with the exception of policies related specifically to training, education and the housing market. Even in 1999, with the introduction of the new minimum wage, labour market policy did not assume a regional dimension, despite the recognition of at least some academics that this might be necessary (Sunley and Martin, 1999) and the known differences in incomes and average wages among some UK regions (especially the South East and the rest of the country) (Gregg and Machin, 1994). Of course, this probably reflects the belief that nation-wide labour market policies can have regionally uneven effects (as our discussion in chapter six suggested), rather than a neglect of the regional economic problems of the

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[101] Casey (1988, 1991) provides detailed evidence regarding the increase in self-employment, part-timing and temping in the UK during the 1980s. We avoid a detailed presentation of national labour market flexibility indicators here, since this would overlap with the presentation of the evolution of the regional flexibility indexes, conducted in section 7.3.

country. It is from this viewpoint, after all, that increasing labour market flexibility can be interpreted as an indirect regional economic policy (Armstrong and Blackaby, 1998).

In sections 7.3 and 7.4 we grapple with how labour market deregulation as a national policy has created different levels of flexibility in the regional labour markets of the UK. To accomplish this, in section 7.2 we examine the evolution of a number of regional labour market flexibility indicators that we constructed using survey data from various sources (see Table 7.1). In section 7.5 we will look at the regional economic performance of the UK over the last two decades, in order to obtain a picture of the economic developments, which the empirical analysis of chapter eight will attempt to explain.

7.2. The construction of the flexibility indexes: data and method

7.2.1. Theoretical considerations and data sources[102]

The analytical discussion of labour market flexibility and deregulation in chapter two revealed a wide array of elements that can reasonably be regarded as the constituents of labour market flexibility. These elements were identified and classified in a number of ways, according to various decompositions, based on alternative perspectives (e.g., functional, technical, etc). In the empirical analysis of the UK and its regions that follows in the next sections of this chapter and in chapter eight, we have utilised these decompositions and classifications and produced a detailed list of elements of labour market flexibility, which we went on to quantify and measure as a cross-regional time-series.

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[102] In this section we focus only on the data sources related to the construction of the regional flexibility indexes. A detailed account of the sources for the data used in the empirical analysis is presented in chapter eight.

Earlier discussions (e.g., chapter three) suggest that the term labour market flexibility is neither uniform nor homogeneous and that, instead, both the elements of flexibility and their effects can in fact move in opposing directions. For this reason, it was necessary to extensively decompose the labour market flexibility indicators. We identified thirty-one (31) labour market flexibility indicators, trying to balance parsimony with full coverage. The thirty-one components are listed in Table 7.1. As the table shows, we further grouped these components into eight technically homogenous groups, for the following reasons: first, because econometric investigation requires a manageable number of variables, especially if non-linearities and cross-interactions are to be taken into account; second, because the indicators should be aggregate enough to minimise measurement error and business-cycle effects; last but not least, in order for our indexes to be consistent with the theoretical discussion of the previous chapters and especially of chapter two.

We must note, however, that despite the consistency issue, the technical components identified for the empirical investigation (second column of Table 7.1) do not precisely correspond to those identified in chapter two (first column). This is mainly because the latter categories were to some extent overlapping. However, other problems discussed below (data availability, weighting problems, etc) also played a role. Nevertheless, although the deviation of the empirical categorisation from the theoretical one was unavoidable, major similarities remain. The seven measures of flexibility in labour input, work content, reservation and average wages, non-wage costs, labour mobility and skills acquisition, have here been replaced by eight measures of unionism, labour mobility, skills input, and internal numerical, internal functional, external numerical, wage and unemployment flexibility.

Table 7.1: Indexes of labour market flexibility

Flexibility Indicators			Data Sources			
Category	**Group**	**Index**	LFS/ QLFS	WIRS	FES/ GHS	OECD /ONS
Labour input and Non-wage costs	Internal numerical	Work time	●	●		
		Irregular hours	●			
		Shift work	●			
		Weekends	●			
	External numerical	Home-working	*	*		
		Alternative workers		*		
		Part-time workers	●			
		Temporary employment	●			
		Dismissal protection	*	*		
		Employment protection		*		
Work content	Internal functional	Within-job occ. mobility	●			
		Empl. representation rights		*		
		Labour standards		*		
		Multi-tasking		*		
Reser-vation wages	Unemploy-ment. flexibility	Replacement rate				●
		Minimum wages	*			*
		Duration of benefits				*
Average wages	Wage flexibility	Structure of wage bargaining		*		
		Co-ordination (unions-firms)		*		
		Wage flexibility			●	
	Unionism	Union density	●	*		
		Union coverage		*		
		Union power		*		
Labour mobility	Mobility	Regional mobility	●		●	●
		Sectoral mobility	●			
		Occupational mobility	●			
		Job mobility / Tenure	●			
		Housing flexibility			●	
Skills acquisition	Skills input	Training				*
		ALMPs				*
		Educational attainment				*

Notes: Dots (●) show a valid data source that was actually used in the construction of the corresponding indicator. Stars (*) correspond to potential data sources that, for various reasons (sample size, accuracy, change in definitions over time, regional detail, etc), we were unable to use. LFS/QLFS is the series of the biannual, annual and quarterly Labour Force Surveys. WIRS is the series of the Workplace Industrial Relations and Workplace Employment Relations Surveys. FES/GHS is the Family Expenditure and General Household Survey series. Finally, OECD/ONS refers to data obtained from OECD databases or the UK Office for National Statistics.

Some of the listed indexes are composite. For example, the seventh index (part-time employment) includes two measures: the share of part-timers in total employment and the share of involuntary part-timers in total part-time employment.

Conversely, some indexes are more aggregate than the theoretical analysis of chapter two would seem to recommend. For example, the eighth index lumps together all the categories of temporary employment (seasonal, fixed-term, fixed-task, casual, etc), despite their differences (see section 2.2).

In the last four columns of Table 7.1 we also present the data sources. The primary data source was the Labour Force Survey series (LFS and QLFS). This is a national quarterly (biannual for 1973-1983, annual for 1984-1991) household survey under the responsibility of the Office for National Statistics (ONS), using a sample of more than 40,000 households. Additional sources were the Family Expenditure Survey (FES) and the General Household Survey (GHS) series, as well as the various Workplace Industrial Relations Surveys (WIRS 1980, 1984, 1990; New Workplace Industrial Relations Survey, 1990; Workplace Employee Relations Survey, 1998).[103] Finally, some published data were also used, mainly derived from the ONS Regional Trends database, the OECD Database on Social Expenditures and the OECD Employment Outlook series.

7.2.2. Further considerations and data construction

The nature of the data sources, mainly being surveys with frequent changes in the content of the questions asked, made it particularly difficult to obtain consistent time-series for all the indicators presented in Table 7.1. For this reason, in certain cases some data had to be estimated by interpolation. When this was necessary, the

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[103] The FES is a continuous random sample survey of around 10,000 private households, with information about incomes as well as detailed information on expenditure. The GHS is an annual national (excluding Northern Ireland) multi-purpose survey, based on an achieved sample of about 9,000 households, providing information on aspects of housing, employment, education, health and social services, transport, population and social security. Both surveys are under the responsibility of the ONS. The WIRS/WERS series are occasional one-time studies of around 2,000 working establishments of more than 25 employees (whole population), based on face-to-face interviews with managers and trade unions officials (for Great Britain only). It is conducted under the responsibility of the Employment Department and the Department of Trade and Industry.

typical procedure was to estimate group averages for the data from years where the relevant information was available, and then calculate the values for the year of interest, assuming that the distribution of characteristics across the groups had remained (relatively) constant.

For example, data on household relocation for job-related reasons at a regional level were not available for the years 1980-1983 and 1985. The values for these years were calculated as follows. First, for the years for which all information was available (e.g., 1979, 1984) we calculated average relocation rates for each region by sector and occupation. Then, using national information on relocation rates from the FES and data on regional sectoral and occupational employment composition, we interpolated the household relocation shares for the missing years. This implied the assumption that the share of people moving house for job-related reasons in a region relative to the national share, given differences in the sectoral and occupational composition of employment, remained constant between two years (say, 1979 and 1980). Such an assumption, although restrictive, is not implausible.

Out-of-sample projections were also used when a change in definitions (for the survey data) made the derived indicators non-comparable through time. For example, the figures for sectoral mobility derived from the Quarterly Labour Force surveys were not directly comparable to those derived from the annual Labour Force surveys, because the definition of job mobility (the control variable) changed between the two surveys. Hence, to adjust the two series we assumed that, controlling for unemployment, job mobility followed the same trend before and after 1992.

When inter- and extra-polation was not possible (or did not seem reliable), we had to accept a reduction in the sample size for the specific indicator. This was the case with a few indicators for values before 1982 (for example, information on

irregular hours, weekend-work and shift-work) and for household relocation for job-related reasons for values after 1991. Additionally, the well-documented problem with the regional union density data (see Martin et al., 1996; Monastiriotis, 1999b) meant that this indicator was only available from 1989.[104]

One of the first and primary considerations relating to the construction of the data was whether they should be weighted (and how). This issue is very important, as it not only relates to the requirements of empirical research, but also to the theoretical perspective of the analysis. Specifically, apart from the technical issue of whether some indicators (for example, shift-work) vary across industries or occupations, a more important question is whether, given such variability, one should try and control for it when constructing regional measures of labour market flexibility. In other words, the more important issue is whether or not one should consider such variability (to the extent that it is present) as endogenous to the regulation of the labour market. For example, is temporary employment more common in the service sector because of some inherent characteristics of this sector (for example, high female employment rates), or is it the regulation of labour relations (e.g., fire-and-hire legislations) that allows this sector to make a more intensive use of temporary employment?

Further, when assessing the degree of flexibility in a labour market, should one be interested in how things are (and thus use the raw, unadjusted figures), or should one account for the reasons as to why things are as they are (controlling for sectoral composition and the business cycle)? Although in our empirical investigation

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[104] Despite that, using published national data on union density, data on union recognition from WIRS80 and WIRS84 and data on union membership from WIRS84, WIRS90, LFS89-91 and QLFS92-98, we constructed an extrapolated series of union density for the period 1979-1998, which we use in the empirical analysis.

we are, in fact, more interested in how things actually are, rather than how they would have been if all regions were homogenous, we decided to control most of our indicators for industrial composition (of employment). However, we did not control for occupational composition, because we thought that this was much less exogenous than industrial composition to the extent of labour market flexibility. We also made some adjustments based on the regional unemployment rates (deviations from the regional means) for some indicators for which there was evidence to suggest that they depend on the business cycle (for example, household relocation and within-jobs occupational mobility –see Evans, 1999).

Another important issue we had to consider was our method to integrate the original information into the thirty-one detailed indicators and the eight broader categories. For example, as a measure of (flexibility in) temporary employment, we had two indicators available: share of temps to total employment and share of involuntary temping to total temporary employment. Is one indicator more important than the other? Should both be given the same weight? We decided that, given the lack of prior knowledge regarding the appropriate weights, using un-weighted averages was the best method. Hence we expressed all observations for all variables as percentages of their maximum values and then aggregated some indicators to obtain as many of the thirty-one indicators listed in Table 7.1 as possible. The indicators used are as follows. *Work-time* is a simple indicator, measuring the share of employees who are happy with their weekly hours of work and would not prefer to work much more or much less than their actual hours (for the going wage rate). *Irregular hours* is a composite indicator, being the un-weighted average of (i) the share of employees working variable hours, (ii) the share of average weekly overtime hours to the average weekly hours of normal work, and (iii) the share of unpaid

overtime to total overtime. *Shift-work* is simply the percentage of employees doing shifts. Correspondingly, *weekends* is the percentage of employees working during weekends.

As stated earlier, *part-time* is the un-weighted average of (i) the share of part-time to total employment and (ii) the share of part-timers stating that they would accept a full-time job if one was available (involuntary part-timing). In the same way, *temping* is the un-weighted average of (i) the share of temps to total employment and (ii) the share of involuntary temps to total temporary employment.

The four remaining indicators corresponding to the "external numerical" category (*dismissal* and *employment protection*, *home-working* and *alternative workers*) were impossible to quantify in a meaningful way, because the only relevant source of information was the WIRS/WERS series. This meant that any time-series would have only four real observations (1980, 1984, 1990, 1998). So we decided not to use these indicators in the empirical analysis. The same problem arose with respect to the elements of internal functional flexibility. The only data constructed for this category is *within-job mobility*, measured as the number of employees who changed occupation over the last year while remaining with the same employer, as a share of all the employees who changed occupation in the same period. This variable has been adjusted for the business cycle, using the regional unemployment rate.

In contrast, it was finally possible (against initial expectations) to obtain a reasonable panel of data for the *replacement ratio* (of the unemployment benefits). This was based on OECD data on national replacement ratios and on FES data on the characteristics of the average unemployed person and regional average wages. As with internal functional flexibility, most of the elements of flexibility in wage determination (*wage bargaining* and *union power*) were impossible to obtain for a

reasonably large panel, since the only source of information was again the WIRS/WERS series. However, we constructed an indicator of *wage flexibility* (wage elasticity of unemployment –see Appendix A.7.2 for details) and we obtained a measure of *union density* for the whole of our time-sample (1979-1998 –original data available for 1989-1998).

Finally, data on mobility were in general much easier to obtain. *Regional mobility* is the share of gross migration flows to regional population, adjusted for the five-year average unemployment rate (to control for business cycle effects). *Sectoral (occupational) mobility* is the number of employees who changed industry (occupation) over the last year as a share of the total number of employees who changed job during the same period. *Job mobility* is an indicator measuring the average employment length in the region (in 8 intervals), adjusted for regional unemployment. *Housing flexibility*, finally, is the share of employees who changed address for a job-related reason to total employment, again, adjusted for regional unemployment.

Two things must be mentioned here. First, the individual measures of labour market flexibility are not totally independent from one another. For example, wage flexibility should be higher -other things equal- in labour markets with low unionisation rates. Although this might lead to an overstatement of the degree of flexibility in more flexible labour markets, this should not be interpreted as a problem. The reason for this is effectively that the degree of correlation between different elements of flexibility is itself a measure of labour market flexibility. The second point refers to the measurement of the mobility indicators. Specifically, it is unavoidable that some double-counting will occur when we measure such aspects as regional and occupational mobility. Again, however, this is not a major problem for

the following reason. Even with double-counting, the obtained mobility measures will reflect the actual degree of flexibility in the movements of the labour force. If the empirical investigation referred to individuals, then measurement would be an important issue. But at the current level of aggregation, labour movements between regions and among occupations are neither substitutes nor complements. The method used in constructing the more aggregate indicators of flexibility (averaging) also further minimises any such measurement problems.

Other difficulties were encountered with respect to the construction of the more aggregate indexes. As mentioned above, the aggregations should have the benefit of smoothing-away any errors in the data that are due to wrong (unnecessary) weighting or small sample size (in the calculation of the relevant regional shares). Since no prior knowledge was available regarding the significance of each element for the broader category to which it belonged, we did not weight the indicators when aggregating them. This should not be much of a problem. A potential source of serious bias, however, was in cases where some data were not available for all years. This was the case, for example, with external numerical flexibility. For the period 1979-1982, the indicator is exclusively determined by the share of part-timing, due to data (un)availability. However, the trends of part-timing (across time and space) are rather different from those of temping. How could we calculate an unbiased measure of external numerical flexibility with missing values for temping if -for example- temping and part-timing were not highly correlated? The solution we reached was clearly a second-best one. Since a correct calculation would require data unavailable to us (and since ignoring the trends of temping would be as bad as miscounting them), we used a non-standard procedure that nevertheless has some intellectual merits. The procedure is based on weighting the available series with those

constructed with out-of-sample forecasting and is described in detail in Appendix A.7.3. We ended up with seven operational aggregate labour market flexibility indicators for a panel of 240 (12 x 20) observations. These indicators are: internal numerical flexibility, external numerical flexibility, internal functional flexibility, unemployment flexibility, wage flexibility, flexibility in wage bargaining and labour mobility. In the following section we present the cross-regional and over time variation of these indicators.

7.3.   The regional picture of labour market flexibility

As explained in the previous section, two sets of indicators of regional labour market flexibility have been produced. The first set includes the more detailed indexes, while the second attempts to measure more aggregate (and more theoretically based) indexes. We first present the detailed set of indexes, focusing on their evolution over time and across space and making some comparisons with published data available from other sources. A note has to be made, however, regarding such comparisons. Our indexes are adjusted for sectoral composition and (sometimes) the business cycle (i.e., unemployment) and do not correspond exactly to published figures.

7.3.1. Some detailed indicators

One of the indicators for which published data is most widely available is part-time employment. According to ONS figures, the share of part-timers to total employment in 1979 was around 18%. It grew quite steadily to 24.5% in 1997. In general, regional differences in part-time employment shares have remained stable since the early 1980s, but the ranking of regions according to this index has been

quite volatile over the last two decades. The same volatility is confirmed by our part-time shares figures, which are adjusted for sectoral composition and show additionally a trend of (slow) regional convergence in the use of part-timers. Finally, our conditional part-time employment shares suggest that over the period 1979-1998 part-time employment increased from 12.3% to 16% (unweighted cross-regional averages). Figure 7.1 presents the evolution of the adjusted part-time employment shares for three regional groupings: Northern Ireland, the South (East Anglia and South East including Greater London) and the rest of Britain.[105] The evolution seems quite stable, with N. Ireland having a consistently higher use of full time employment.

The use of temporary employees (fixed-term contracts and seasonal employment) is again lower in N. Ireland than in the rest of the country (Figure 7.2). Temporary employment (adjusted for sectoral composition but not for the business cycle) was higher in periods of economic expansion in Britain (excluding N. Ireland), but the rest of the country shows some hysterisis in adjusting to the business cycle compared to the South.[106]

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[105] Throughout the chapter, figures for these regional groupings are presented instead of the detailed data for the twelve UK regions. This was necessary for presentational reasons, as it would be impossible to present all of our figures for each single region (this would involve plotting around 200 series). The regional groupings unavoidably hide some of the actual regional variation, but have been constructed in such a way so as to minimise this bias. The actual regional data for our final aggregate flexibility indexes are presented, for selected years, in Appendix A.7.4.

[106] There is a strong case for not adjusting temporary employment shares with the unemployment rate. Because temporary employment contracts are often a form of hidden unemployment or underemployment (Boeri, 1999), these two measures must move in opposite directions. Hence adjustment would only eliminate the variation over time, rather than report more accurately the extent of flexibility in non-standard employment contracts.

Figure 7.1: Part-time employment shares
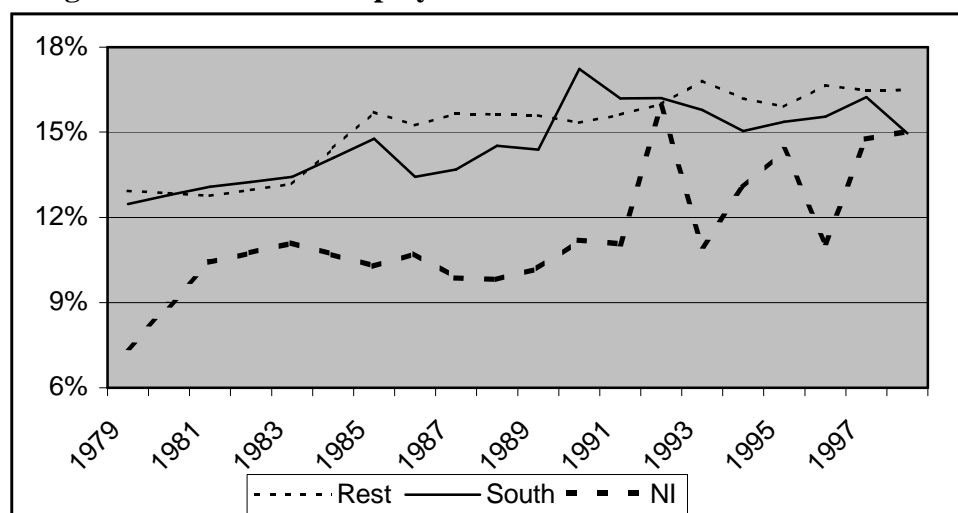
Figure 7.2: Temporary employment shares
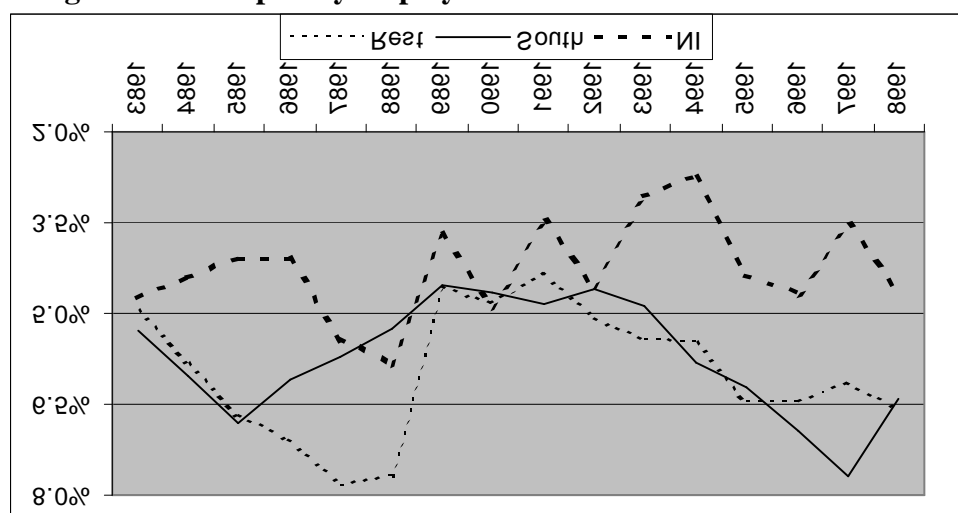
Such hysterisis, however, should not be interpreted as a sign of labour market rigidities. Instead, it should be viewed as evidence of higher flexibility, as in the downturns the rest of the country seems to have lost more equal amounts of temporary and standard employment than the South, where a higher share of the employment loss came from the temporary sector. The ONS and ILO data of a (national) share of around 7% at the beginning and end of our sample period and of around 5% in the middle years compares well with our average adjusted figures of 6.5% and 4.6% for the two periods, respectively.

Figure 7.3: Share of employees doing shifts
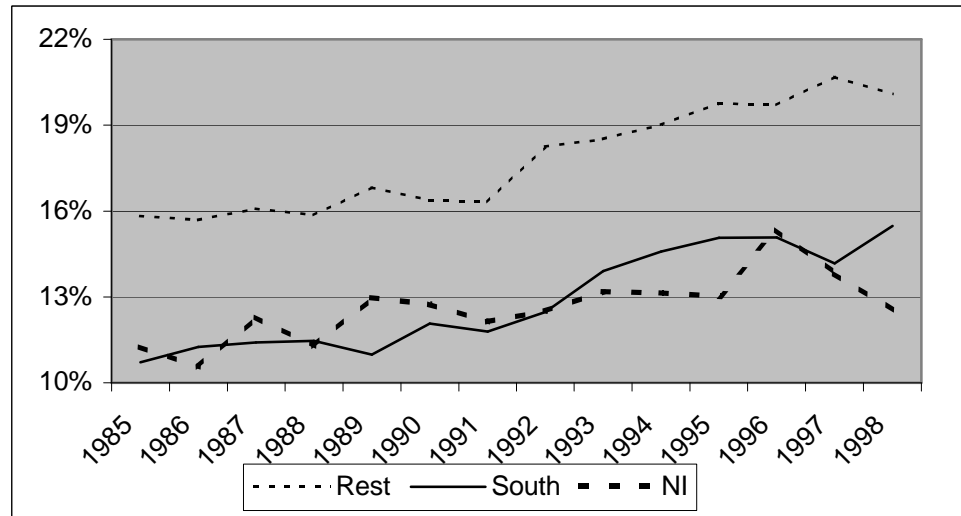
The differences between our three regional groupings are clearer in the case of two elements of internal numerical flexibility, namely shift-work and weekend work. Northern Ireland and the South have much lower values compared to the rest of the country, especially for shift-work (Figure 7.3). According to our adjusted figures, 11% (14%) of the employees were involved in shift-work in the mid-1980s (late 1990s) in the South, compared to a 16% (20%) in the rest of the country.[107] Interesting the South and the rest of the country show no signs of convergence in their shares of shift-work. Rather, the two regional groups move in parallel, with the South having started from a much lower point. A more detailed look at each individual region reveals more information. In general, shift-work is more widespread in the northern regions of England and in Scotland and Wales. However, the sharpest increase over the period was experienced by East Anglia (from 11% to 18%).

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[107] Remember that these figures are adjusted for sectoral composition and thus should be independent of the regional industrial structures.

Figure 7.4: Share of employees working on weekends
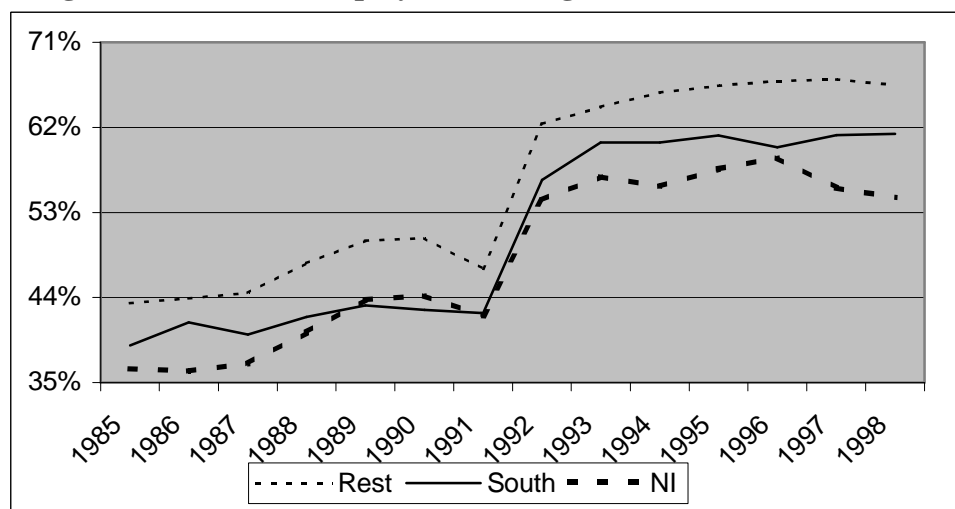
Figure 7.5: Sectoral and occupational mobility
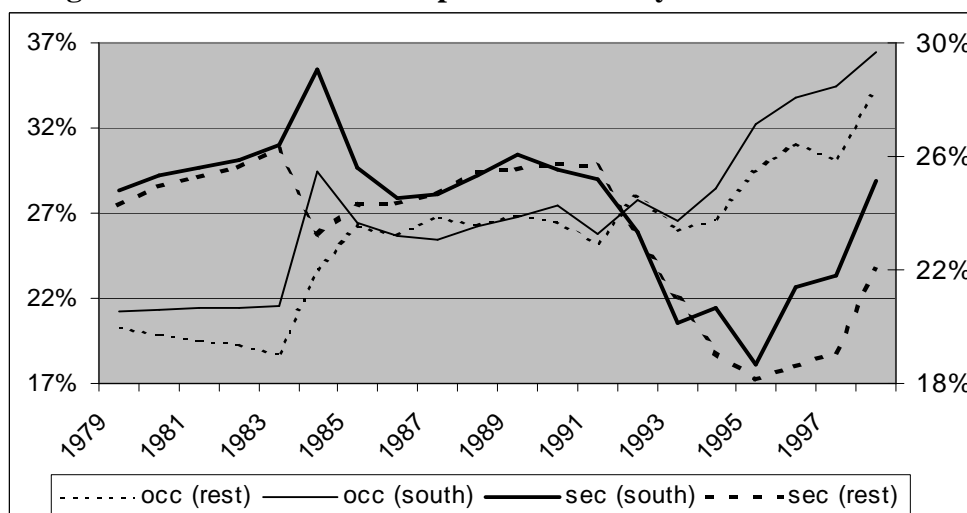
The differences are less significant in the case of weekend work, with the corresponding values in the mid-1980s (late 1990s) being 40% (60%) in the South and 44% (66%) in the other regions (Figure 7.4). What is important to note there, though, is the sharp increase of weekend work throughout the country during the late 1980s and early 1990s and the relative stabilisation thereafter.

Unlike shift-work, the increase in weekend work was pretty much the same in all regions. This might seem to suggest that deregulation in this area (allowing Sunday trading) has been more successful, in the sense that flexibilisation was more

widespread and spatially even. This, of course, could be due to the specific demand and supply conditions in the labour markets rather than because of a more careful deregulation legislation (in accordance with our theoretical analysis of chapter five). But in the absence of an objective measure against which one could evaluate the effectiveness of policy measures, both possibilities could be equally plausible.

Before we turn to the aggregate indicators, it is interesting to examine the evolution of sectoral and occupational mobility. As Figure 7.5 shows, occupational mobility (measured on the left vertical axis) has increased over time in all regions, despite relative stability during the period 1985-1992. In contrast, sectoral mobility (measured on the right vertical axis) seems to have declined sharply in the early 1990s, although it rose again with the economic recovery of the mid-1990s. Both measures of labour mobility have been very similar in the South and the rest of the country throughout the years. The same inferences are made for occupational mobility (and slightly less so for sectoral mobility) when we look at the individual regions. However, since these figures may be highly affected by changes in unemployment (and the business cycle in general), it is not clear whether the identified trends, given their relative cyclicality, reflect changes over time (and differences across space) of economic opportunities or the impact of labour market deregulation.[108]

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[108] We have not adjusted these figures for unemployment, as it was not clear whether this was necessary or even appropriate or just how the adjustment should be made. Specifically, according to some theoretical approaches (matching models of unemployment), labour mobility should increase when unemployment falls, as the probability of falling (and staying) into unemployment is lower and workers have a relatively higher expected payoff from searching for a different job. Alternative approaches, however, suggest that mobility might increase with the unemployment rate, as workers facing the threat of becoming (or remaining) unemployed are more willing to accept a job in a sector or occupation other than that of their expertise.

7.3.2. Aggregate indexes of regional labour market flexibility

Based on the regional labour market information we have collected, we created seven aggregate indexes. These are: internal numerical flexibility, external numerical flexibility, internal functional flexibility, wage flexibility, unemployment flexibility, wage bargaining flexibility and labour mobility. We also constructed an index of overall labour market flexibility based on these seven categories. Overall, eight aggregate indexes were thus created for the empirical analysis and are presented here. All the indexes are calculated as percentages of the highest value observed in the country (for a year- and region- specific observation).

Figure 7.6: Internal numerical flexibility
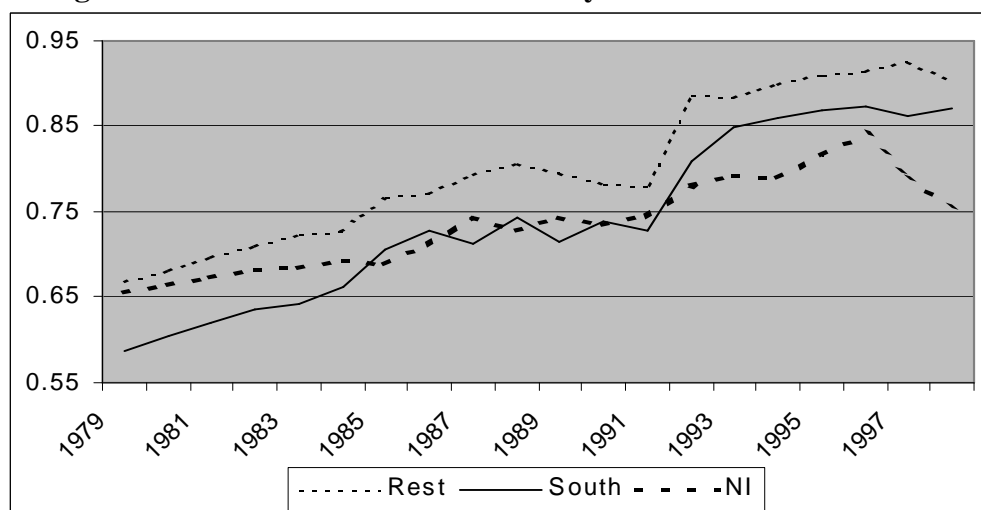
As already noted, internal numerical flexibility has been calculated on the basis of information about shift-work, work on weekends, overtime and workers' preferences over their hours of work. Figure 7.6 presents the plots for our three broad regional groupings, for the period 1979-1998 (individual regional data are presented in Appendix A.7.4). According to our data, this element of flexibility has -as expected- increased over the last two decades. This increase is more remarkable in the South (by 50% in 20 years) and is mostly attributable to East Anglia, which had the

most rigid labour market in terms of internal numerical flexibility in 1979. In the late 1990s, Greater London exhibited the highest rigidities in this respect, while the most flexible regional labour markets were those of Scotland and the North. Although flexibility was rather high in the early 1980s in N. Ireland, Figure 7.6 suggests that this region has diverged from the rest of the country. In contrast, disparities in internal numerical flexibility between the South and the other regions have been declining at least until the mid 1990s. The same trend is observed when examining the individual regions of Britain (see Appendix A.7.4).

A rather similar picture is observed for the case of external numerical flexibility (part-timing and temping). The South seems to converge with the rest of Britain, while flexibility in N. Ireland seems to remain lower throughout the period. In the 1990s, the South is effectively identical to the other regions. Unlike the case of internal numerical flexibility, though, in this case convergence seems to have been facilitated not only by a faster increase in the South but also by the relative stability throughout the rest of the country (Figure 7.7).

Figure 7.7: External numerical flexibility
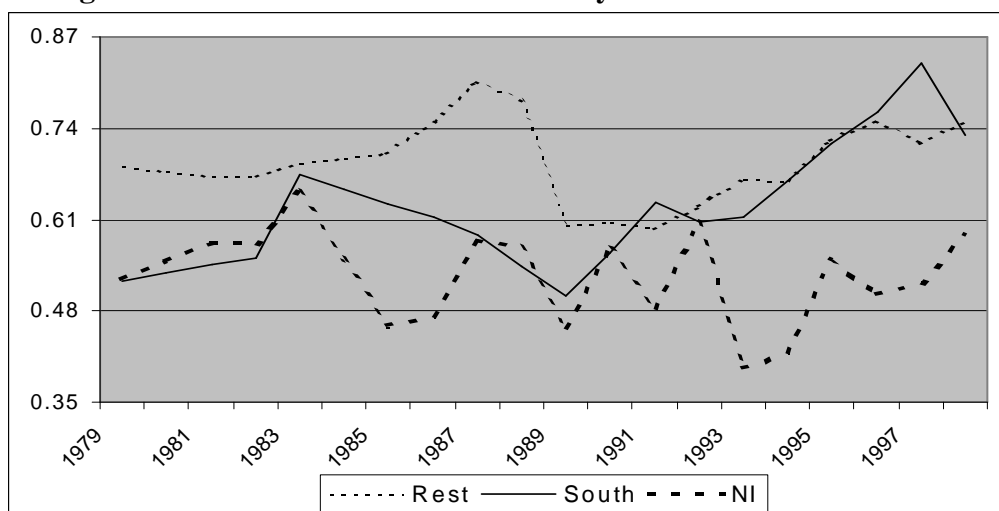
Figure 7.8: Numerical flexibility (overall)
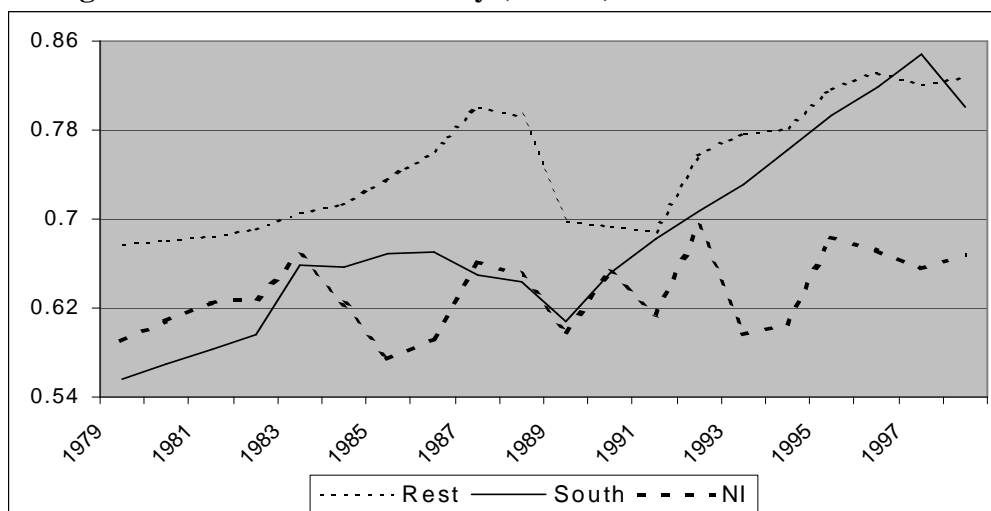
Figure 7.8 presents the evolution for overall numerical flexibility. There is a clear trend of the South converging towards the rest of the country in the 1990s. Specifically, while in the 1980s numerical flexibility in the South was practically in line with that of N. Ireland, in the 1990s the South moved much closer to the other British regions, while N. Ireland experienced minor increases in numerical flexibility. On the other hand, N. Ireland has experienced a dramatic increase in internal functional flexibility during the 1990s (Figure 7.9). This element of flexibility in N. Ireland doubled between 1979 and 1992, but increased by five times in the period 1992-1998. On the contrary, internal functional flexibility in Britain, while increasing during the 1980s, followed a declining path during the 1990s. Regional differences (in Britain) in internal functional flexibility do not seem to be significant.

The evolution of internal functional flexibility in the UK results in a picture of overall internal flexibility that is quite different from what we saw with respect to overall numerical flexibility (Figure 7.10). Internal flexibility increased evenly across space in the UK during the 1980s. In the 1990s, however, it remained stable (if not declined) in Britain, while it increased dramatically in N. Ireland. Unfortunately we could not collect data on external functional flexibility to see whether the sharp

increase of the internal element in N. Ireland during the 1990s has been complemented by a possible decline in external functional flexibility. This relationship of substitutability seems possible, especially given the relative substitutability between internal and external numerical flexibility (compare N. Ireland in Figures 7.6 - 7.8). Without information on elements of external functional flexibility, it is not possible to infer on the evolution of flexibility in the labour input, on aggregate. However, it seems safe to conclude that during the last two decades flexibility in the labour input has increased in the UK, although this increase is mostly attributable to the increase in numerical flexibility in the South and functional flexibility in N. Ireland.

The next three indicators (flexibility in wages, unemployment benefits and wage bargaining) refer to the determination of labour costs. Wage flexibility (with respect to unemployment) has been relatively stable across regions and over time, with an average value for the UK as a whole of –0.20 (t-statistic in the pooled regression -3.005). According to our first measure of regional wage flexibility (see Appendix A.7.2), wage flexibility has been highest in the South and lowest in N. Ireland. According to our second measure, cross-regional variations were much less clear. Both measures, however, show evidence of further convergence in the 1990s. Figure 7.11 presents the mean value of the two measures of wage flexibility.

Figure 7.9: Internal functional flexibility
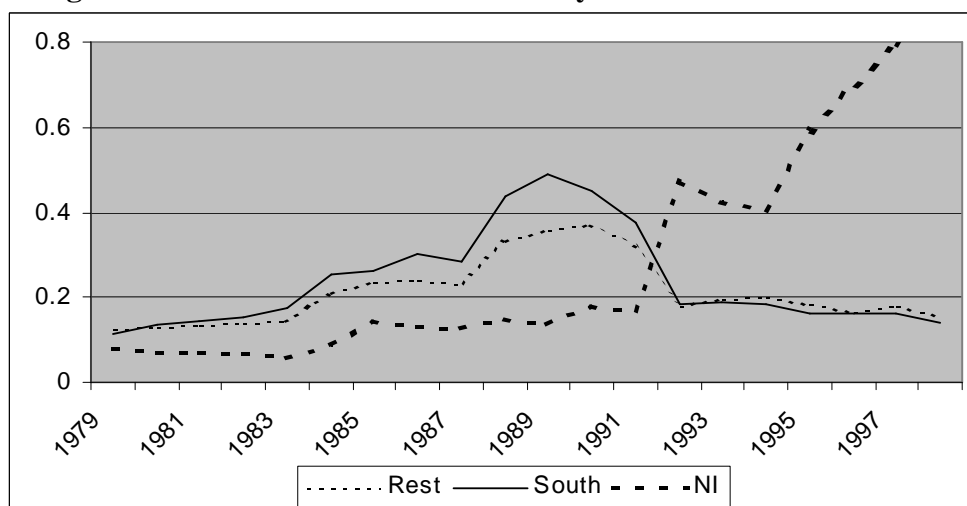
Figure 7.10: Internal flexibility (overall)
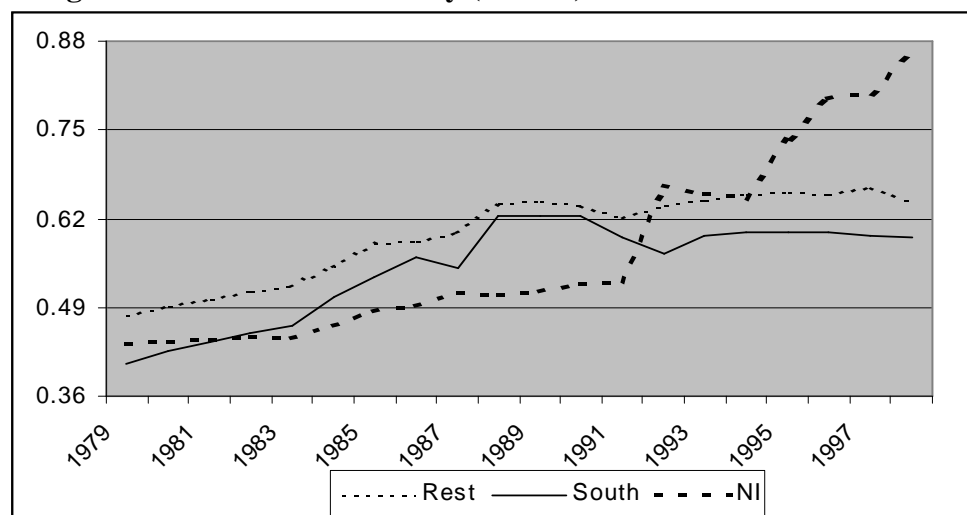
As with wage flexibility, unemployment flexibility (effectively, the inverse of the real replacement ratio of unemployment benefits) has been highest in the South and lowest in N. Ireland throughout the period (Figure 7.12). Despite the difference in their levels, however, the movement of unemployment flexibility in the three broad regions is almost perfectly identical. Given the way that this variable was constructed, it is evident that this homogeneity is due to the fact that there is significantly little variation in the characteristics of the average unemployed person across regions over time. But it is important to note here the implications of what is presented in Figure

7.12. If unemployment flexibility is consistently lower outside the South and if policy-makers believe that unemployment flexibility is essential for lowering unemployment, then it is clear that a regionally-differentiated rather than a flat national replacement ratio (with lower unemployment benefits in low-wage regions) is the optimal policy measure.

Figure 7.11: Wage flexibility (overall)
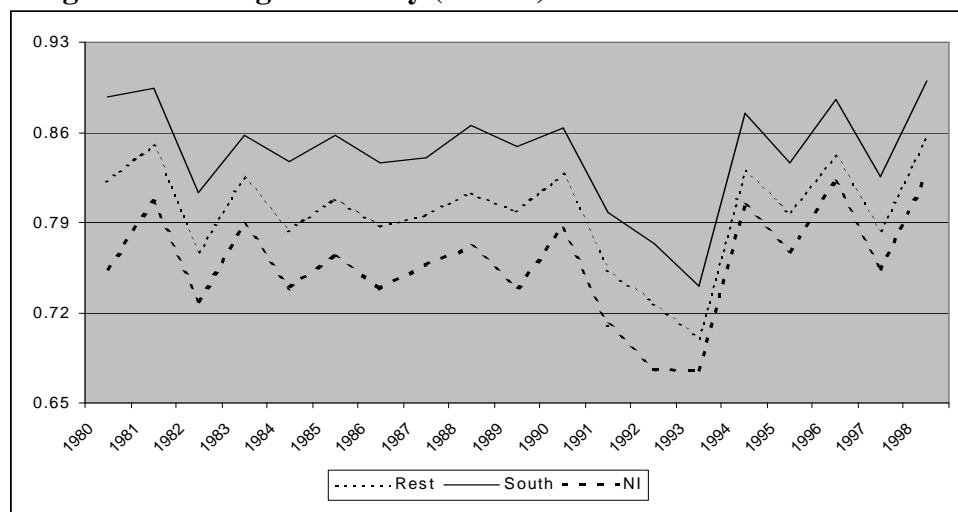
Figure 7.12: Unemployment flexibility
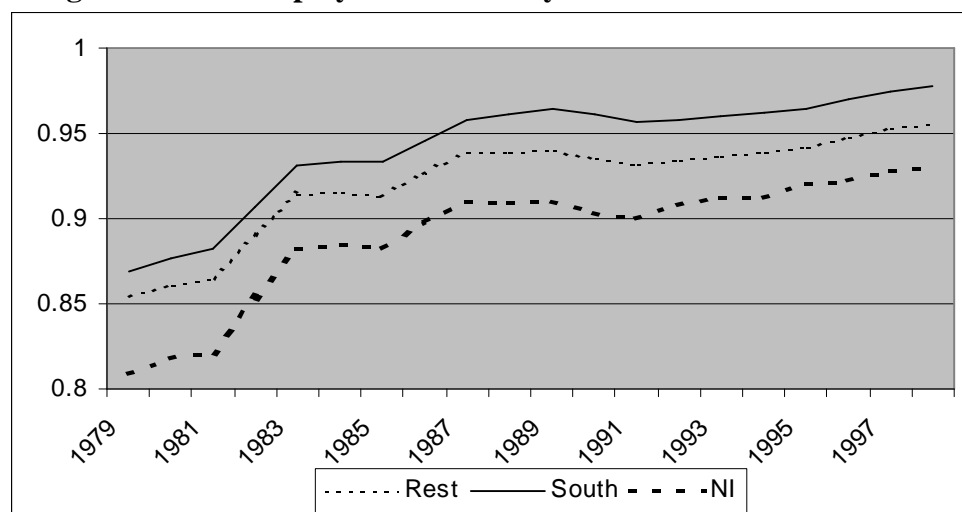
Figure 7.13: Wage bargaining flexibility
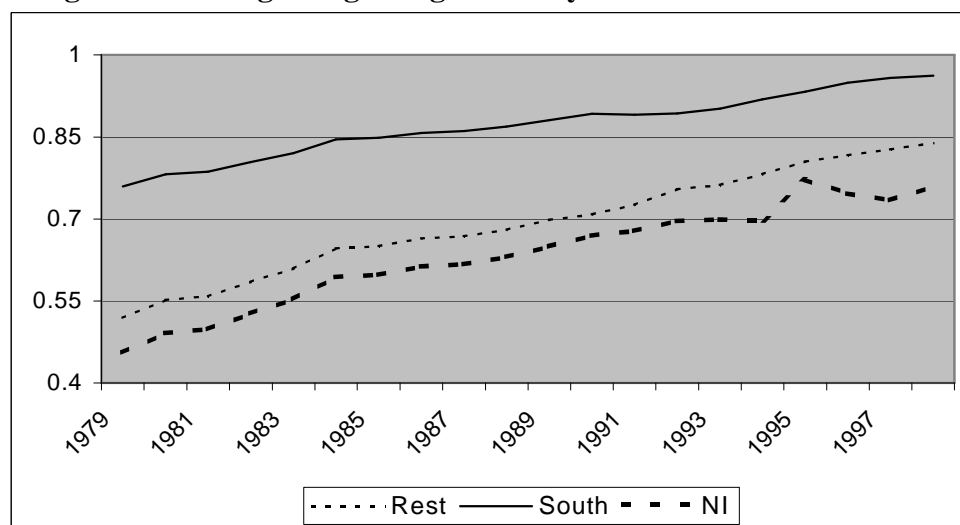
Figure 7.14: Flexibility in wage determination
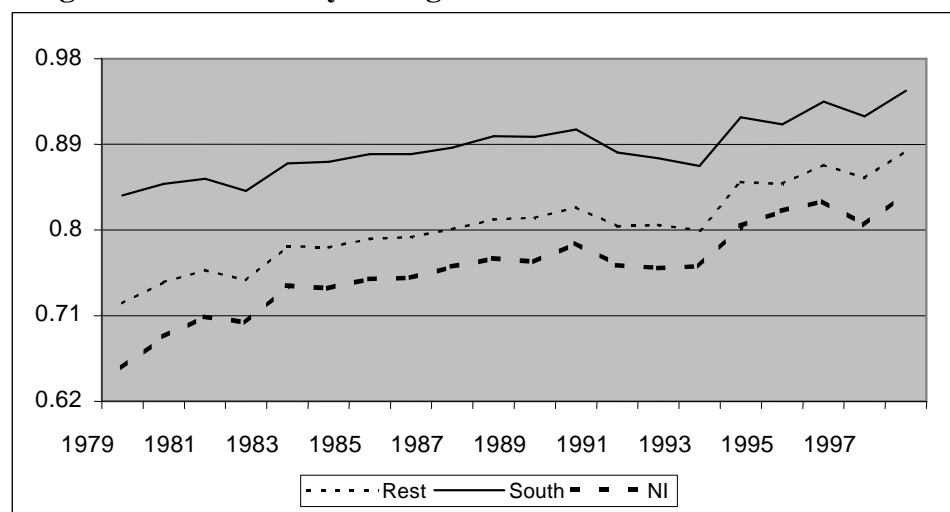
The last measure of flexibility in wage determination is flexibility in the wage bargaining processes. As we mentioned earlier in this chapter, it was impossible to construct a consistent time-series of regional data for union power and the centralisation of wage bargaining. Hence the measure of wage bargaining flexibility presented in Figure 7.13 is effectively the inverse of the constructed series for union density. As with the other measures of this category, flexibility in wage bargaining has been consistently higher in the South (and lower in N. Ireland), despite our controls for sectoral composition. Like unemployment flexibility, it has increased

over time in all regions. The increase has been faster outside the South and so real convergence has occurred. Comparing the trends across the 12 regions, the coefficient of variation for this index has more than halved in the 20 years of our sample, while the rank correlation between the regional figures of wage bargaining flexibility for 1979-1981 and 1996-1998 is 0.98.

The aggregate picture of overall flexibility in the determination of wages shows a clear increasing trend over time (Figure 7.14). Additionally, it offers strong evidence of convergence among all the UK regions. The South, however, has consistently higher levels of this element of flexibility. This finding is in contrast to what we observed for the case of flexibility in the labour input and, more specifically, for numerical flexibility. The extent to which this reflects a wider pattern that can be explained by other factors (e.g., labour shortages in the South or regional differences in the technology of production) is not known.

Figure 7.15: Labour mobility
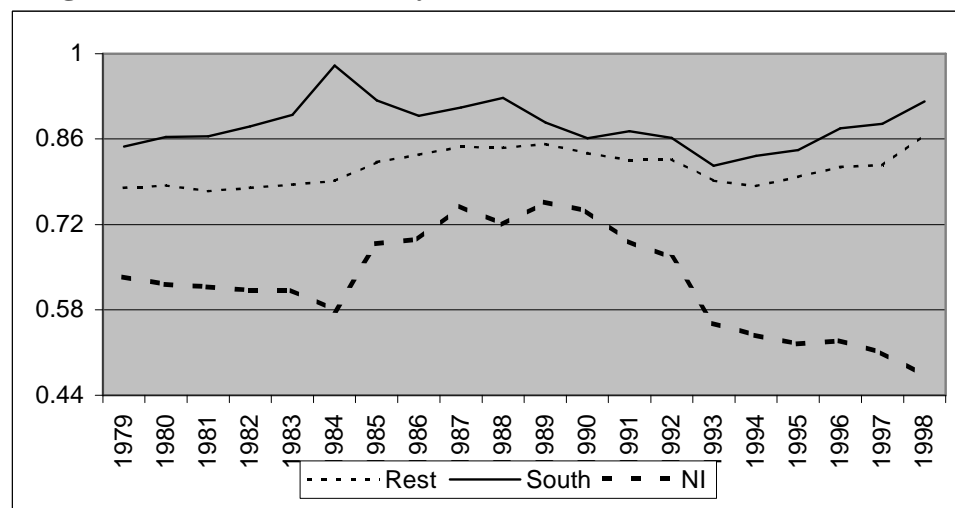
The last aggregate measure we have identified is labour mobility, which consists of sectoral, occupational and regional mobility and length of job tenure. Figure 7.15 presents this measure, again for the three broad regions. The picture we

obtain most resembles that for the evolution of flexibility in the labour input, as shown in Figures 7.6 - 7.10. The South seems to converge slowly with the rest of Britain, while N. Ireland seems to follow a different trend. However, there is also a similarity with the behaviour of flexibility in labour costs (wage determination): the South has been more flexible throughout the period of study. Overall, one cannot identify any major changes in labour mobility over the last two decades. For most of the regions labour mobility was higher in the late 1980s and 1990s, but the cyclicality identified in Figure 7.5 with respect to sectoral and occupational mobility remains here for the overall measure.

7.3.3. Overall labour market flexibility in the UK regions

In retrospect, labour market flexibility in the UK regions seems to have followed a consistent upward path across all regions. Regional differences exist, but in most of the cases we observe at least some convergence (although in many respects N. Ireland is an outlier). The main source of difference in flexibility is between its different elements, rather than across regions.

At first it might seem difficult to combine all the information reviewed above into one index. It might seem likely that -exactly because of the variation in the evolution of the more detailed indexes- a comprehensive index of labour market flexibility would eliminate most of the information our indexes offer. However, the evolution of the aggregate index of labour market flexibility (Figure 7.16) reflects in a surprisingly clear way what one would have expected.

Figure 7.16: Flexibility in the regional labour markets (UK, 1979-1998)
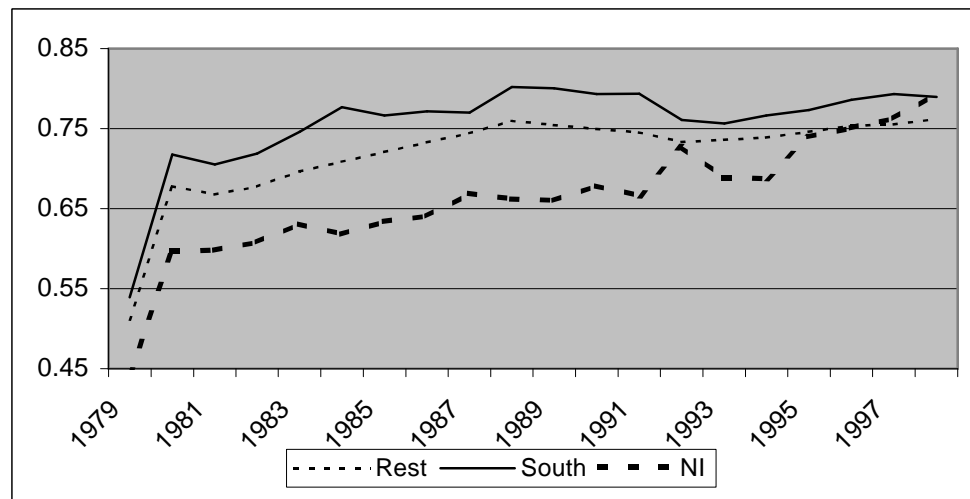
Following labour market deregulation in the early 1980s, labour market flexibility increased throughout the period. The increase was faster the lower the initial levels of flexibility in a region. Hence, overall labour market flexibility increased less in the South (by around 10% between 1980 and 1998) than in the rest of Britain (around 12.5% in the same period) and much faster in N. Ireland (around 32.5%). This has resulted in a substantial decline in the regional variation of labour market flexibility. The UK regional labour markets seem to have a much more uniform set of institutions and labour relations by the late 1990s compared to the situation twenty years earlier. We further investigate this question, in a more formal way, in the next section.

7.4. The evolution of flexibility in time and space

The previous section offered a detailed presentation of labour market flexibility and its evolution over time and across space for the UK and its regions. In some cases, inferences were made about the evolution of regional disparities in specific elements of labour market flexibility. We extend this discussion in the next

section, by performing a more formal analysis of convergence. Furthermore, we relate this analysis to the discussion of chapter six, where specific assumptions were made about the evolution of labour market flexibility.

7.4.1. The research hypotheses

As discussed stringently in chapter six, labour market deregulation was considered especially in the 1980s as a complementary policy tool for regional economic convergence (DTI, 1983). Economic orthodoxy supports this view, as it suggests that the removal of wage rigidities and binding employment contracts allows wages and labour costs to fall to their market clearing levels. In backward regions with high rates of unemployment and low productivity, this translates into a larger decline in labour costs and hence faster economic growth. Apparently, the more intensive the deregulation of labour relations, the faster (and more likely) the convergence of regional economies. To test the empirical validity of these views, we consider here the spatial distribution of labour market flexibility and its evolution over time, relating labour market flexibility to the level of regional disparities in per capita output. We first examine the extent to which changes in labour market flexibility over the period 1979-1998 have been spatially uneven. We then relate this evolution to three theoretical assumptions: that, following a spatially uniform (nation-wide) deregulation programme, flexibility (i) increased more "where most needed", that is, in the most backward regions; (ii) increased more "where most likely", that is, in the regions with the least flexible labour relations at the beginning of the period; (iii) increased randomly, that is, without a systematic spatial pattern.

Understandably, these three assumptions have very different implications for the role of labour market deregulation and flexibility on regional convergence and,

thus, regional and national economic performance. Take the example of deregulation in employment contracts. According to the first assumption, firms in backward regions will make more extensive use of casual employment to compensate for their low profitability. This will generate faster employment growth in these regions (relative to the more prosperous ones –other things equal) and foster regional convergence. According to the second assumption, however, whether firms in a region will make more use of casual employment will not depend on the region's economic position, but rather on the initial level of flexibility in its labour market. The argument is that, with deregulation, flexibility increases faster in the more rigid labour markets, with the implication that deregulation generates regional convergence in the levels of flexibility. To the extent that labour market flexibility ameliorates economic performance, this will further lead to convergence in economic outcomes. Finally, the third assumption states that changes in labour market flexibility need not have any (systematic) spatial variation and, hence, that the regional equilibria will not be altered by changes in the regulation of labour relations or the flexibility of labour markets.

7.4.2. Convergence and divergence in flexibility and incomes

In this sub-section we undertake a formal investigation of the relationship between labour market flexibility and the growth of flexibility and incomes at the regional level, in accordance with the three hypotheses presented above. The first of these hypotheses suggested that flexibility growth is faster in backward regions. The second related flexibility growth to the initial levels of flexibility. We first look at the second hypothesis, examining whether the UK regions have converged in terms of

labour market flexibility over the two decades of our analysis and of labour market deregulation.

One way of looking into this question is by using the concept of sigma-convergence. Figures 7.17-7.19 plot the evolution of the standard deviation of three measures of flexibility over the two decades of our analysis. Figure 7.17 clearly shows that regional dispersions in labour-input flexibility have followed an upward trend, despite being rather cyclical. This trend was mainly determined by the behaviour of internal flexibility, as dispersions in external numerical flexibility have been rather constant.[109] Figure 7.18 presents the evolution of regional dispersions in the flexibility of wage determination. This time the plot shows clear sigma-convergence, with the implication that, following deregulation, the UK regions made a more even use of flexible patterns of wage determination. Overall, regional labour market flexibility dispersions have declined, especially after the mid-1980s (Figure 7.19).

Figure 7.17: Regional dispersions in labour-input flexibility

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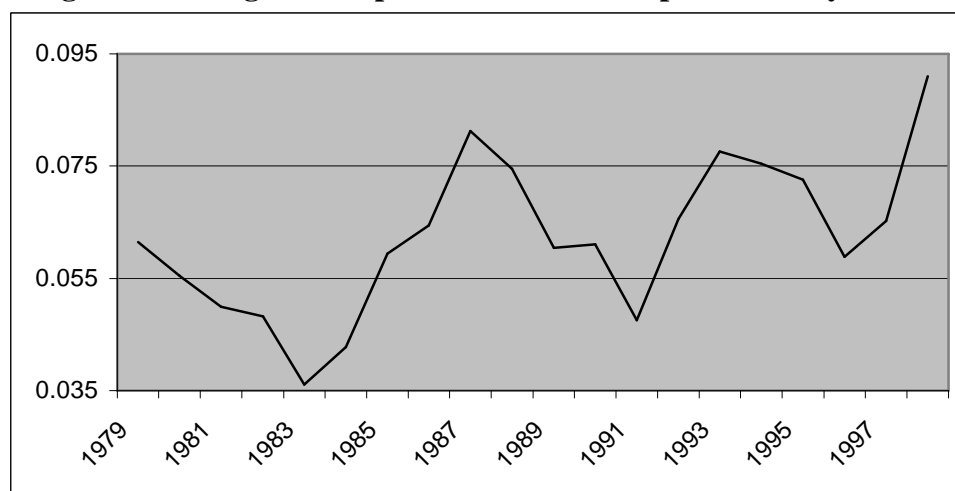
[109] Flexibility in the labour input has been calculated as the average of numerical (internal plus external) and internal functional flexibility.

Figure 7.18: Regional dispersions in flexibility in wage determination
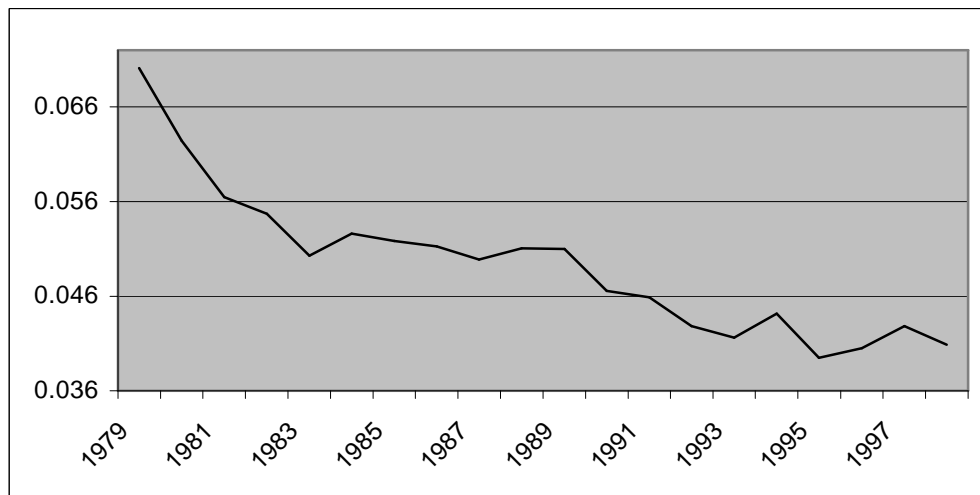
Figure 7.19: Regional dispersions in overall labour market flexibility
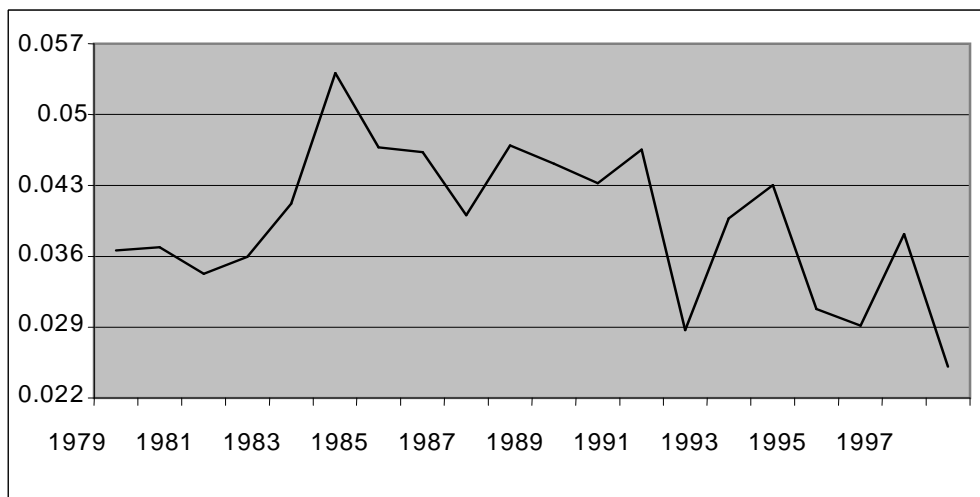
An alternative way to look at these issues is by examining beta-convergence (Barro and Sala-I-Martin, 1995). Table 7.2 presents the results obtained from some unconditional convergence regressions on our main labour market flexibility indicators. Three regressions are presented for each measure of flexibility. The first regression from each triplet tests the unconditional beta-convergence hypothesis, which corresponds to our second research hypothesis.

Table 7.2: Regional convergence and divergence in labour market flexibility

Dependent variable (growth)	Constant	Initial level of flexibility	Initial GDP pc	R-squared
	0.063 (3.47)	-0.071 (-2.57)	-	0.40
Internal Numerical Flexibility	0.066 (2.51)	-0.071 (-2.44)	-3.6e-07 (-0.18)	0.40
	0.014 (0.74)	-	3.2e-07 (0.14)	0.002
	0.060 (5.61)	-0.082 (-4.92)	-	0.71
External Numerical Flexibility	0.009 (0.41)	-0.074 (-5.50)	5.9e-06 (2.73)	0.84
	-0.060 (-1.82)	-	8.6e-07 (2.08)	0.30
	0.055 (4.44)	-0.061 (-3.46)	-	0.54
Total Numerical Flexibility	0.029 (1.39)	-0.055 (-3.21)	2.8e-06 (1.54)	0.64
	-0.020 (-1.06)	-	4.2e-06 (1.72)	0.23
	0.246 (5.11)	-1.844 (-4.78)	-	0.70
Internal Functional Flexibility	0.417 (5.56)	-1.441 (-4.23)	-0.00003 (-2.65)	0.83
	0.400 (3.24)	-	-0.00005 (-3.09)	0.49
	0.112 (2.49)	-0.211 (-2.08)	-	0.30
Total Internal Flexibility	0.186 (5.60)	-0.195 (-3.09)	-0.00001 (-4.12)	0.76
	0.104 (3.85)	-	-0.00001 (-3.17)	0.50
	0.021 (6.03)	-0.023 (-6.03)	-	0.78
Wage Flexibility	0.022 (5.93)	-0.030 (-3.80)	5.9e-07 (1.00)	0.81
	0.011 (3.12)	-	-1.4e-06 (-3.12)	0.49
	-0.046 (-3.10)	0.061 (3.25)	-	0.51
Labour Mobility	-0.046 (-2.78)	0.060 (2.16)	1.5e-08 (0.01)	0.51
	-0.030 (-1.75)	-	4.1e-06 (1.88)	0.26
	0.022 (3.82)	-0.019 (-2.80)	-	0.44
Unemployment Flexibility	0.028 (3.84)	-0.030 (-2.82)	3.8e-07 (1.33)	0.53
	0.008 (4.40)	-	-2.6e-07 (-1.15)	0.12
	0.051 (22.16)	-0.051 (-13.31)	-	0.95
Wage-Bargaining Flexibility	0.041 (7.88)	-0.056 (-13.10)	1.6e-06 (1.96)	0.96
	0.060 (2.79)	-	-4.9e-06 (-1.82)	0.25
	0.043 (4.26)	-0.043 (-3.36)	-	0.53
Overall Flexibility	0.041 (3.58)	-0.036 (-1.66)	-4.5e-07 (-0.39)	0.54
	0.024 (4.07)	-	-1.9e-06 (-2.57)	0.40

Note: All regressions have been estimated with OLS. T-statistics are in parentheses.

Clearly, for all measures of flexibility except labour mobility, there is strong evidence of unconditional beta-convergence.[110] The fit of the regressions is sufficiently high and all coefficients are significant at any conventional level of significance. The results are robust to the inclusion of the initial level of real output

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[110] This does not contradict the finding of sigma-divergence in labour-input flexibility of Figure 7.17. The inconsistency between the two findings suggests that the previously more rigid regional labour markets have now become the more flexible ones. This is in line with our discussion of Figures 7.6-7.10. When we rerun these regressions excluding Northern Ireland, the results were largely the same. However, there was no evidence of convergence in unemployment flexibility and labour mobility across the British regions. This further resulted in a weakening of the significance of the convergence effect for the un-weighted measure of overall flexibility.

per capita output, which can serve as a control for conditional convergence (second regression in each triplet). Despite the fact that the inclusion of this variable increases the fit of many of the regressions, the estimated beta-coefficients are largely unaffected. It is rather safe, then, to conclude that over the twenty-year-period labour relations in the UK regions became more flexible and more so in the more inflexible regions, resulting in real convergence in labour market flexibility.[111]

The third regression corresponding to each measure of flexibility tests the "where most needed" hypothesis. According to this hypothesis, one would expect that labour market flexibility would advance faster in the more backward regions, i.e., the regions with the lowest levels of GDP per capita. The evidence obtained from this set of regressions is not as straightforward as in the previous case. Overall labour market flexibility has grown faster in less favoured regions. Figure 7.20 reveals a significant positive relationship between growth of overall labour market flexibility and output growth. Similarly, Figure 7.21 reveals a negative relationship between flexibility growth and the initial levels of regional output.

Nevertheless, the results presented in Table 7.2 suggest that this pattern is mostly related to three specific elements of labour market flexibility, namely internal functional flexibility, wage flexibility and flexibility in wage determination (trade unionism). In contrast to this pattern, external numerical flexibility and labour mobility seem to have grown faster in the more developed regions of the UK, while for elements like internal numerical flexibility and unemployment flexibility there is no evidence of a relationship between level of development and growth of flexibility in the labour market.

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[111] We need to note here, however, that important reservations to the concept of beta-convergence have been expressed in the literature (see Quah, 1996; Cheshire and Magrini, 2000), reducing the confidence one can have in using this analytical tool.

Figure 7.20: Flexibility growth and regional GDP growth
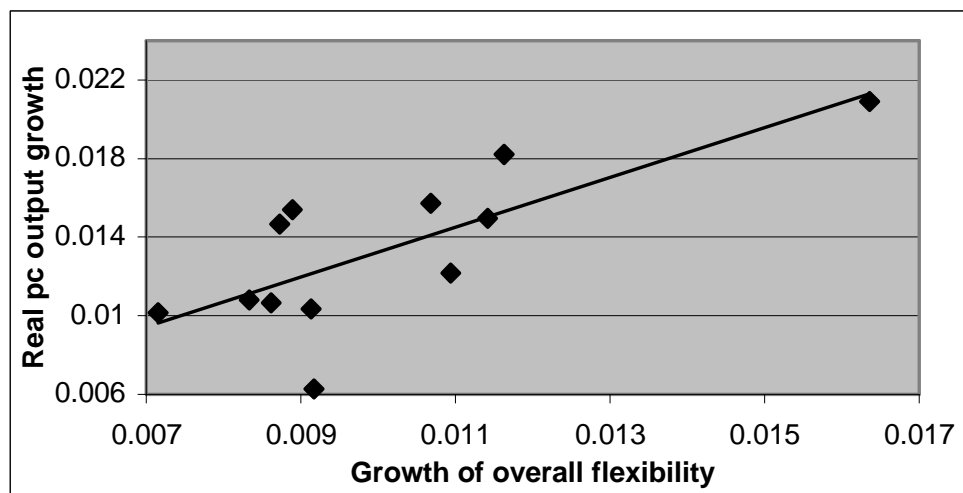
Figure 7.21: Flexibility growth and regional GDP
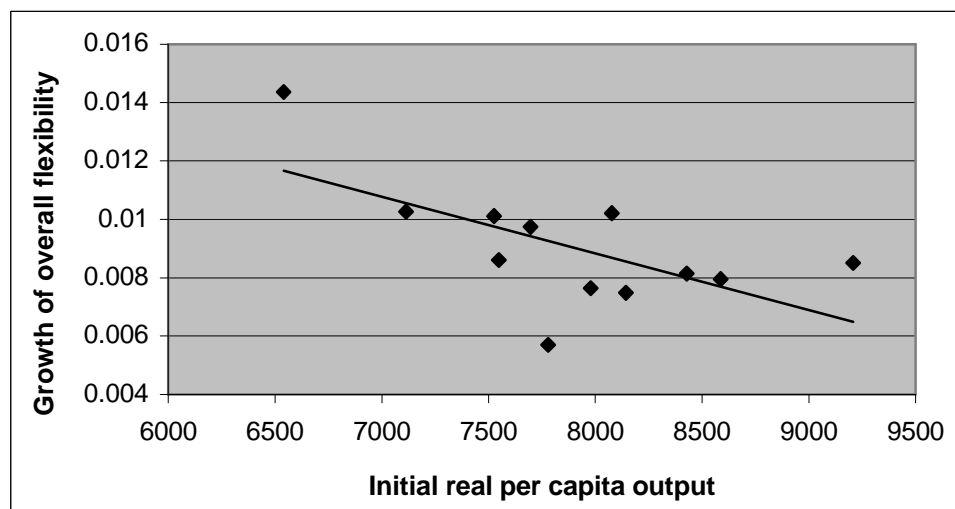
This finding gives some support to the third hypothesis, that of a random increase of labour market flexibility across space. Although one cannot draw firm conclusions and confidently approve one hypothesis over another, we think that the results obtained in Table 7.2 suggest that the cross-regional patterns of change in labour market flexibility are not universal for all of its elements. Specifically, some elements of flexibility, probably those related mostly to direct labour costs, show signs of regional convergence, in the sense that backward regions make increasingly more use of such forms of flexible labour relations.

In contrast, elements of flexibility related mostly to labour demand seem to have increased faster in more advanced regions. Although the finding regarding overall flexibility apparently supports the conventional policy view of deregulation fostering regional convergence, the findings obtained for the more detailed indexes are more compatible with institutional explanations regarding the social structure of economic behaviour. From such a perspective, it could be argued that labour market deregulation has allowed more advanced regions to adopt more flexible forms of labour use, while for more backward regions deregulation only facilitated the compression of labour compensation, thus reducing labour costs. The extent to which this was a necessary condition for the less favoured regions to catch up to the more advanced ones, is a question that the analysis performed here cannot answer.

7.4.3. Labour market flexibility and regional economic dispersions

One way of obtaining insights into this issue is to assess empirically the role that changes in labour market flexibility and its regional variation had on regional dispersions in economic aggregates. If the differences in the patterns of regional evolution for the various elements of labour market flexibility are systematic -if in other words the scenario of deregulation leading backward regions to choose the "wrong" elements of flexibility is correct- then the empirical analysis should reveal an insignificant or a positive relationship between regional economic dispersions and labour market flexibility. For the regional convergence hypothesis to hold, it should be that regions converge with labour market deregulation and, consequently, with enhanced labour market flexibility.

Table 7.3.: The impact of flexibility on regional disparities

Variables	Unemploy ment	Real wages	Empl. growth	Empl/pop ratio	GDP pc growth	Invesment	Prod/vity
Constant	-2.417	-9.970	0.218	0.099	0.006	-1322.77	7.569
	(-1.30)	(-0.28)	(0.43)	(1.04)	(0.05)	(-0.88)	(0.81)
Lag of dependent	0.614	0.094	-0.093	0.215	0.331	0.424	0.146
	(4.09)	(0.26)	(-0.35)	(1.08)	(1.29)	(1.89)	(0.60)
Flex. in labour input	5.105	-36.829	0.310	-0.349	0.178	928.43	-26.612
	(1.27)	(-0.90)	(0.52)	(-2.87)	(1.17)	(0.59)	(-2.13)
Flex. in wage determination	4.767	17.303	-0.263	0.250	-0.054	754.68	15.945
	(1.87)	(0.34)	(-0.41)	(2.24)	(-0.31)	(0.38)	(1.48)
Flex. in wage bargaining	-5.449	41.090	-0.187	-0.096	-0.066	1459.30	-4.725
	(-2.98)	(2.08)	(-0.72)	(-1.88)	(-1.06)	(1.87)	(-1.10)
R-squared	0.93	0.51	0.05	0.88	0.35	0.76	0.74
Heterosk/city	1.39	0.02	7.09	1.67	2.17	0.35	0.87
	0.24	*0.89*	*0.01*	*0.20*	*0.14*	*0.56*	*0.35*
DW	1.84	2.01	1.98	1.82	2.35	1.77	1.67

Notes: All regressions have been estimated using OLS. t-statistics in parentheses, probability levels in *Italics*. Heteroskedasticity is the Cook-Weisberg chi-square test. DW is the Durbin-Watson statistic.

Table 7.3 presents a set of regressions for the standard deviation of our main economic indicators, namely unemployment, employment growth, the employment-population ratio, wages, investment, per capita output growth and productivity. Each dependent variable is regressed on the weighted (national) averages of three aggregated elements of labour market flexibility (flexibility in labour input, flexibility in wage determination and trade unionism).[112] A lagged term of the dependent variable is also included in each regression to control for the possible non-stationarity of our series.[113] Despite their simplicity, the performance of the regressions is very good. The fit of the regressions ranges from satisfactory (wages and GDP growth) to rather high. With the exception of the employment growth regression, the assumption of homoskedastic residuals cannot be rejected at any acceptable level of significance.

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[112] We used these aggregations mainly in order to avoid problems of collinearity. Qualitatively, the results presented here are similar to those that we obtained using the more detailed indexes in backward selection regressions.

[113] Due to the relatively small sample size of these time-series regressions, we avoided using more advanced time-series econometric methods and testing for unit roots and co-integration. The AR1 specification, however, should correct much of the resulting bias in our estimates.

Further, in most of the cases the Durbin-Watson statistic indicates that there is no serial autocorrelation in the residuals. The AR1 coefficients are rarely significant (only for unemployment and, less so, for investment), suggesting that non-stationarity is not a serious problem.

As the results show, there is little evidence to support that increases in labour market flexibility are related to a narrowing of regional economic dispersions. Of the twenty-one flexibility coefficients that we estimated, only ten are negative and, of them, only four are significant. On the other hand, only another four coefficients are positive and significant at the 10% level. Flexibility in the labour input seems to have helped narrow regional dispersions in productivity and labour force participation. In the same way, the decline of trade unionism seems to have caused regional convergence in labour force participation and unemployment, although it helped to widen regional wage inequalities. In contrast, flexibility in wage determination has had the opposite effect, increasing regional disparities in unemployment rates and labour force participation. Overall, these results seem to offer stronger support to the first rather than to the second scenario, as explained above. This is a surprising rejection of the assumptions of regional policy, especially as the main benefits of labour market deregulation are expected to arise from enhanced wage flexibility, which we have found to be the element most strongly related to regional divergence. In light of these findings, it seems that regional specialisation in specific elements of flexibility (cluster convergence) than general convergence in the levels of flexibility is what characterised the UK and its regions over the last two decades.

In the next section we review the evolution of some main economic aggregates for the regional economies of the UK over the period 1979-1998. The

discussion will focus mainly on the issue of regional disparities and on the relation between the evolution of the economic and labour market flexibility indicators.

7.5.   The regional economic performance of the UK, 1979-1998

The 1980s and 1990s is a rather heterogeneous period in terms of both regional and national economic performance. The period begins with a serious recession in 1979-1982, followed by a period of recovery, while a new recession occurs in the early 1990s. Since then, economic recovery has been fast and a good economic performance has been sustained. However, regional economic performance has not been uniform. Although it can be argued that in many respects the UK regions behave like mini-economies with a common business cycle (Duranton and Monastiriotis, 2000), as the discussion of this section reveals, there are important differences over time and across space.

One of the most important indicators of economic performance is unemployment. Unemployment in the UK has followed a cyclical path, with low values in the late 1970s, 1980s and 1990s and high values in the mid 1980s and 1990s. Consistent with the mini-economies hypothesis, this business cycle was followed by all regions (Martin, 1997). Regional unemployment shows some remarkable persistence in that regional rankings in terms of unemployment rates remain stable despite changes in average unemployment rates. The most significant exception is Greater London, which had the lowest unemployment rate in the early 1980s but one of the highest unemployment rates in the mid-1990s. Figure 7.22 presents regional unemployment rates for our three broad regions. Northern Ireland and the non-South regions of Britain have historically higher unemployment rates than the South. Figure 7.22 suggests that in the 1990s there was a trend towards

regional convergence in unemployment rates. However, this convergence was due to the much faster increase in unemployment in the South, rather than to a decline in unemployment rates in the rest of the country (Armstrong and Blackaby, 1998). It is also interesting to note that regional dispersions in long-term unemployment rates have remained rather stable until at least the early 1990s (Martin, 1993a).

The evidence of slow convergence observed in Figure 7.22 can also be contradicted when taking a more careful look at regional disparities in unemployment rates. Figure 7.23 presents two measures of regional disparities. The right vertical axis measures the coefficient of variation (controlling for average unemployment rates), while the left vertical axis measures the standard deviation of regional unemployment rates. Although the evolution of the standard deviation measure indicates regional convergence in the early 1990s, as the evolution of the coefficient of variation illustrates, regional disparities in unemployment rates have steadily increased since the mid-1990s.[114] Moreover, regional convergence was occurring in the early and mid-1980s, despite the overall increase in unemployment rates.

Figure 7.22: Regional unemployment

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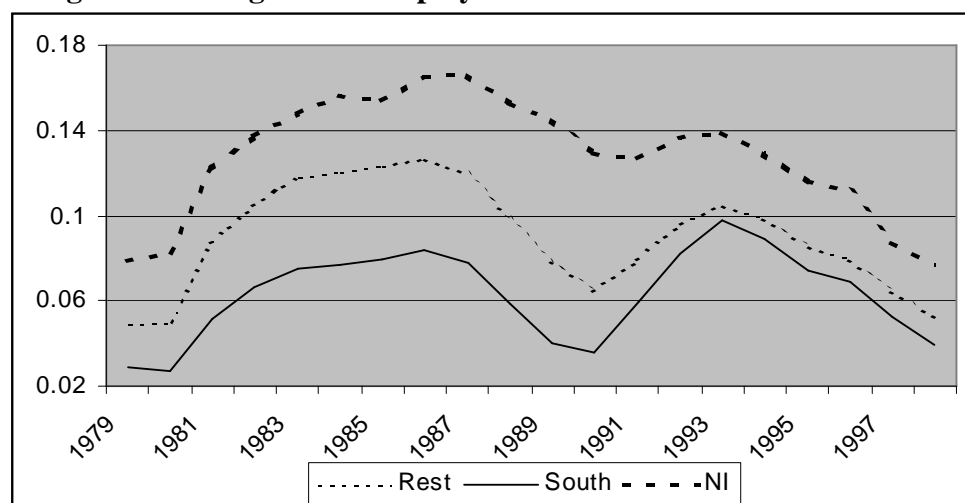
[114] Such an evolution was accurately predicted by some authors in the early 1990s (for example, Wilkinson, 1992 and Martin, 1993b).

Figure 7.23: Regional disparities in unemployment rates (12 regions)
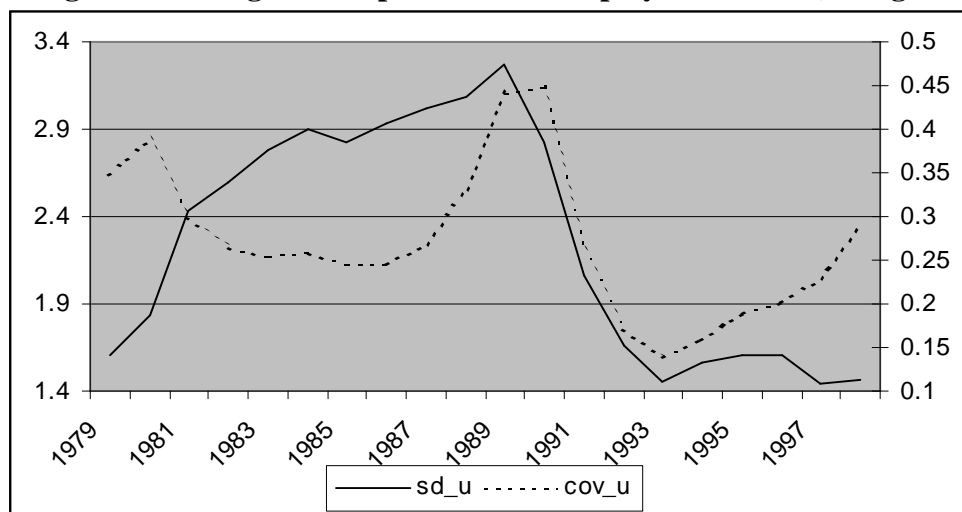
The same period (the 1980s) was also one of regional convergence in real wages. Since then, however, real wage disparities have increased and this trend continues today. This was mainly due to the South experiencing faster wage growth rates and house price inflation in the 1990s than the rest of Britain (especially between 1989 and 1993). N. Ireland, however, converged to the British real wages, experiencing a remarkable real wage growth in the period 1983-1993 (Figure 7.24).

Figure 7.24: Regional real wages
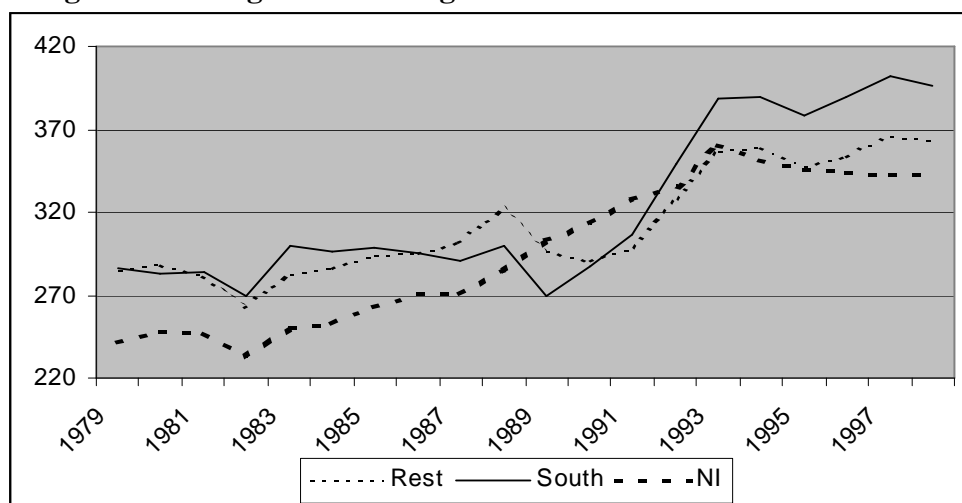
When looking at wage disparities, though, one has to note the following. Regional disparities in real wages form a very small component of overall wage inequalities in the UK. Most of the wage inequalities are located within regions and relate to individual earnings. As we have shown elsewhere (Monastiriotis, 2000), the vast increase in cross-personal wage inequalities has been due to a widening in wage differentials across occupations. Cross-regional differences in within-regions wage inequalities have declined over the last two decades, thanks both to a convergence in the price of human capital characteristics and of the distribution of these characteristics across regions. Duranton and Monastiriotis (2000) have shown that the wide increase in cross-personal wage dispersions over the period 1982-1997 has been mainly due to the very substantial increase of the returns to education over the period. Regional convergence in educational attainment rates has helped contain much of the increase within regions.

As Figure 7.24 shows, regional performance in terms of real wages is slightly less uniform than that of unemployment rates. The same is true for the cross-regional evolution of real productivity (real output per employee). The evolution of real productivity across regions strongly resembles that of real wages, with all regions experiencing real productivity gains in the 1990s (Figure 7.25). N. Ireland is again the exception, experiencing productivity growth in the period 1983-1993. After the early 1990s regional disparities in real productivity have increased in Britain, as the South overtook the rest of the country in terms of productivity levels. The highest rates of productivity growth are observed in Greater London. The relation between productivity and wages has remained fairly stable since the mid-1980s in all regions. Nevertheless, the South has consistently higher wages -relative to productivity- than the rest of Britain, while N. Ireland is again at a much lower equilibrium.

Figure 7.25: Regional real productivity
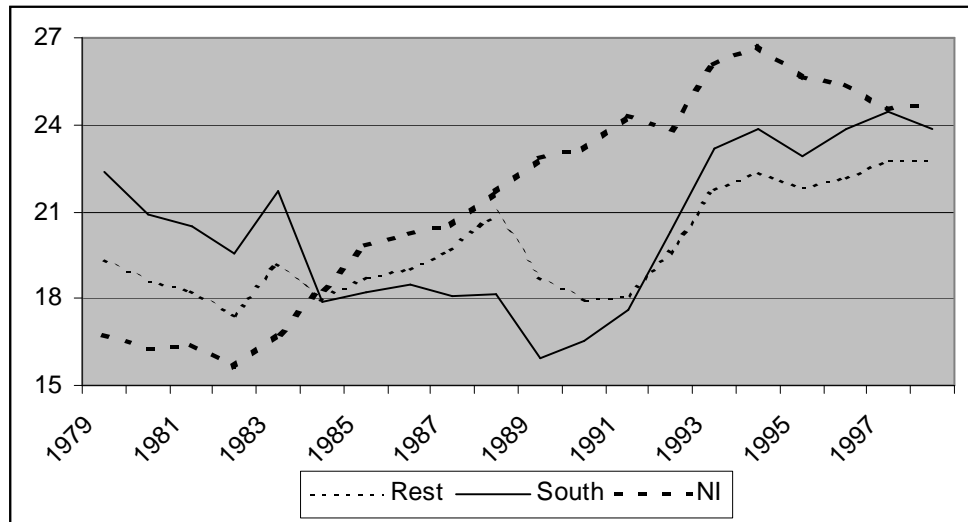
Figure 7.26: Growth rate of regional real per capita output
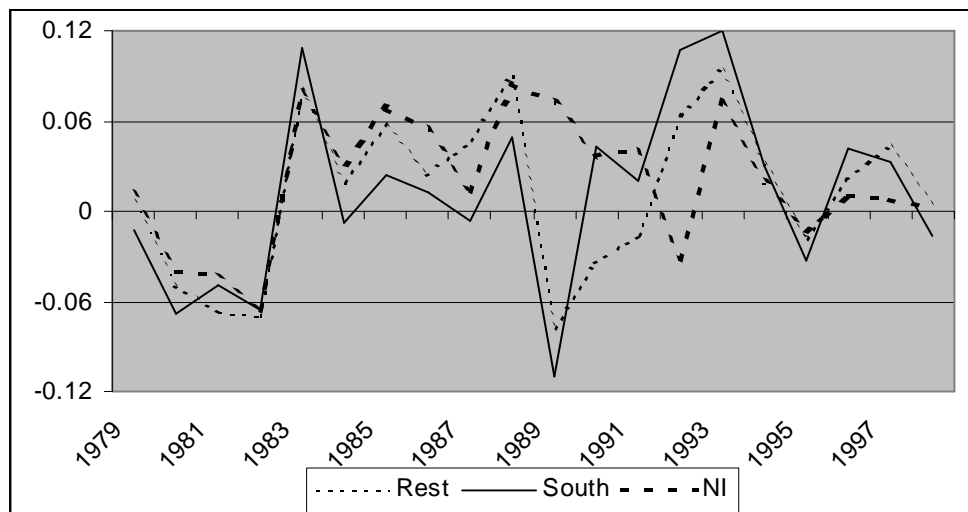
Figure 7.27: Regional employment growth
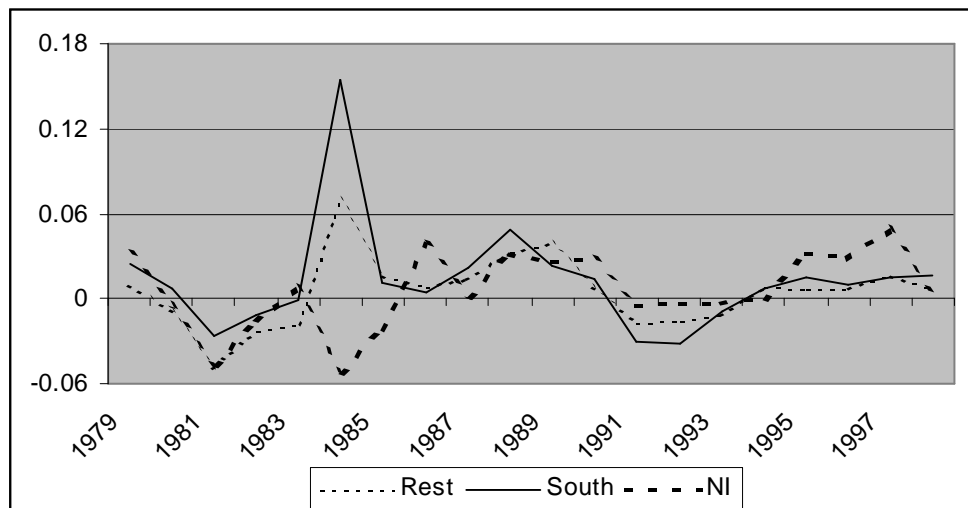
As expected, there is little difference between the evolution of real productivity and the real per capita regional GDP (thereafter RGDRPpc). Compared to the rest of the UK regions, the South has consistently higher levels of RGDRPpc (with the exception of the period 1988-1991). However, one important difference is that the picture of RGDRPpc in N. Ireland is somewhat less impressive than that of real productivity, compared to Britain. This in effect is due to N. Ireland having significantly higher inactivity rates than Britain. Noticeable differences in employment-to-population ratios also exist between the South and the rest of Britain.

In Figure 7.26 we present the evolution of the growth rate of RGDRPpc, again for the three broad regions. Interestingly, the South performed worse in this measure during most of the 1980s, while it is also the region most hit by the 1990 recession. In contrast, N. Ireland was almost unaffected by this recession, a fact consistent with the more general conclusion that the degree of integration of this economy to the British economy is relatively small. Recovery, however, after the early 1990s was faster in the South, resulting in a widening of regional income disparities. These disparities have remained relatively constant since then. The evolution of regional employment growth is much more even, especially since the mid-1980s (Figure 7.27). In the 1980s, employment grew faster in the South (which was also less severely hit by the 1979-1982 recession). The early 1990s recession, however, resulted in greater employment losses in the South than in the rest of the country.[115] For the second half of the 1990s employment grew faster in N. Ireland, but the South experienced almost identical rates of employment growth to the rest of Britain.

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[115] This recession was not only felt most severely in the South, but it was also rather specific to the service sector. Martin (1993a) notes that "collectively, the northern regions of the UK actually experienced a slight rise in service employment over the recession" (p.800).

7.6.   Concluding remarks

Economic performance in the regions of the UK has in many respects followed that of the UK as a whole. Regional disparities in economic aggregates exist and in some cases have increased over the last two decades, although evidence of real convergence, especially in the economic characteristics of the regions (e.g., returns to education and employment-population rates) rather than in regional economic outcomes (e.g., productivity and incomes) has also been offered in the literature (Duranton and Monastiriotis, 2000). Overall economic performance at the end of the period under consideration has been satisfactory, with real productivity gains, increasing incomes and declining unemployment.

We could argue that this relative homogeneity in regional economic performance was accompanied by relative homogeneity in the evolution of regional labour market flexibility. According to our overall flexibility measure, labour market flexibility increased in all regions by approximately the same amount. N. Ireland has a much more rigid labour market, but the differences between the South and the rest of Britain have, if anything, declined. Convergence, although slow, has been observed in the cases of flexibility in the determination of wages, in labour mobility and in some elements of labour input flexibility. From this viewpoint it might not seem clear why a regional economic analysis of labour market flexibility is of substantial importance. If all regions follow a common path in both their labour market regulation (and actual flexibility) and their labour market performance, then the relationship between these two aggregates can plausibly be investigated in a national-level study without any loss of information.

Although such arguments are undoubtedly important, our discussion revealed that, despite their common evolution over time, there do exist rather persistent regional differences in the degrees and types of labour market flexibility. As we noted in section 7.4, the South of Britain seems to have higher levels of wage flexibility and flexibility in the mobility of labour compared to the rest of the country. Conversely, flexibility is higher in the rest of Britain in terms of the adjustability of labour inputs. So, rather than the South being more flexible than the rest of Britain, it is likely that different regions within the country utilise different forms of labour market flexibility. It would be very fruitful for further research to explore this issue and attempt to attribute specific developments of labour market flexibility to specific labour market (economic) and wider social conditions and historic characteristics.

The present study does not directly examine these specificities. However, it uses the regional-level information to investigate the relationship between flexibility and economic performance controlling for these specificities. Using regional panel data, this is done for a large number of observations within a national economy, thus achieving a more homogenous environment of political and labour market regulation developments. Further, the regional-level analysis allows us to investigate and control for spatial dependence in the form of spatial autocorrelation. This can be particularly important if the identifiable qualitative differences across regions in labour market flexibility are producing cross-regional divisions and dependencies, which can affect overall (national) economic performance in ways that the national-level analysis cannot identify and measure.

The relevance of our analysis here (in terms of the regional picture of labour market flexibility) to the topic of chapter six and our prior expectations of the regional differences in labour market flexibility should not go unmentioned. In

chapter six we claimed that common (national) deregulation policies might produce different levels of labour market flexibility across regions, with potentially different economic effects. Despite the relatively common regional trends identified in this chapter, regional differences were also found, mainly in levels of flexibility. More importantly, it is plausible that such differences are structural, in that regions of different economic (and social) structures differ in their intensity of use of the various forms of flexible labour relations. We interpret this as evidence supporting the validity and suitability of our regional approach. The econometric investigation of the next chapter (with its focus on regional fixed and random effects and on regional autocorrelation) will provide more information about the specific cross-regional dynamics generated by such structural differences.

Before closing this chapter, it is necessary that we discuss a last but very important issue. The empirical analysis presented in chapter eight and the discussions of the present chapter are based on a panel (cross-regional time-series) dataset of labour market flexibility indicators that we constructed from various sources of survey and published data. The construction of these indicators was not a simple task, nor was it problem-free. Unavoidably, in many respects the indicators reflect the subjectivity of the author. This is true for our selection of indicators, as well as for the categorisation of those indicators (although the latter is based on the relevant literature). Subjectivity is also involved in the technical decisions regarding the construction of the indexes (weighting, adjustments, etc.). In general, it could be argued that the quality of the indexes presented here needs to be proved before any inferences derived from the empirical analysis can be considered.

Unfortunately, there is little empirical work on the measurement of labour market flexibility against which to test the quality of our indexes. Among the few

relevant attempts (always at the national scale), the ILO (for example, ILO, 1999) and OECD indexes (as used in the empirical work of chapter four) are the most detailed and consistent over time. These, however, are simply comparative rather than absolute measures and so do not permit comparisons between them. They also have limited reference to the seven theory-related categories of labour market flexibility presented above. Other studies (e.g., Burchell et al., 1999, based on the Job Insecurity and Work Intensification Survey) are grounded on micro-level information, which cannot be used in economy-wide studies and, more importantly, cannot be utilised for the evaluation of the indexes produced here. Finally, since the late 1990s the ONS produces a relatively consistent indicator of flexible forms of employment based on QLFS data. For 1998, this indicator is closely related to our more detailed indexes. In the absence of any relevant measures of labour market flexibility at the regional level over a sufficiently large number of years, despite our caveat about subjectivity and possible mistakes, the indicators constructed here must be seen as the best measures available for the evaluation of the extent and evolution of labour market flexibility (and of its various constituents) across regions and over time.

APPENDIX A.7.1: Employment relations legislation (UK, 1979-1999)

Table A.7.1: Chronology of labour laws 1979-1999

1980 Employment Act	Definition of lawful picketing restricted to own place of work
	80% ballot needed to legalise a closed shop
	Funds offered for union ballots
	Restricted right to take secondary action
	Code of practice (six pickets)
	Repeal of statutory recognition procedure
	Restricts unfair dismissal and maternity rights
	Unfair dismissal rights from 12 to 6 months in companies <20
1980 Soc. Security Act	Abolition of earnings related supplement (ERS) (1980-1982)
1982 Employment Act (Norman Tebbitt)	Restrictions on industrial action (eg: definition of trade dispute)
	Further restricted action to 'own' employer
	Employers obtain injunctions against unions (sue for damages)
	80% rule extended to ALL closed shops every 5 years
	Compensation for dismissal because of closed shop
	Removed union only labour clauses in commercial contracts
1984 Trade Union Act	EC elections every 5 years by secret ballot
	Political fund ballots every 10 years
	Secret ballots before industrial action
1986 Public Order Act	Introduced new criminal offences in relation to picketing
1986 Soc. Security Act	Extension of maximum period of benefit disqualification
1986 Wages Act	Wage councils only set overtime and single overtime wage rates
	Workers <21yrs not covered by wage councils
1988 Employment Act	Unions to compensate members disciplined for non-compliance with majority decisions
	Members can seek injunction if no pre-strike ballot
	Union finances to be open to inspection
	Unions prevented from paying members' or officials' fines
	Action to preserve post entry closed shop made unlawful
	New restrictions on industrial action and election ballots
	Ballots for separate workplaces and non-voting EC members
	Election addresses controlled - Independent scrutiny
	Establishment of CROTUM
1989 Employment Act	Tribunal pre-hearing review and proposed deposit of £150
	Removal of restrictions on work of women & young workers
	Exemption of small employer from providing details of disciplinary procedures
	Restricts time off with pay for union duties
	Written reasons for dismissal now require two-year tenure
	Redundancy rebates abolished
	Abolition of training commission

Table A.7.1. *(continued)*

1990 Employment Act	Unlawful to refuse to employ non-union member (closed-shop)
	All secondary action now unlawful
	Unions liable for action induced by ANY official unless written repudiation using statutory form of words sent to all members
	Selective dismissal of strikers taking unofficial action
	Extended power of CROTUM
1992 Trade Union & Labour Relations (Consolidation) Act	Brings together all collective employment rights including trade union finances and elections; union members' rights including dismissal, time off; redundancy consultation; ACAS, CAC and CROTUM; industrial action legislation
	Does not cover individual rights like unfair dismissal, redundancy pay, maternity etc (covered by 1978 EPCA)
1993 Trade Union Reform and Employment Rights Act	Individuals can seek injunction against unlawful action
	Creation of commissioner against unlawful industrial action
	Members to be involved in ballot to be identified
	Restrictions on election, strike and industrial action ballots
	New powers for Certification Officer to check union finances
	Higher penalties against unions failing to keep proper accounts
	'Wilson/Palmer' Amendment (incentives for individual contracts)
	Maternity leave increased to 14 weeks with no length of service requirement
	Right to written statement within 8 weeks (if working >8hrs/wk)
	Unlawful to dismiss H&S rep in course of duties AND those walking off unsafe site
	Right of individual to challenge collective agreement in contravention of equal treatment terms
	Changes to Transfer of Undertakings Regulations
	Changes to redundancy terms (consultation)
	Abolition of Wages Councils
	Changes to Tribunals and EAT procedures
1996 Employment Rights and Industrial Tribunals Acts	Regulation on maternity leaves
	Regulation on bargaining arbitration
	Individualised employment tribunal rights
1998 National Minimum Wage Act	(Extended in 1999 and 2000)
	Introduction of minimum wage
1998 Employment Rights Act (Dispute Resolution - Working Time Regulations)	Limit to a max. of 48hrs/week (8hrs/day) of required work
	Right to 4-weeks annual paid leave
	Right to lunch-breaks if working>6hrs/day
	Regulations on dispute resolution and union recognition
1999 Employment Relations Act	Further regulations on maternity leave
	Regulation on unfair dismissal of strikers
	Extended standard labour rights to part-timers

Sources: Institute of Employment Rights, Department of Trade and Industry and Blanchflower and Freeman (1994), amended by the author.

APPENDIX A.7.2: Construction of the wage flexibility indicators

Measures of wage flexibility are typically estimated as the wage elasticity of unemployment, using a standard Phillips-curve equation (Layard et al., 1991; Blanchflower and Oswald, 1994b). Wage growth is regressed on unemployment and expected inflation (usually inflation lagged one period) and the coefficient of unemployment is interpreted as a measure of wage flexibility. This standard procedure, however, can only produce a time-series of coefficients (when derived from cross-sectional regressions for each year) or a simple cross-section of coefficients (when derived from time-series regressions for each region). For the purposes of our research, it was necessary to obtain a panel of such coefficients, corresponding to each observation in our sample. To do so, two alternative procedures were employed. The two procedures resulted in quantitatively different results. For this reason we constructed two indicators of wage flexibility and then aggregated them into one composite index. The procedures are as follows.

Procedure 1: Estimating average values

The first procedure we used involved the estimation of 32 Phillips curve equations, one time-series regression for each region in our sample (12 regressions) and one cross-sectional regression for each sample year (20 regressions). Thus we derived one wage flexibility measure for each year and one for each region. To calculate the year- and region-specific value of wage flexibility we then calculated the average of the two wage flexibility measures corresponding to each observation. For example, the wage elasticity measure for London in 1990 is the average of the coefficients for unemployment from the seventh time-series regression (London) and the twelfth cross-sectional regression (year 1990). The problem with this procedure is that estimates for the wage elasticity of unemployment often vary significantly between cross-sectional and time-series regressions. Averaging may therefore produce values that are artificially constructed and do not correspond to the specific conditions characterising the specific region at the specific year.

Procedure 2: Estimating (the inverse of) individual contributions

An alternative procedure was also used. We first estimated a Phillips-curve equation for the whole panel of our data (240 observations). We then re-estimated the same regression 240 times, each time dropping one single observation (corresponding to a specific region for a specific year). For each of the 240 obtained coefficients, we calculated the ratio of this coefficient to the one obtained from the full sample. We then subtracted these ratios from unity and obtained a new panel of coefficients. These coefficients measure the percentage change in overall (average) wage flexibility when a specific observation was excluded. Hence, this measure is rather relative (to the universally mean value) than absolute.

To illustrate this procedure better, an example can be used. The universal estimate of wage flexibility was –0.2 (which is slightly over but in line with wage flexibility estimates obtained by other researchers; see for example, Blanchflower and Oswald, 1992; Abraham, 1996; Baddeley et al., 1999). Assume that excluding the value for London in 1990 resulted in a new estimate of –0.21. This would mean that, when not taking into account the specific situation of London 1990, the estimated wage flexibility increases. We can roughly interpret this as evidence that London in 1990 had less flexible wages than all the regions throughout the period under investigation, on aggregate. It is further possible to quantify this difference. By calculating

$$WFLEX_{L90}=(WFLEX_{TOTAL}-WFLEX_{excl.\{L90\}})/WFLEX_{TOTAL}$$

we obtain $1-(0.21/0.20)=1-1.05=-0.05$. Therefore, wage flexibility in London in 1990 was by an estimated value of 5% lower than the average value for our full sample. We attached the value of 0.95 $(=1+WFLEX_{L90})$ to the corresponding observation. This procedure is intellectually appealing and produces quite plausible results (flexibility varies among the 12 regions over the 20 years period from 95% to 113%).

APPENDIX A.7.3: Construction of aggregate indexes

For the calculation of the aggregate (broad-categories) indexes, the following procedure was employed. First, we projected the missing (in our example, temping) data backwards, assuming the same time-trend (that flexibility was growing during the missing years at the same pace that it was growing inside the sample years) and the same trend of regional convergence/divergence in terms of levels of flexibility (temping in this case). We then calculated a temporary index of internal numerical flexibility, as the un-weighted sum of all the detailed indicators. Then we calculated correlation coefficients between this temporary index and the full series (part-timing), one for the period for which all data were available and a second for the period for which we undertook the extrapolation. We then created the ratio (k) of the two correlation coefficients (smaller over greater, in absolute terms). We then used this ratio as a weight, multiplying the extrapolated series of the aggregate index with k and the original part-timing series (for the same period) with 1-k and adding the two products. This resulted in a series (for the "extrapolated" period) which was closer to the behaviour of the original part-timing data the more our extrapolation produced a lower correlation relative to the one in the "actual" sample.

APPENDIX A.7.4: Regional indexes of labour market flexibility (selected years)
Table A.7.2: Regional indexes of labour market flexibility

Year	Region	Internal nume-rical	External nume-rical	Internal funct-ional	Wage flexi-bility	Labour mobility	Unempl. Flexi-bility	Union flexi-bility	Overall flexi-bility
1979	North	0.697	0.853	0.091	0.834	0.756	0.859	0.404	0.783
	York	0.683	0.721	0.135	0.867	0.774	0.858	0.543	0.798
	E. Midlands	0.739	0.606	0.117	0.944	0.812	0.853	0.583	0.811
	E. Anglia	0.555	0.614	0.125	0.911	0.882	0.850	0.752	0.817
	Gr. London	0.610	0.480	0.106	0.980	0.820	0.892	0.716	0.802
	RoSE	0.601	0.474	0.116	0.932	0.840	0.864	0.810	0.808
	Southwest	0.656	0.586	0.157	0.906	0.828	0.840	0.691	0.813
	W. Midlands	0.636	0.653	0.144	0.863	0.820	0.855	0.529	0.784
	Northwest	0.629	0.812	0.123	0.858	0.746	0.858	0.481	0.785
	Wales	0.650	0.662	0.119	0.857	0.773	0.854	0.453	0.761
	Scotland	0.662	0.596	0.114	0.845	0.731	0.863	0.468	0.746
	N. Ireland	0.656	0.526	0.077	0.799	0.634	0.809	0.456	0.689
1985	North	0.829	0.776	0.200	0.844	0.757	0.912	0.556	0.849
	York	0.794	0.724	0.275	0.865	0.853	0.914	0.670	0.888
	E. Midlands	0.766	0.673	0.237	0.926	0.875	0.908	0.703	0.887
	E. Anglia	0.708	0.721	0.201	0.902	0.989	0.916	0.843	0.920
	Gr. London	0.705	0.587	0.291	0.953	0.914	0.955	0.813	0.909
	RoSE	0.705	0.587	0.291	0.905	0.867	0.928	0.890	0.902
	Southwest	0.746	0.620	0.237	0.880	0.925	0.912	0.792	0.891
	W. Midlands	0.712	0.852	0.250	0.849	0.792	0.913	0.658	0.876
	Northwest	0.719	0.676	0.261	0.853	0.797	0.918	0.619	0.844
	Wales	0.771	0.667	0.247	0.853	0.799	0.912	0.596	0.844
	Scotland	0.799	0.642	0.189	0.864	0.776	0.922	0.609	0.837
	N. Ireland	0.689	0.460	0.145	0.821	0.689	0.882	0.598	0.746
1991	North	0.820	0.694	0.272	0.794	0.799	0.930	0.629	0.861
	York	0.783	0.567	0.319	0.807	0.804	0.929	0.730	0.861
	E. Midlands	0.778	0.556	0.405	0.863	0.861	0.932	0.759	0.898
	E. Anglia	0.747	0.590	0.354	0.834	0.914	0.936	0.900	0.919
	Gr. London	0.708	0.762	0.367	0.890	0.830	0.980	0.848	0.938
	RoSE	0.732	0.554	0.412	0.844	0.875	0.953	0.924	0.923
	Southwest	0.762	0.656	0.360	0.816	0.911	0.935	0.838	0.920
	W. Midlands	0.762	0.539	0.362	0.793	0.820	0.931	0.780	0.869
	Northwest	0.735	0.585	0.344	0.801	0.802	0.936	0.706	0.856
	Wales	0.781	0.591	0.230	0.800	0.867	0.925	0.671	0.848
	Scotland	0.829	0.583	0.274	0.796	0.739	0.936	0.692	0.845
	N. Ireland	0.745	0.483	0.168	0.762	0.692	0.900	0.678	0.772
1997	North	0.988	0.776	0.275	0.830	0.791	0.950	0.759	0.936
	York	0.941	0.674	0.145	0.839	0.807	0.950	0.835	0.905
	E. Midlands	0.867	0.720	0.146	0.892	0.915	0.951	0.899	0.939
	E. Anglia	0.915	0.816	0.314	0.861	0.911	0.955	0.949	0.997
	Gr. London	0.810	0.877	0.114	0.927	0.858	0.998	0.924	0.960
	RoSE	0.865	0.807	0.051	0.868	0.887	0.972	1.000	0.950
	Southwest	0.884	0.823	0.130	0.846	0.998	0.956	0.924	0.969
	W. Midlands	0.884	0.745	0.124	0.822	0.776	0.954	0.873	0.902
	Northwest	0.883	0.602	0.132	0.834	0.755	0.959	0.797	0.865
	Wales	0.957	0.698	0.310	0.834	0.794	0.949	0.722	0.917
	Scotland	1.000	0.709	0.158	0.827	0.702	0.956	0.810	0.900
	N. Ireland	0.792	0.520	0.790	0.809	0.509	0.928	0.734	0.886

CHAPTER EIGHT

EMPIRICAL ANALYSIS

8.1. Introduction

In this chapter we turn to the empirical investigation of the regional economic effects of labour market flexibility in the UK. As we showed in the previous chapter, the behaviour of our labour market flexibility indexes reflects to a large extent the wave of labour market deregulation in the UK over the last two decades. However, the regional picture of changes in labour market flexibility has not been as uniform as policy might have wished. Further, for some elements of flexibility, the increase over the twenty-year period does not appear to be as significant as one might have expected.

Nevertheless, changes in labour market flexibility across regions and over time have occurred and this is expected to have had an impact on the regional economies of the UK. The theoretical discussions of the previous chapters have outlined the relations and dynamics that economic intuition attributes to changes in labour market flexibility. In chapter one we argued that the flexibilisation of labour markets is a response to the increased openness, volatility and uncertainty of the economic system. Despite being based on an ideological shift, this response is pragmatic in that it attempts to facilitate flexibility in production by enhancing flexibility in labour inputs and their price. Flexibility in these, is expected to increase labour and total factor productivity, increase profitability and investment and thus labour demand and incomes. Critics of such an analysis suggest that the deregulation

of labour relations and the compression of labour compensation can have adverse long-run effects on the economy and society at large. Although it is not possible to test the validity of such arguments with the data we have available, it is important empirically to investigate the shorter-run effects of labour market flexibility in order to assess the validity of the mainstream analyses of the economic impact of labour market flexibility. As was discussed in chapters two and three, orthodox economic theory and relevant empirical studies find that labour market flexibility increases productivity and employment growth and reduces labour costs and unemployment. Other analyses, however, reviewed in chapter three, underline the potential adverse effects of flexibility on investment in physical and human capital –and, hence, on productivity- and on incomes and product demand. In chapter five it was shown that, under specific conditions, specific elements of labour market flexibility can raise wages while simultaneously reducing labour costs and increasing profitability (and, by implication, investment and output), increasing, however, inequalities in labour incomes and working conditions. Although the empirical investigation of chapter four was not able to produce conclusive results (largely due to data quality and sample size), some evidence was obtained of some significant effects of flexibility on the economy. These effects were mainly related to a few elements of labour market flexibility and, sometimes, different elements of flexibility appeared to have opposing and even offsetting effects.

Of more interest to our regional economic analysis is the discussion of chapter six, which indicated that many of the expected economic effects of labour market flexibility are not necessarily uniform across space. Labour market deregulation and flexibility can alter the regional balance and cross-regional equilibria in ways that can affect the overall impact of flexibility on the (national) economy. In chapter seven we

provided some preliminary evidence consistent with this argument. Despite the general pattern of increasing and regionally converging labour market flexibility, it was shown that some degree of regional specialisation in specific elements of flexibility has occurred over the last two decades. This leads us to expect that labour market deregulation and the (regionally uneven) trends of flexibilisation that it generates will have a regionally variable impact on the economy. In this chapter we formally investigate this hypothesis, trying to associate specific regional economic developments to changes in labour market flexibility.

To do so, the empirical analysis uses a large number of economic indicators. Our dependent variables are real wages, unemployment, employment growth, the employment-to-population ratio, investment, real per capita output growth, productivity and wage inequality. By using such a long list of dependent variables, what we want to achieve is to gain the widest picture possible of the economic impact of labour market flexibility.

Since the nature of our data and the size of our sample (that will be presented later) do not allow a formal econometric investigation of the direction of causality in the relationship between labour market regulation and the economy, the investigation of a large number of relationships can partly substitute for that, allowing some causality inferences to be made. To clarify this, the following example can be used. Assume that flexibility is found to have a positive impact on wages. This can be either because of the mechanisms described in our model of chapter five (effectively a reduction in labour costs), or because of a positive effect of flexibility on productivity. By examining the impact of flexibility on productivity, we can gain more information on the structural mechanisms that are behind the economic impact of labour market flexibility. If the effect of flexibility on productivity is positive, the

mechanism predicted by mainstream economic analysis (wage increases following productivity gains that are due to enhanced flexibility) cannot be rejected. In any other case (insignificant or negative flexibility effects on productivity) this common wisdom will be challenged. In such a case it would seem more plausible that wages increase to compensate the workforce for its reduced employment security and the higher uncertainty in the labour market.

It is important to note the differences implied by these two mechanisms. For the first, wage increases are the outcome of the efficiency- and productivity-enhancing role of labour market flexibility. For the second, wage increases are activated by the cost-minimising strategies that become available with labour market deregulation. Apparently, the long-run implications of these two mechanisms are very different. This clearly relates to the discussion of chapters two and three. While the first mechanism would enhance the dynamism and competitiveness of the economy, the second mechanism would threaten it. Similar scenarios can be assumed for other sets of dependent variables, as well, and will indeed be discussed later, together with the presentation of our empirical findings.

Before the presentation of these findings, in the next section we present the economic (selection of variables) and econometric (selection of estimation method) specification of our estimating regressions and note some further theoretical considerations.[116] Section 8.3 presents the main body of our empirical results for the relationship between labour market flexibility and economic performance. In section

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[116] It must be noted here that the presentational approach we use is slightly uncommon. We start by discussing the economic specification of our regressions (variable selection) and present the results for one of our dependent variables (productivity). Then we present the process of econometric specification, using again the case of the productivity regression as our example. Then, in section 8.3 we formally present the results from the whole set of regressions, based on the best performing economic and econometric specifications, as have been selected in section 8.2. Finally, the analysis for the case of wage inequality is, as in chapter four, presented separately, in section 8.5.

8.4 we extend the empirical analysis with an investigation of the form and nature of spatial dependence, both in the determination of economic outcomes and in the economic effects of labour market flexibility. Additionally, we take a closer look at the impact of unemployment flexibility on productivity and on how this impact is transmitted through migration. Our empirical investigation concludes with the estimation of the labour market flexibility effects on wage inequalities, in section 8.5.

8.2. Theoretical and technical considerations

8.2.1. The explanatory variables

As explained earlier, the empirical analysis involves the examination of the impact of labour market flexibility on eight economic indicators. In specific, we run eight sets of regressions, one for each of our dependent variables, as listed in the previous section (see also Appendix A.8.1). Naturally, a large number of explanatory variables had to be used as controls for each of the estimating regressions. To meet this goal, the main problem was data availability, especially due to the regional-level and rather long time-series sample of our analysis. For example, data on regional capital stocks are not readily available and difficult to construct, even compared to constructing a national series of capital stock. We complemented the data that we obtained from public sources (published ONS series) with some data that we derived from the Labour Force Survey and Family Expenditure Survey series. Our sample is two-dimensional, including twenty annual observations for each of the twelve Standard Statistical Regions of the UK, reaching an overall sample size of 240 (20x12) observations in a balanced panel.

Our explanatory variables include some standard economic indicators, some of which have also been used as dependent variables in some of the regressions. For

example, real investment, which is the dependent variable in the investment regression, is included as a control variable in the employment growth regression. Other explanatory variables, derived from ONS publications, include inter-regional migration and the regional employment shares of banking and finance and manufacturing.

All the nominal series were deflated using a regional price index (which was also used to calculate the regional inflation rates) constructed with data obtained from the Reward Group, which reports a consistent time series of regional prices for different household types since 1973. Regional prices were adjusted for regional household compositions, using data derived from the FES series. This inflation series has been used in Duranton and Monastiriotis (2000). The same study was the source for two other variables, used in the wage inequality regressions (section 8.5). These variables are education (average number of years in full-time continuous education of the regional labour force) and a variable proxying regional "demand for skills", which is effectively the estimated returns to education from a panel of regional Mincer (1974) type wage equations based on FES data.

As stated, an alternative data source was the LFS series. Based on that, we constructed our data for professional employment (share of professional occupations in total regional employment) and (the inverse of) technological intensity. The last variable is calculated as the manuals-to-non-manuals ratio, following the work of Leslie and Pu (1996) and effectively measures the manual-employment intensity in production. A number of variables were impossible to construct in a reliable way for the full sample. Such variables include regional exports, a measure of skills for the regional work-forces, and an index of industrial diversity and specialisation. Despite that, a substantial number of control variables was collected and used in the empirical

analysis. The control variables perform well, explaining in most of the regressions more than 80% of the variation of the dependent variables. The data used are more fully described in Appendix A.8.1.

8.2.2. Modelling considerations

8.2.2.1. General considerations

Naturally, when building an economic model at a regional level it is important for the cross-regional interactions and dependencies to be taken into account. Conventionally, this can be achieved either by explicitly modelling the cross-regional flows and dynamics or by allowing for some sort of spatial dependence (autocorrelation) in the econometric specification. Given the panel nature of our data, regional dynamics are only important when they exhibit both spatial and temporal variation. Clearly, if regional interactions are constant over time, they will be successfully captured by region-specific fixed effects. Correspondingly, if they are constant across space (for example, if they are determined by a common national aggregate), they should be successfully captured by the constant (i.e.: space-invariant) time effects. We will expand on such considerations in the next sub-section, when we will present the econometric specification. Here our focus will be on the selection of the basic control variables for each of our regressions and on the process of the economic specification (model-building).

For each of the dependent variables we have two sets of control variables. The first is more closely related to economic theory, including variables that are derived directly from an economic modelling process. The second set includes variables that perform well in the estimating regressions, both in terms of their statistical significance (and stability of results) and in terms of their economic interpretation.

Below we present the modelling considerations for both sets of control variables for each one of our dependent variables. For presentational reasons, special focus will be placed on the specification of the productivity regressions.

8.2.2.2. *The productivity regression*

Table 8.1 presents a number of regressions for labour productivity, which also illustrate the course of modelling that was followed for the other dependent variables.[117] The first column presents a simple incentive (effort) based model, where productivity is assumed to be a function of labour shortages (differentiated by gender and proxied by the employment-population ratio and the female labour force participation rate) and of the probability of being laid-off (proxied by the unemployment rate). Such a model was considered superior to a standard production-function-based specification that would make productivity a function of the capital-to-labour ratio, as there is almost perfect capital mobility across regions and, hence, regional capital intensity of production can be justifiably taken to be endogenous. The underlying model, then, assumes that productivity is basically determined by labour effort. Effort increases with unemployment, as the latter increases the probability of a worker being laid-off. It declines with the employment-to-population ratio, as higher labour utilisation leads to more extensive use of less qualified (less employable) workers. Finally, it increases with female employment (when controlling for the labour shortages effect), as the latter signals economic expansion.

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[117] The process of economic specification for the other regressions is not presented here The best performing regression for each of our dependent variables is presented in section 8.3.

Table 8.1: Economic specification (productivity regression)

Productivity	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Constant	12.413	9.066	-51.625	-38.453	-64.553	10.780
	(3.68)	(2.96)	(-2.33)	(-2.03)	(-5.05)	(0.56)
Urate	0.343	0.642	0.663	0.666	0.658	0.469
	(4.26)	(8.96)	(7.73)	(8.58)	(9.75)	(5.90)
Empl/pop	-21.691	-12.758	-12.967	-12.763	-13.901	-18.894
	(-5.85)	(-3.99)	(-3.90)	(-4.00)	(-4.63)	(-5.13)
Female employment	32.095	9.311	7.365	7.308	14.259	9.675
	(9.77)	(2.40)	(1.79)	(1.91)	(3.82)	(2.11)
Manufact.		41.699	43.139	42.790	30.670	35.336
		(8.74)	(7.89)	(8.92)	(6.18)	(5.95)
Tech. intensity		-1.092	-1.235	-1.218	-0.803	-2.262
		(-1.50)	(-1.70)	(-1.70)	(-1.19)	(-1.64)
Migration		151.216	130.823	132.883	107.202	
		(6.99)	(5.70)	(5.99)	(4.97)	
Ext. Numerical			2.512	2.404		
			(2.80)	(2.75)		
Int. Numerical			2.929			
			(1.30)			
Int. Functional			-0.233			
			(-0.29)			
Wage Flex.			4.859			
			(0.63)			
Unempl. Flex.			46.818	39.078		5.538[c]
			(2.28)	(2.10)		(0.79)
Union Flex.			11.486	10.996		
			(3.32)	(3.38)		
Mobility			-1.030			
			(-0.55)			
Overall Flex.					162.861	
					(5.81)	
Square of Overall Flex.					-90.133	
					(-5.64)	
Region[£]	11.50	24.31	13.92	18.96	29.94	17.59
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
Year[£]	39.86	41.35	18.97	26.78	43.78	26.83
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
R^2	0.922	0.949	0.954	0.953	0.957	0.934
Adj. R^2	0.909	0.940	0.943	0.944	0.949	0.922
Hetterosk.	1.68	0.03	0.69	0.39	2.31	1.18
	0.1954	*0.8558*	*0.4074*	*0.5312*	*0.1282*	*0.2775*
Normality	2.976	0.131	-0.079	-0.333	1.322	0.114
	0.0015	*0.4478*	*0.5316*	*0.6306*	*0.0931*	*0.4547*

Notes: t-statistics in parentheses. Figures in *italics* show significance levels. All regressions have been estimated with OLS. Alternative estimation methods (FE/RE; PSAR1-SARE; 2way-FE PSAR1-SARE) produced qualitatively very similar results (see Tables 8.2, A.8.2 and A.8.3). The test for heteroskedasticity is a chi-square test developed by the Cook and Weisberg (1983). The test for normality is the Shapiro-Wilk W test for normal data. [£]**:** This is an F-test for the joint significance of the fixed effects. [c]: This term is lagged one period.

The results presented in the first column of Table 8.1 justify our theoretical model.[118] Productivity is indeed found to increase with unemployment and female employment and decline with the employment-to-population ratio. The second column of Table 8.1 amends the original model, trying to control for some additional structural variables. Including in the model migration, technological intensity and the share of manufacturing employment in the model improves its performance by almost a third (the adjusted R^2 increases from 0.91 to 0.94). With the exception of the coefficient for female employment (which drops to almost a third of its initial value in both significance and magnitude, possibly indicating that this variable was capturing some capital intensity and labour quality effects), the other coefficients are very stable. Manufacturing employment is strongly related to higher productivity, capturing the capital-intensity effect. In-migration is also positively related to productivity, indicating that migration is mostly related to the more skilful part of the workforce. Finally, as expected, technological intensity is also found to improve labour productivity (the negative sign is due to the definition of the variable as the inverse of technological intensity).

Overall, the performance of the regressions is very satisfactory, producing a very good fit and homoskedastic and normal residuals. Following, in the third model we added the flexibility indicators. As not all indicators are significant, we further applied an iterative backward deletion selection procedure (including also quadratic terms of the flexibility indicators), ending up with the model presented in the fourth column. In model 5 we replaced the detailed flexibility indicators with the aggregate

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[118] All regressions in Table 8.1 have been estimated with the specification approved in section 8.2.3 (two-way error component model), where the econometric specification of the estimating regressions is considered.

index of overall labour market flexibility (as presented in chapter seven). We will not comment on the findings obtained from these regressions, as this will be done in section 8.3, together with the results from the other regressions. Further, note that the model in the last column refers to a specific hypothesis relating to the productivity effects of unemployment benefits that will be discussed in detail in section 8.4.3, and is only included here for economy of space. Nevertheless, it is worth mentioning at this stage that the estimated coefficients for our control variables are remarkably insensitive to the inclusion of the flexibility indicators.

8.2.2.3. Specification of the remaining relationships

Following the presentation of the productivity regression, we continue with the discussion of the economic specification of the remaining regressions. The next models refer to the specification of the employment regressions.[119] For both the employment-to-population and employment growth regressions the underlying model is a labour demand equation (Table 8.3 in section 8.3.1). Employment is assumed to be a function of regional wages and regional GDP. The first term captures the cost considerations of labour demand, while the second refers to the size effect, representing the size of the economy and changes in product demand. Employment also depends on the availability of external pools of workers, a variable captured by net in-migration. Finally, two variables proxying for the technological intensity effect on labour demand are also included, namely our technological intensity indicator and the employment share of manufacturing. Following these considerations, the estimating model for the employment-to-population ratio includes the following

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[119] To economise space, the model specification for the remaining regressions is not presented here, as it is completely analogous to that of labour productivity as presented in Table 8.1.

variables: real regional per capita GDP, technological intensity, the net in-migration rate, female employment and unemployment.[120] The last two variables have been included as further controls, as they improve the performance of the estimating regressions. Equivalently, the employment growth regression has been specified as a function of real output growth, real wage growth, technological intensity, net in-migration, manufacturing growth, female labour force participation and investment. The last variable controls for the dynamic (inter-temporal) substitution between capital and labour and is thus included only in the employment growth equation.

Turning to the unemployment equation, this has been specified as an inverse wage equation (see Table 8.3 in section 8.3.1), including inflation as a control for wage mark-ups and the manufacturing share as a control for sectoral differences in productivity. Under such a specification, both inflation and manufacturing employment should be negatively related to unemployment, while the relationship between the latter and real wages should be positive. Additional control variables include the net in-migration and employment-to-population rates, each capturing a different aspect of the economic dynamism of each region. Unemployment is hence expected to decline with each of these two measures.

The specification of the estimating wage equation (Table 8.4 in section 8.3.2) is slightly differentiated, mainly because of the fact that real wages is a clearly trended I(1) variable in its time-dimension. Hence, while both inflation and the unemployment rate are as before included to control for factor costs and demand pressures, real productivity has been added in the model to control for the endogenous

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[120] The real wage variable had to be dropped from the estimating regressions as it was highly collinear with the per capita GDP variable. In this respect, the estimated coefficient for the latter highly underestimates the GDP effect, as it also includes the wage effect which apparently moves to the opposite direction.

inter-temporal wage growth. The inclusion of productivity in the model has rendered the labour demand and supply variables (employment-to-population and migration) insignificant. Consequently, these variables were excluded from the estimating regressions. Female employment was in contrast included, to control for gender wage differentials.

Given the quality problems with the investment data and the fact that the units of analysis are regions in time rather than industries, we thought that it is better to specify the investment regressions in a Keynesian framework (Table 8.4 in section 8.3.2). Hence, investment is made a function of real GDP, unemployment and inflation. Real GDP is included to control for the size of the economy and should be positively related to investment. Inflation captures a liquidity (or expansion) effect and is thus also expected to positively affect investment. Finally, unemployment captures the business cycle effect and should have a negative coefficient.

The last relationship that we empirically investigate in the next section is the determination of real GDP per capita growth (Table 8.4 in section 8.3.2). For this model a specification that closely resembles to a production-function approach was employed. GDP growth is made a function of the growth of the main factors of production, proxied by the investment share and employment growth. To control for the cross-sectional dynamics and cross-regional differences in resources, the net in-migration and unemployment rates are also included. These two last factors should be positively related to output growth as for both factors a higher value indicates a greater availability of unutilised resources in the region.

It is important to note at this point that the primary concern in the specification of the models described above is to control for the variation of the dependent variables and not to build a structural model. Although the considerations

made had a theoretical base, in some cases it can be plausibly argued that the model specification is incomplete. On the other hand, the estimating regressions that were developed perform very well and at least do not suffer from any major econometric problems. Hence, they seem sufficiently appropriate for the exercise that we pursue in the next section, namely the measurement of the impact of labour market flexibility on the economy. Before presenting the results from this exercise, in the next sub-section we discuss the econometric specification of the models presented here.

8.2.3. Econometric specification

The nature of our data and the relationships under investigation make the econometric specification of our estimating regressions a very complicated task. Our series have a long time-dimension and, thus, serial autocorrelation must be controlled for and wiped-out. The cross-sectional dimension and the fact that the unit of analysis is (regional) open economies make it necessary to test and control for spatial autocorrelation. Additionally, the panel nature of our data allows (but also necessitates) the models to be specified in ways that will control for (fixed or random) regional and time effects. Further, although the construction of each model was independent from the specification of the other models, one cannot assume that in reality the relationships under investigation are independent from one another. Consequently, endogeneity is a potential source of bias in the estimation results. This refers to both the control variables and the flexibility indicators, although for the latter we can reasonably assume that they are exogenous, as they are not independent of the (exogenous) regulations that govern labour markets. Finally, further considerations had to be made regarding the decision about the functional form of the estimating regressions.

The starting assumption on which the analysis proceeds is that the data are poolable across regions and through time. This is not a controversial assumption. As we discussed in chapter seven, the UK regions have noticeable differences in their economies but follow in general terms a common national trend. Regarding the time-dimension, although the UK has experienced two clear business cycles over the last two decades, it is not unreasonable to argue that the major economic dynamics have not changed.[121] The existence of regional disparities in economic outcomes and the changes in the business cycle in the course of time make it necessary that both region-specific and time-specific effects are taken into account in the relationships under investigation. Consequently, the starting-point econometric specification is likely to be a two-way error component model or, in other words, a simple OLS with fixed spatial and temporal effects.

Using this as the starting specification has the merit of simplifying the whole process, as the fixed temporal and regional effects allow for some limited form of temporal and spatial autocorrelation. Specifically, the regional error components (fixed effects) induce a form of temporal autocorrelation, while the temporal error components include a form of spatial autocorrelation (Anselin, 1988). This is because the fixed effects are constant across each single layer of the panel and, hence, are correlated with the equivalent autoregressive term. For the case of spatial autocorrelation, the time-specific fixed effects will be perfectly collinear with the autoregressive term if the only source of spatial dependence is that of spatial homogeneity (Arora and Brown, 1977). For example, if regional outcomes are jointly determined by a national aggregate, this effect will be captured entirely by the time-

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[121] These include, for example, the dominance of services and the decline in manufacturing, the dominance of the London economy and the North-South divide, migration trends and fiscal flows.

effects. On the other hand, if spatial dependence is in the form of pure spatial autocorrelation (in the sense that outcomes in one region are contemporaneously determined by outcomes in another region), the region-specific fixed effects will only be partially correlated with the spatial autoregressive terms. In any case, the inclusion of the fixed effects will reduce the bias resulting from neglecting the autoregressive relations. It is of course possible that the true relationships have both fixed effects and autoregressive terms acting in different directions. In such a case the estimated fixed effects will be biased and unreliable. However, the econometric problems related to not controlling for spatial and temporal autocorrelation will still be reduced.

In Table 8.2 we present a number of alternative econometric specifications for our base productivity regression (model 2), as presented in Table 8.1. These specifications help illustrate the point about the (limited) complementarity between the error component and autoregressive specifications. The simple OLS specification produces few significant results, with only three of the estimated coefficients having the correct signs. As this model does not control for the fact that the estimating sample is a panel, these results cannot be considered reliable. The second model controls for this fact by applying a within error component specification (estimated using OLS and including regional dummies). The results are slightly strengthened but qualitatively unchanged. The region-specific fixed effects are highly significant and the fit of the model is significantly improved. Nevertheless, the Breusch-Pagan and Hausman tests indicate that the random-effects model (corresponding to a feasible GLS specification with non-stochastic errors) is inferior to the fixed-effects specification.

Table 8.2: Econometric specification of estimating regressions

Productivity (Model 5 in Table 8.1)	Simple (OLS)	RE/FE (GLS/OLS)	2way-FE (OLS)	2way-FE AR1(OLS)	PSAR1-SARE (3-step GLS)	2way-FE PSAR1-SARE (3-step GLS)
Constant	8.116 (1.92)	11.115 (2.29)	9.066 (2.96)	7.993 (2.77)	18.955 (10.08)	9.747 (5.14)
Urate	-0.026 (-0.43)	-0.118 (-1.98)	0.642 (8.96)	0.529 (8.55)	-0.031 (-0.52)	0.488 (8.23)
Empl/pop	-16.048 (-3.25)	-21.683 (-3.86)	-12.758 (-3.99)	-10.476 (-3.67)	-26.132 (-11.61)	-20.326 (-10.05)
FLFPrate	48.820 (10.64)	47.141 (10.13)	9.311 (2.40)	7.364 (2.14)	25.605 (12.91)	11.184 (6.84)
Manufact.	-13.423 (-4.17)	-18.875 (-4.88)	41.699 (8.74)	29.229 (6.33)	2.266 (0.91)	29.258 (9.22)
Tech. intensity	0.682 (0.65)	2.802 (2.31)	-1.093 (-1.50)	-2.109 (-2.03)	0.965 (2.88)	0.115 (0.55)
Migration	62.803 (1.65)	64.476 (1.57)	151.216 (6.99)	103.848 (5.49)	50.540 (3.22)	53.917 (5.29)
Region		8.91[£] *0.000*	24.31[£] *0.000*	13.89[£] *0.000*		77.13[$] *0.000*
Year			41.35[£] *0.000*	25.77[£] *0.000*		263.29[$] *0.000*
R^2	0.642	0.752	0.949	0.963	41.43[+]	329.06[+]
Adj. R^2	0.633	0.733	0.940	0.956	*0.000[+]*	*0.000[+]*
Log-likelihood					-177.585	-72.340
Wald					2582.94 *0.000*	138430.36 *0.000*
Hetterosk.	1.65 *0.1991*	0.86 *0.3529*	0.03 *0.8548*	0.01 *0.9295*		
Normality	1.237 *0.1081*	2.348 *0.0094*	0.131 *0.4478*	0.754 *0.2255*		
AR1				0.289 (9.06)	Panel-specific	Panel-specific
SARE					Yes	Yes
B-P		46.80 *0.000*				
Hausman		59.90 *0.000*				

Notes: t-statistics (z-statistics for the GLS regressions) in parentheses. Figures in *italics* show significance levels. B-P is the Breusch and Pagan (1980) Lagrange multiplier test for random effects. Hausman tests for random against fixed effects, using the Hausman's (1978) specification test. RE/FE is the GLS random (fixed) effects estimation method. Wald is a chi-square test for the joint significance of the slope coefficients. PSAR1 (SARE) shows that the panel GLS estimation allowed for first-order panel-specific serial autocorrelation in the errors (spatially autocorrelated heteroskedastic errors). [£]: This is an F-test for the joint significance of the fixed effects. [+]: This is a LR-test for the joint significance of the regressors. [$]: This is a LR-test for the joint significance of the fixed effects. See also notes in Table 8.1.

Following Baltagi (1995), we take this as an indication of a possible joint existence of significant spatial and temporal effects. To test and control for this possibility, we expand the estimating model to include both time- and region-specific fixed effects. The two-way error component model presented in the third column is

identical to the one reported in Table 8.1 and performs significantly better than the previous models. Compared to them, the inclusion of the temporal effects changes some of the estimated coefficients dramatically. Unemployment now has a strong positive impact on productivity, as one would naturally expect.[122] In the same manner, the labour demand effects are much weaker and technological intensity and manufacturing employment are now positively related to productivity.

The next step is to consider the case of serial autocorrelation, especially given the rather large time-dimension of our sample. The fourth model allows for serial autocorrelation in the dependent variable, by including an additional lagged term. The obtained results are strengthened further and this time remain qualitatively the same, despite the fact that the inclusion of this term can generate some multicollinearity in the estimating regression (Baltagi, 1995).[123] The autoregressive term is highly significant and its value is much below one, suggesting that much of the serial autocorrelation in the dependent variable is captured by the fixed effects (note the decline in the significance of these effects between models three and four). Nevertheless, although the temporal and spatial fixed effects are still highly significant, explicitly controlling for serial autocorrelation improves significantly the performance of the regression (the unexplained variation of the dependent variable drops by around a third).

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[122] Possibly, the negative unemployment coefficient obtained in the previous specifications was due to the endogenous relationship between unemployment and productivity across our sample units: high unemployment regions are usually also regions with low levels of labour productivity. This observation is particularly relevant to our discussion below, of the way that we decided to treat any potential endogeneity problems.

[123] This is particularly true for samples with small time-dimensions (Perssons, 2001). With 20 observations over time, any estimating bias caused by the inclusion of the lagged term is significantly diminished.

In the fifth column we pursue a different specification, dropping the spatial and temporal controls and instead allowing for spatial and temporal dependence to affect the stochastic terms in the regression. Specifically, we apply a 3-step GLS estimation procedure, assuming a general autoregressive and heteroskedastic structure for the regression residuals. The residuals are allowed to follow a region-specific first-order autoregressive pattern, with cross-sectional heteroskedasticity and a simple form of spatial autocorrelation.

Due to the estimation method, the overall performance of the regression is not directly comparable with that of the previous models.[124] Nevertheless, the likelihood-ratio test (LR-test) for the joint significance of the slope coefficients, although significant, is much weaker than the corresponding F-test applied in the OLS regressions (not shown). Unemployment has the "wrong" sign and is highly insignificant, as is manufacturing employment. Overall, it seems that the PSAR1-SARE model is less efficient, compared to the two-way error component specifications of columns three and four. This, of course, does not come as a surprise, for the following reasons. First, we have already seen that serial autocorrelation is not a severe problem in the regressions (compare models three and four). Second, we have already established that the fixed effects capture much of the spatial and temporal dependence in the relationship under investigation. Last, the form of spatial dependence allowed in the PSAR1-SARE model (pair-wise contemporaneous

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[124] The PSAR1-SARE regressions have been estimated using STATA 6.0 for Windows. The programme applies a 3-step feasible Generalised Least Squares procedure, as follows. First, simple OLS residuals are used to calculate panel-specific autocorrelation coefficients. These are then used to transform the original model into one with serially independent errors. The new residuals are used to calculate pair-wise spatial autocorrelation coefficients for the errors, assuming panel heteroskedasticity (Parks, 1967). In the third stage the corrected residuals are used to transform the original model into one which has spherical errors (so that it can be estimated with simple OLS). For a critical exposition of the PSAR1-SARE method and a correction for higher accuracy see Beck and Katz (1995).

autocorrelation) is too general to control for the specific forms of spatial autocorrelation that one would expect to characterise the UK regions.

Given these observations, naturally the PSAR1-SARE model has to be re-formulated in an error component specification. This is reported in the last column of Table 8.2. The results for this model support our analysis about the econometric role played by the fixed effects. Given the two-way error component specification, the PSAR1-SARE formulation makes little difference (compare model six with models three and four). Moreover, the performance of the regression is now significantly improved (compare the LR-tests and Wald tests for models five and six). Apparently, although the existence of spatial (and, to a lesser extent, temporal) dependence cannot be ruled out, the two-way fixed effects model appears as the most parsimonious specification.

Despite the fact that it originates from a completely different source, the issue of endogeneity is not irrelevant to our discussion about the error component and autoregressive terms. Conventionally, to control for the potential endogeneity of some of the explanatory variables, the estimation method would have to include instrumented variables (IV). However, the application of IV in the estimation of panel regressions with possible spatial and temporal autocorrelation creates a large number of econometric problems. The main problem is that both the fixed effects and the autoregressive errors will be correlated with the instruments used in the first-stage regressions. Their correlation will be higher the more constant (either across space or over time) the instruments are. In an extreme (but not very unlikely) case, some of the instruments in the first-stage regressions will be perfectly collinear with some of the regressors in the second-stage regressions. This will definitely be the case if fixed effects are included in the first-stage regressions (as they should be).

Apart from the pure econometric problems, there are good economic reasons for not using IV as an estimation method. This method is applied to correct the bias in the estimated coefficients generated by endogeneity. As we are not directly interested in the coefficients of our control variables, any amount of bias will be acceptable, as long as this is not transmitted to the estimates of the coefficients for our labour market flexibility indicators. Hence, the use of IV as an estimation method is only necessary if one has reasons to believe that the flexibility indicators are endogenous. As mentioned already, although this possibility cannot be entirely dismissed, it is reasonable to assume that labour market flexibility is independent of the year-to-year (or region-to-region) variation in economic outcomes. As we graphically illustrated in chapter two, labour market flexibility is jointly determined by existing labour market institutions, changes in labour market regulations and wider economic conditions in the region. Moreover, all these factors are to some extent shaped by the actual forms and levels of flexibility that prevail in each labour market, with the implication that one cannot isolate one single factor that can be assumed to be strictly exogenous to the former. Under such a perspective, it is not at all clear why (and how) one should instrument the labour market flexibility indicators with some economic or political variables. The empirical experimentation with the IV regressions produced results that were rather sensitive to the selection of the instruments, but were in general not making much difference to the simple OLS and GLS results and is thus not presented here.

Concluding this section, we feel that the experimentation with the econometric specification of the estimating regressions should increase our confidence in relying on the two-way error component specification. The fixed effects capture much of the spatial and temporal dependence and explicitly modelling the

latter does not add much information. This conclusion is further strengthened by the results obtained from the regressions specified for the other dependent variables, that we do not report here to avoid repetition. In the next section we proceed with the analysis of the estimation results for our whole set of regressions, based on the two-way error component specification. In section 8.4 we extend the empirical analysis, explicitly introducing spatial autocorrelation in the dependent and flexibility variables and investigating the geography of the estimated fixed effects. Our main conclusions, however, are drawn from the two-way error component regressions, presented in the next section.

The last point that needs mentioning before presenting the empirical results, relates to the functional form of the estimating regressions. It is common in empirical research to use log-linear approximations of the theoretical relationships in order to control for possible non-linearities in the data. Instead, in the regressions presented here, we have used simple linear functional forms. There was a simple reason for doing so. The empirical investigation attempts to establish a relationship between labour market flexibility and economic performance and test for possible non-linearities in this relationship. Hence, rather than imposing a non-linear relationship, we included squared terms of the flexibility indexes in the estimating regressions, testing whether they were significant. As our interest is in these coefficients and not on the structural variables, it is of little importance if the relationships under investigation are non-linear in their structural variables, as long as the fit and overall performance of the regressions is satisfactory enough for confident conclusions about the role of labour market flexibility to be drawn.

8.3. Empirical results

The empirical analysis treats each regression independently of the others for the reasons discussed in the previous section. However, for presentational reasons we have identified two sets of regressions: those that refer to the determination of employment outcomes and those that refer to the wider economic performance indicators. For this reason the present section is split into two sub-sections, each discussing the results obtained from each of the two sets of regressions. A third sub-section concludes by attempting to put the evidence together and draw some general inferences. As stated already, the focus is on the impact of labour market flexibility and not on the determination of economic outcomes. Hence, attention is disproportionately put on the former and less so on the structural explanatory variables.

8.3.1. Labour market flexibility and employment

Our basic estimating models for the employment regressions were discussed in section 8.2.2. There, the employment-to-population ratio was made a function of real GDP per capita, unemployment and migration. Employment growth was specified as a function of output growth, wage growth, investment and manufacturing growth. Additionally, both relationships also included female employment and our measure of technological intensity. Finally, unemployment was made a function of real wages, inflation, the share of manufacturing employment, migration and the employment-to-population ratio. Table 8.3 presents the results obtained from these three models, estimated with OLS in a two-way error component specification, following our considerations in section 8.2.3. For each model, two regressions are presented. The first includes some of the detailed labour market flexibility indexes

(and, for some, their squares), as selected in a backward deletion stepwise selection procedure. The second regression replaces the detailed flexibility indexes with the overall measure of labour market flexibility. For each model, the two regressions correspond to models four and five, as presented in Table 8.1 for the case of productivity.

The first two columns of Table 8.3 present the results for the employment-to-population regressions. As expected, in both regressions employment is found to increase with output and technological intensity. It is negatively related to unemployment, female labour force participation and net in-migration, all of which signal labour shortages. The estimated coefficients are satisfactorily stable between the two specifications. Moreover, the temporal and spatial fixed effects are significant in both cases, as the reported F-statistics show (ranging from 4.49 to 8.66). Further, the fit of the regressions is rather high (R^2 is around 0.91), despite the fact that heteroskedasticity seems to be a problem.[125]

The fit of the employment growth regressions (columns 3 and 4) is equally satisfactory (R^2 is around 0.89), despite the fact that here the regional fixed effects are not significant and heteroskedasticity and normality are again a problem. The coefficients for the basic explanatory variables (output growth, wage growth and migration) have the correct signs, although wage growth fails to be significant in any of the regressions. Female and manufacturing employment, investment and technological intensity are all negatively related to employment growth, as we expected, following our discussion in section 8.2.2. The effect for manufacturing

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[125] Note that the most likely cause of heteroskedasticity here is the presence of spatial dependence which we only partially control for (by including the fixed effects). We deal with this problem later, in section 8.4.

growth is particularly strong, indicating the lack of economic dynamism that characterises the manufacturing sector.

Unlike the first two employment regressions, the model specified for unemployment performs very well in all respects. The fit of the regressions is excellent (R^2 around 0.98) and the normality and heteroskedasticity tests suggest no violation of any assumptions. The fixed effects are highly significant as are the estimated slope coefficients. Moreover, all explanatory variables enter with the correct sign. Unemployment is found to increase with wages, but declines with inflation, manufacturing employment, employment participation and in-migration.

Of the seven labour market flexibility indexes, only one is not significant in any of the regressions. Specifically, external numerical flexibility does not appear to have any impact on any of the employment outcomes. Although somewhat surprising, this is consistent with the estimated impact of internal numerical and internal functional flexibility, both of which seem to affect only unemployment and not employment participation or employment growth. Internal flexibility has a significant negative effect on unemployment.

This finding suggests that flexibility in the labour input, in contrast to conventional expectations, is not a tool for employment expansion. Rather, it seems to be related to shorter-run considerations about cost-saving strategies and adjustments to economic conditions. As with numerical and functional flexibility, wage flexibility is surprisingly unrelated to longer-run employment outcomes. Moreover, its estimated impact is counter-intuitive, suggesting that unemployment is higher in areas (or periods) where wages are more responsive to unemployment.[126]

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[126] Of course, it is possible that this effect is spurious. This would be the case if the relationship between wages and unemployment is non-linear. As this is only a minor finding compared with the

Equally counter-intuitive is the finding about the unemployment effects of unemployment flexibility, which are found to be (concave and) positive. Flexibility in the treatment of the unemployed (lower replacement ratios) increases unemployment and reduces employment growth, in contrast to the expectations of economic theory, according to which, unemployment benefits are detrimental to employment. On the other hand, the estimated positive effect on employment participation seems to offer some support to the argument that a generous treatment of the unemployed is an incentive for unemployed people to stay in unemployment for longer.

Labour mobility is a significant determinant of unemployment and the employment-to-population ratio. Labour mobility measures the flexibility in labour movements (between regions, sectors, occupations and jobs) and is found to increase both employment participation and unemployment (in a non-linear fashion). Since we have already controlled for labour migration flows, we view this result as indicating that higher labour turnover is related to higher employment participation but also lower employment security. Finally, flexibility in trade unionism (measured effectively as the inverse of union density) has a robust negative effect on unemployment and the employment-to-population ratio, but a positive effect on employment growth. We interpret this finding as capturing the tendency for trade unions to increase unemployment (the "insider" role of unions) and retain in the labour force people that would otherwise be out of it (probably through redundancies or early retirements), rather than as indicating a positive employment-dynamism effect for unions.

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bulk of empirical results presented here, we prefer to simply treat it as inconclusive and not try to control for the possibility of simultaneity. The same applies to the case of the unemployment flexibility coefficient obtained in the unemployment regression.

Table 8.3: Labour market flexibility and employment

	Empl/pop ratio		Employment growth		Unemployment	
	Detailed	Overall	Detailed	Overall	Detailed	Overall
Constant	-3.609 (-4.03)	1.502 (5.68)	0.036563 (0.29)	-0.542 (-1.90)	-68.389 (-2.17)	14.324 (6.79)
Real GDP pc**	6.65E-06 (2.05)	1.98E-05 (6.26)	0.202 (2.12)	0.208 (2.18)		
Real wages**			-0.304 (-1.22)	-0.306 (-1.23)	0.025 (7.59)	0.035 (10.69)
Empl./pop/ ratio					-17.797 (-7.88)	-18.193 (-9.64)
Fem. LF part.	-0.732 (-28.10)	-0.736 (-26.21)	-0.121 (-3.66)	-0.115 (-3.44)		
Control variable*	-0.012 (-9.33)	-0.014 (-9.76)	-1.48E-06 (-1.51)	-3.18E-06 (-3.35)	-6.030 (-4.21)	-4.892 (-3.12)
Tech. intensity	-0.020 (-1.41)	-0.029 (-1.92)	0.043 (3.33)	0.040 (4.18)		
Manufacturing**			-3.13947 -34.113	-3.136 (-33.62)	-19.146 (-7.95)	-20.578 (-8.98)
Migration	-0.777 (-1.66)	-1.359 (-2.90)	1.813 (3.89)	2.227 (5.48)	-83.087 (-5.53)	-106.134 (-7.09)
Int. Numerical					-6.322 (-4.14)	
Int. Functional					-1.591 (-3.21)	
Wage Flex.					17.878 (3.34)	
Unempl. Flex.	11.118 (5.29)		-0.288 (-1.95)		200.188 (2.60)	
Union Flex.	-0.302 (-4.26)		0.382 (2.85)		-14.401 (-6.09)	
Mobility	0.060 (2.04)				28.213 (3.84)	
Square of Unempl. Flex.	-6.648 (-5.39)				-133.826 (-3.03)	
Square of Union Flex.			-0.247 (-2.73)			
Square of Mobility					-18.824 (-4.19)	
Overall Flex.		-1.729 (-2.79)		1.408 (2.10)		-7.760 (-3.28)
Square of Overall Flex.		0.968 (2.73)		-0.829 (-2.12)		
Region[£]	7.92 *0.000*	8.66 *0.000*			17.99 *0.000*	75.39 *0.000*
Year[£]	4.49 *0.000*	6.41 *0.000*	11.22 *0.000*	11.34 *0.000*	46.04 *0.000*	96.54 *0.000*
R2	0.923	0.912	0.896	0.893	0.980	0.972
Adj. R2	0.914	0.904	0.881	0.878	0.976	0.967
Hetterosk.	25.33 *0.0000*	52.85 *0.0000*	17.7 *0.0000*	14.66 *0.0001*	5.27 *0.0217*	1.13 *0.2885*
Normality	4.28 *0.0000*	5.27 *0.0000*	4.943 *0.0000*	4.943 *0.0000*	0.014 *0.4946*	1.469 *0.0709*

Notes: t-statistics in parentheses. Figures in *italics* show significance levels. [£]: This is an F-test for the joint significance of the fixed effects. *: The control variable is unemployment, investment and inflation for the three models, respectively. **: The growth rates rather than the levels of these variables have been included in the employment growth regressions. See also notes in Table 8.1.

Overall, the effects of labour market flexibility on employment outcomes are rather mixed. Most of the detailed elements of flexibility reduce unemployment, in consistence with the view of flexibility as providing incentives for increased labour supply (exits from unemployment) and demand. There are limited effects on employment growth that go to both directions, with reductions in unionism fostering employment expansion. The flexibility effects on employment participation are much more puzzling, partly because of the existence of multiple effects on unemployment, inactivity and self-employment. Specifically, flexibility might be affecting dependent employment, unemployment, self-employment or inactivity. In general it is not clear which of these relations might be reflected by a positive or an adverse estimated effect on the employment-to-population ratio.

The even columns of Table 8.3 present the results from the regressions where the detailed flexibility indexes have been replaced by the aggregate index. The impact of flexibility on unemployment is linear, implying that any increase in aggregate flexibility helps reduce unemployment. The effect on employment growth is non-linear but always positive for meaningful values of aggregate flexibility. Apparently, the positive effects of labour market flexibility on employment expansion are maximised at intermediate levels of flexibility. The estimated effect for the employment-to-population ratio has the opposite direction. Given the unemployment and employment growth effects of aggregate flexibility, this suggests that flexibility has a worker discouragement effect, generating some trends towards inactivity and possibly self-employment. In other words, this finding suggests that higher levels of flexibility are responsible (at a diminishing rate) for lower levels of dependent employment by directing segments of the working age population either to self-employment or to inactivity and informal employment.

These results offer strong support to the neo-classical approach to the economics of labour market flexibility. Despite the fact that some non-linearities have indeed been found, our estimates clearly suggest that labour market flexibility ameliorates labour market outcomes. On the other hand, it is equally clear that not every aspect of labour market regulation is a detriment to labour market performance. If anything, unemployment benefits, wage rigidities, as well as barriers to labour movements and to external numerical flexibility, seem to have had no adverse impact on the determination of labour market outcomes in the UK regions over the last two decades. We will discuss further the implications of these results in section 8.3.3. In the next section we present the results obtained for the flexibility effects on investment, wages, productivity and output growth.

8.3.2. Labour market flexibility and economic performance

The impact of labour market flexibility on factors like wages and productivity is, as was the case with the employment effects, an intensively studied issue. On the other hand, its impact on investment and GDP growth is a somewhat less studied topic. Theory suggests that flexibility increases productivity and output growth, as the increased adjustability of production to economic fluctuations and the cost-saving technologies employed by firms improve the productivity of labour and foster economic expansion. For investment and wages, the expectations are much less clear-cut. With economic expansion, naturally, investment and wages must go up. On the other hand, labour market flexibility is often associated with the suppression of labour compensation (together with the deterioration of labour standards), while investment might as well decline if labour costs are reduced (so that there will be a substitution effect between capital and labour). The results from our wage, investment and growth

regressions are presented in Table 8.4, while the results derived from the productivity regressions have already been presented in Table 8.1. Again, odd columns report models that contain the detailed flexibility indexes, while even columns report the results for the overall flexibility index.

The first two columns report the results for the wage regressions. These regressions have been specified in a semi-log form, as this significantly improved the performance of the estimates. Two-way fixed effects have been included and are highly significant in both wage regressions. Probably due to the semi-log specification, normality is an issue. However, the regression errors are homoskedastic and the overall fit of the regressions is excellent (R^2 around 0.98). With the exception of unemployment in the first regression, all estimated coefficients are significant and have the correct signs. As expected, productivity is strongly and significantly related to real wages, while inflation enters with a negative coefficient. Higher female employment shares are related to lower average wages.

The performance of the investment equation strongly resembles that of the wage equation. For both investment regressions the coefficient of determination is very high (around 0.98). Again normality is an issue, but heteroskedasticity (although present) seems to be less of a problem. Both region-specific and time-specific fixed effects are highly significant. As explained in section 8.2.2, investment is made a function of real output, inflation and unemployment, following a loose Keynesian-type specification. All three explanatory variables are statistically significant and have the expected signs. Unemployment and inflation have, respectively, a negative and a positive impact on investment, indicating a positive demand effect on the growth of physical capital. Output captures the (positive) size effect for investment, as the dependent variable has been specified in levels rather than as a share of GDP.

Table 8.4: Labour market flexibility and output

	Log wage		Investment		Output growth	
	Detailed	Overall	Detailed	Overall	Detailed	Overall
Constant	2.417	4.354	-13.704	12.434	-0.682	0.874
	(4.57)	(43.50)	(-2.20)	(3.09)	(-0.98)	(1.96)
Productivity	0.526	0.490				
	(19.94)	(15.67)				
Output			5.39E-05	6.27E-05		
			(10.40)	(13.75)		
Empl growth					0.085	0.082
					(2.58)	(2.30)
Inflation	-0.152	-0.206	1.919	2.085		
	(-2.81)	(-3.22)	(2.55)	(2.70)		
Unemployment	-0.003	0.004	-0.098	-0.064	0.009	0.009
	(-1.77)	(1.97)	(-3.84)	(-2.68)	(3.78)	(4.06)
Fem. LF Part.	-1.037	-0.990				
	(-16.04)	(-12.78)				
Investment share					-0.642	-0.725
					(-2.65)	(-2.90)
Migration					0.315	0.691
					(0.43)	(0.90)
Ext. Numerical	0.071					
	(3.24)					
Int. Numerical	0.130		-1.472		0.209	
	(2.38)		(-1.96)		(2.82)	
Int. Functional			-0.746		-0.119	
			(-3.17)		(-2.63)	
Wage Flex.					-1.459	
					(-5.47)	
Unempl. Flex.	2.313		21.433		1.637	
	(4.61)		(3.06)		(2.38)	
Union Flex.	-0.314		-2.228		0.722	
	(-3.90)		(-2.02)		(3.16)	
Mobility	0.172					
	(4.77)					
Square of Union Flex.					-0.437	
					(-2.34)	
Square of Int. Functional					0.154	
					(2.27)	
Overall Flex.		0.313		-25.194		-1.878
		(3.38)		(-2.72)		(-1.88)
Square of Overall Flex.				13.672		0.997
				(2.57)		(1.75)
Region [£]	7.16	40.94	16.43	26.01	3.83	1.3
	0.000	*0.000*	*0.000*	*0.000*	*0.0001*	*0.226*
Year [£]	20.53	26.55	7.09	10.99	31.36	29.28
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*
R2	0.982	0.974	0.982	0.980	0.838	0.803
Adj. R2	0.973	0.964	0.978	0.977	0.805	0.768
Hetterosk.	5.30	0.35	9.25	7.11	0.08	6.09
	0.019	*0.552*	*0.002*	*0.008*	*0.778*	*0.014*
Normality	4.57	3.15	3.459	4.353	4.003	2.607
	0.000	*0.000*	*0.0003*	*0.00001*	*0.00003*	*0.005*

Notes: t-statistics in parentheses. Figures in *italics* show significance levels. All regressions have been estimated with OLS. [£]: This is an F-test for the joint significance of the fixed effects. See also notes in Table 8.1.

The regressions for output growth were those with the worst fit among the seven models that we specified. The R^2 in the two regressions is just above 80%. On the other hand, the residuals from these regressions are much better behaved. The basic structural variables (employment growth and investment share) are both significant and their coefficients are very stable across specifications. The value of the employment growth coefficient is somewhat low, however, while that of the investment share (which serves as a proxy for capital growth) is negative.[127] Unemployment and in-migration are both positive, in accordance with our expectation that they proxy for the availability of unutilised labour in the area. Migration is however insignificant, possibly implying that the major source of economic expansion in terms of labour utilisation comes from within the local (regional) economies.

We now turn to our estimates of the effects of the labour market flexibility indicators, as estimated across the set of regressions presented in Tables 8.1 (model 4) and 8.4. External numerical flexibility is this time significant, unlike the case of the employment effects, with a positive effect on both real wages and productivity (see model four in Table 8.1). Although the productivity effect could be interpreted as evidence for a positive efficiency effect on labour-use, the wage effect (which is after controlling for productivity) suggests that there are further benefits from this type of flexibility, beyond the expected productivity gains. Moreover, the argument about external numerical flexibility reducing the overall efficiency of the economy is not supported by our results.

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[127] This negative coefficient is quite standard in the investment share approximation and indicates the existence of mean reversal in the growth of physical capital.

As with external numerical, internal numerical flexibility is also a significant determinant of real wages and, this time, investment and output growth. Its effect on wages is positive, as is its output growth effect. This is a conventional result, as the more intensive use of internal labour resources is naturally expected to ameliorate economic performance and increase labour incomes. The negative investment effect probably indicates that the intensification of labour-use can substitute for physical capital investment. Unlike numerical flexibility, functional flexibility (internal) is not found to have any impact on productivity or wages. This casts doubt on the prior expectation that functional flexibility (especially internal) improves the efficiency of production and, hence, labour and total-factor productivity. Moreover, this type of flexibility is found to have adverse effects on both investment and output growth, with the implication that the use of functionally flexible work arrangements is a cost-saving strategy rather than a dynamic expansion policy and it somehow cancels or postpones new investments, thus hindering growth.[128]

Surprisingly, wage flexibility seems to have no impact on either productivity, wages or investment. Further, it appears to have an adverse effect on output growth! This result clearly favours the non-orthodox approaches to the issue, for which the downward adjustability of wages is a tool for passive cost-saving technologies that hinder economic performance and has no impact on productivity or investment. This argument has been presented in more detail in chapter two and we do not need to expand more on it here. In contrast with wage flexibility, flexibility in the treatment

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[128] This explanation of the estimated negative coefficients favours the post-keynesianist and neo-institutionalist approaches to the economics of labour market flexibility. However, due to the way that our internal functional flexibility indicator was measured, it is possible that the negative effect is spurious in that we failed to totally control for the cyclicality of within-job occupational mobility. Moreover, the estimated growth effect of internal functional flexibility is convex, resulting in a positive growth effect for extremely high levels of flexibility. For this reason, we treat this finding as simply indicative and we do not want to push the argument any further.

of the unemployed has a positive effect on all economic indicators. Its effect on productivity (and, by implication, on investment and output growth) is in accordance with mainstream economic analysis as well as with efficiency wage considerations, showing that generous unemployment benefits make the workforce less productive. The positive wage effect casts some doubt on the efficiency wage considerations, but might be spurious in that our measure of unemployment flexibility is by construction positively related to the average wage.

Labour mobility is only associated with wages, having a strong positive effect. This is again a conventional finding, suggesting that –other things equal, including union densities- mobility across jobs, sectors, occupations and regions increases the average returns to labour (apparently, through an allocation efficiency or "matching" effect). Finally, union flexibility is found to have a strong effect on all four measures of economic performance. Wages decline with union flexibility, verifying the wage-increasing role of unions. However, union-induced wage increases are not accompanied by productivity gains. Rather, as shown in models three and four of Table 8.1, unionism is strongly associated with lower levels of labour productivity. Consequently, output growth is also inversely related to unionism, although this relationship is not monotonic (but is negative for all meaningful values of union flexibility), as the results in the fifth column of Table 8.4 suggest. On the other hand, in line with the argument of the post-keynesian and neo-institutionalist approaches, union flexibility is found to have a linear adverse effect on physical capital investment. Following this argument, it seems that unionism leads to higher levels of investment, as it forces firms to employ more dynamic forms of competition (and

constantly modernise their capital structure) and limits their ability to compete on the basis of low labour costs.[129]

Aggregate labour market flexibility is found to have mixed effects on the economy, as was the case with the more detailed flexibility indexes. Aggregate flexibility has a strong positive effect on wages and productivity. The wage effect is linear, while that on productivity becomes non-monotonic for very high levels of flexibility. The wage effect is after controlling for productivity and is thus a direct effect of flexibility on labour compensation. This result might seem surprising, as in many respects flexibility is associated in theory with a deterioration of the position of labour in the labour market. It is however very robust and rather plausible given our estimates on the individual effects of the detailed labour market flexibility indexes (especially of numerical flexibility). On the other hand, aggregate flexibility is negatively related to investment and output growth. The fact that both estimated relationships are convex suggests that intermediate levels of flexibility are inferior to extreme cases, a result which stands in contrast with previous findings both in this chapter and in the literature (see, for example, Dorwick, 1993).

Our findings on the investment and growth effects suggest that the benefits of flexibility are not universal and come at a cost. In the next sub-section we will discuss further these results and make some inferences about the overall role that labour market flexibility plays in the economy.

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[129] It has to be acknowledged that such an argument is not refuted by all orthodox economic analyses. Specifically, the negative role of unions is attributed to their reluctance in accepting new forms of production organisation (for example, functional flexibility), rather than opposing new investments.

8.3.3. Synopsis of findings

The results presented in Tables 8.1 to 8.4 are derived after a thorough specification analysis, using advanced econometric techniques. Overall, these results comply with our prior expectations about the relationships under investigation, although not all of them are conventional. Here we attempt to review the obtained results in their totality, in order to identify the main conclusions that can be drawn.

In general, aggregate labour market flexibility has a non-linear impact on regional economies. This implies that the debate about the importance of labour market flexibility is not a dualistic dilemma, but rather a question of the appropriate levels and combinations of specific labour market flexibility elements. Aggregate labour market flexibility is beneficial to employment, wages and productivity. Regions (and periods) with high levels of flexibility have experienced –controlling for a multiple of other factors- higher rates of employment growth, lower unemployment, higher labour productivity and higher average wages. On the other hand, the same regions (or periods) were characterised by lower levels of investment and employment participation, as well as lower rates of economic growth. These findings are somewhat puzzling, in that one would expect a productivity-enhancing effect also to lead to higher rates of output growth. However, it seems that the effects of flexibility are mainly related to the organisation of labour use within production, rather to the wider performance of an economy. Specifically, labour market flexibility seems to assist a re-configuration of the role of labour in the production, which accommodates the expansion of (less secure) employment and the intensification of labour use (with consequent increases in labour productivity and wages). However, these changes do not foster wider economic expansion. Investment and employment

participation decline in this process and, with them, the economy grows at a slower rate.

Of course, this is not a deterministic effect that labour market flexibility will always have. The specific quality and mix of flexible labour market arrangements that prevail in the economy and the socio-economic context in which they are introduced has a direct effect on what the economic impact of aggregate labour market flexibility will be. The results relating to the more detailed labour market flexibility indicators point to exactly this conclusion.

As we have already noticed, not all elements of flexibility affect all economic indicators. Instead, it is specific elements of flexibility that are found to have an impact on specific aspects of economic activity. External numerical flexibility (alternatively, the easiness with which firms can utilise external pools of labour without fully integrating them into their production process) has no effect on employment or output. The direct effects of flexibility on employment are limited only to unionism, unemployment benefits and labour mobility. In the same way, it is only unemployment flexibility and flexibility in wage bargaining (unionism) that have a direct effect on productivity. Internal numerical flexibility reduces unemployment and has a positive impact on wages and output growth, despite the fact that it is related to lower levels of investment. The effect of functional flexibility is very similar, although its income effects are more mixed.

In contrast to expectations, wage flexibility has very limited effects on the economy. Moreover, those that are (statistically) significant are all adverse effects. While the unemployment-increasing effect could be spurious (despite our efforts to remove any possible simultaneity, as explained in chapter seven), the growth-

decreasing effect leads one to conclude that wage stickiness might have after all some positive effects on growth, as Keynesian theory has suggested.

The most controversial findings are related to the estimated impact of unemployment flexibility (the inverse of the effective replacement ratio). Flexibility in this element is found to have a positive effect on wages, productivity, investment and growth, but also an adverse effect on employment. Among all our flexibility measures, this element is the most likely to suffer from endogeneity due to the way that it was constructed. Hence, one should be somewhat cautious with interpreting the results related to this element of flexibility.

What seems to have a robust and reliably estimated effect, is flexibility in wage bargaining (union flexibility). The decline of unionism and union power reduces employment participation, wages and investment, but also unemployment. It has a positive impact on employment growth, productivity and the growth of output. This is generally in agreement with the view of unions as institutions that increase production (labour) costs, reduce employment and economic dynamism, but increase investment and –under specific conditions- can help firms adopt more competitive methods of production organisation. Finally, labour mobility (across jobs, regions, sectors and occupations) increases employment participation and labour incomes, but is also related to higher unemployment rates. Again, this last effect is possibly spurious, reflecting the impact of different employment opportunities on labour mobility, despite that this measure has been adjusted for regional unemployment.

To conclude, although aggregate flexibility seems to have a positive impact on employment and productivity, this is not transmitted to the economy as a whole, as the impact on output growth is negative. From the detailed flexibility measures, the impact of flexibility in the labour input (numerical, functional and mobility) is

limited. Wage and unemployment flexibility, despite their central position in the literature, are the least important factors, at least at the aggregate level of analysis employed here. Unionism is the most important factor, as has been typically found in related empirical studies.

We will return to the findings presented here later in the next section, when we will discuss how our results change when explicit considerations about spatial dependence are taken into account in the econometric specifications. It is only after this exercise that we will turn to the issue of wage inequalities, where we will contrast the estimated efficiency effects of flexibility presented here, with our estimates of its inequality effects, as presented in section 8.5.

8.4. Extensions of the empirical analyses

The empirical investigation presented so far has focused on estimating the economic effects of labour market flexibility at the regional level for the UK economy over the last two decades. In this section we extend this analysis in three independent dimensions. First, we look at some alternative specifications for the estimating regressions presented so far, in order to take a closer look at the issue of spatial dependence. By using these alternative specifications we also test the robustness of the findings obtained from the two-way error component regressions. Related to that, the second dimension focuses on the nature of the estimated regional fixed effects. We perform a ranking of these effects and compare them across regressions and between specifications, thus reaching interesting inferences about their geographical distribution and its implications. Finally, we extend our investigation of the economic impact of unemployment flexibility by testing a

hypothesis that was developed in chapter six, about the role of this form of flexibility on regional migration and labour productivity.

8.4.1. Further insights into spatial dependence

To check the robustness of our empirical results, further analysis of the possible form and role of spatial dependence has to be undertaken. As we concluded in section 8.2, although the performance of the two-way error component specification is undoubtedly satisfactory, the possibility of serial autocorrelation and spatial dependence cannot be rejected. Following this, we re-estimated our seven final aggregate flexibility regressions (presented in Tables 8.1 to 8.4) using feasible Generalised Least Squares and simultaneously allowing for serially and spatially autocorrelated and heteroskedastic errors (PSAR1-SARE model) and for temporal and spatial fixed effects (two-way FE model). We refer to these regressions as the 2FE/PSAR1/SARE models. Further, we estimated two more models for each of our regressions, introducing alternatively a spatial autoregressive term (2FE/SAR/Dependent models) and a spatial lag of the aggregate flexibility index (2FE/SAR/Flexibility models). For these two last sets of regressions the standard two-way error component specification used earlier was employed.

The models that include a spatial autoregressive term test directly for the presence of spatial autocorrelation, while the ones including the spatial lag of aggregate flexibility test for the existence of spatial dependence in labour market regulation conditions.[130] For the construction of spatial lags we used a spatial weights

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[130] Although it would be convenient, it is not possible to include both spatial lags in the same regression, due to problems of simultaneity and collinearity.

matrix based on a standard distance decay function.[131] A number of different beta-coefficients were tried for the distance decay function. With the exception of the productivity and output growth regressions, the flatter function (smaller beta-coefficient) produced the most significant spatial lags and was thus used in the empirical analysis. For productivity and output growth the spatial lag was defined with a much steeper distance decay function. Before presenting and evaluating the results of the 2FE-SAR regressions, it must be noted that the better performance of the flatter distance decay function (against steeper ones) indicates that the pattern of spatial dependence –if any- is not as much related to neighbouring effects, as it is related to wider economic conditions, or to possible regional clustering (e.g.: the "North-South divide"). We will return to this observation later in this section.

Table A.8.2 (see Appendix A.8.2) presents the three alternative specifications for the employment regressions (as presented in Table 8.3), while Table A.8.3 presents the same specifications for the regressions on the other economic performance indicators (as presented in Tables 8.1 and 8.4). Each triplet of columns refers to the three alternative specifications for each dependent variable. The 2FE/PSAR1/SARE regressions (first column in each triplet) perform very well, with most of the estimated coefficients exhibiting an increase in their statistical significance, compared to the simple 2FE results. The signs of the estimated coefficients do not change under this specification, with the exception of the technological intensity and investment coefficients in the employment-population and employment growth regressions, respectively (Table A.8.2). Generally, the values of

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[131] Distance between regions (say, A and B) was measured as the travel time (in hours) between the main urban agglomeration of region A and that of region B. Distances and travel times were obtained on-line from the Shell GeoStar "path-finder" (available at www.shellgeostar.com).

the estimated slope coefficients are now lower, compared to the regressions presented in Tables 8.1-8.4, but this is mainly due to the fact that a larger part of the variability of the dependent variables is now explained by the imposed structure of the residuals (heteroskedastic, spatially and serially autoregressive errors). Interestingly, despite the general increase in the statistical significance of the estimates, the significance of the aggregate flexibility index (and its square) in most of the cases declines. Quite heroically, this can be interpreted as evidence suggesting that the estimated flexibility coefficients in the 2FE models of the previous section capture some of the spatial dependence in the determination of the dependent variables.[132]

The second column in each triplet reports the results from the models that include both spatial and temporal fixed effects and a spatial lag of the aggregate flexibility index. The results in this case are effectively identical to the ones obtained in the regressions presented in the previous section, and so is the overall fit of the regressions. The spatial lag of flexibility is only significant in the productivity regression (second column in Table A.8.3), where it has a positive sign, indicating a positive spatial spill-over effect. It is marginally insignificant for the cases of (log) wages, unemployment, employment growth and employment participation, while it is totally insignificant for the cases of investment and output growth. Despite their (marginal) insignificance, the estimated spatial flexibility lags for the wage, employment-to-population and unemployment regressions indicate the existence of a spatial re-enforcement (spill-over) effect, with higher flexibility in neighbouring regions strengthening further the local flexibility effect. It is only in the employment

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[132] We do not wish to stress this point further, but it is worth mentioning that the results obtained from the second set of regressions (2FE/SAR in flexibility) at least do not reject this assumption.

growth regression that a negative effect is found, in the sense that local employment grows slower the more flexible the neighbouring labour markets.

As this could be taken to suggest that part of the non-linearities in the investigated relationships have a geographical origin, it is important to note that the inclusion of the spatial lag of flexibility does not reduce the significance of the quadratic term for the local flexibility variable in any of the regressions. Hence, it seems that the spatial spill-over effects of flexibility are not responsible for the non-linearities observed in the relationship between labour market flexibility and economic outcomes.

In contrast to the spatial lag of flexibility, the spatial autoregressive term included in the third model of each triplet (spatial lag of the dependent variable) is always significant. This finding is as expected, suggesting at first sight that regional economic outcomes are not determined in isolation from the surrounding regions. Positive spatial spill-overs exist for productivity, wages and output growth. On the other hand, a negative spatial autoregressive coefficient is found for the cases of investment, unemployment, employment-to-population and employment growth. This result suggests the presence of a competition effect among regions. Specifically, it seems reasonable to infer that, as far as it concerns evolutions about investment and employment, neighbouring regions compete with each other for the necessary resources.

These two findings, of a positive spill-over effect in terms of incomes and productivity and of a negative neighbourhood effect in terms of employment and investment, relate well to our earlier distinction between two possible forms of spatial dependence. We view the positive spill-overs as an indication of spatial homogeneity, where outcomes are determined at a national level and then diffused to the regional

economies. In contrast, we consider the negative spill-overs as capturing a pure spatial dependence effect (spatial correlation), with neighbouring regions competing with one another for the allocation of capital and labour. This explanation is consistent with our discussion earlier in chapter six of the two possible (but not mutually exclusive) forms of spatial dependence but shows the limitations of the assumption that the UK regions can be treated as mini-economies. This, despite the fact that, having said that, the exclusion of the spatial autoregressive terms does not seem to result in any significant loss of analytical accuracy.

8.4.2. The nature of the fixed effects

Throughout this chapter it has been argued that there is some complementarity between spatial dependence and fixed effects. In the previous section we saw that both possible forms of spatial dependence (spatial homogeneity and spatial correlation) are present in the determination of economic outcomes. Additionally, in all estimating regressions, significant temporal and regional effects were found. Naturally, the question arises as to the nature and geography of these effects.

Although the size of our sample does not allow a thorough investigation of the determinants of the regional fixed effects, it is still possible to explore their geographical distribution. Such an exercise can possibly offer further insights into the forms of spatial dependence as discussed in the previous section. While the absolute value of the estimated fixed effects as such is of little interest (among others, for reasons related to measurement), their relative value shows the position of each

region in the distribution of bottom-line economic conditions.[133] Table 8.5 presents

the ranking of the UK regions according to the spatial fixed effects as they have been

estimated from the simple two-way FE regressions (top panel) and from the two-way

FE-SAR regressions with spatial autocorrelation (lower panel).[134] It also presents a

number of correlation coefficients showing the association between the two sets of

rankings, as well as that between these two sets and two economic structure

indicators, namely the share of manufacturing employment and the share of

employment in the banking and financial sectors (bottom panel).

At first, the ranking of the fixed effects does not reveal any straightforward

pattern. For example, Greater London and the rest of the South East have the highest

bottom-line levels of productivity and real wages and the lowest levels of

unemployment. On the other hand, their ranking on employment participation and

investment is reversed. Nevertheless, a closer inspection allows one to identify a

weak geographical clustering in the rankings, with southern regions doing better in

terms of unemployment, productivity and wages but worse in terms of investment.

As discussed in previous parts of this chapter, the fixed effects estimated from

the 2FE regressions might be capturing some of the spatial and temporal

autocorrelation in the models. If this is true, the rankings of the second panel, which

refer to fixed effects estimated from the spatially autoregressive 2FE models, should

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[133] By the term "bottom-line" we mean the conditions that are specific to each region before the effect of any of the identified determinants (explanatory variables). This, of course, assumes that the estimated models do not suffer from any omitted variables problems.

[134] Northern Ireland has been excluded from the results reported in Table 8.5. Although the inclusion of Northern Ireland does not affect the substance of the arguments developed here, it does artificially weaken the correlations presented in the last panel of Table 8.5, as this region behaves in many respects as an outlier. In their analysis of the regional evolutions of the prices of labour market characteristics, Duranton and Monastiriotis (2000) find N. Ireland to behave similar to London, although in terms of its economic structure and performance it much more closely resembles the more backward regions of the UK. Also, note that no results are presented for the (employment and output) growth equations, as the region-specific effects were not always significant for these cases.

measure more accurately the true regional fixed effects. Moreover, if the form of spatial dependence captured by the autoregressive term is the only form of spatial dependence present, one would expect the fixed effects -if significant- to be randomly distributed across regions.

Table 8.5: Regional fixed effects from 2FE and 2FE-SAR regressions

	Employment-to-population	Unemploy-ment rate	Real productivity	Log of real wage	Real investment
(1) Fixed effects from 2FE models					
Smaller	East Anglia	Gr. London	West Midlands	East Anglia	East Anglia
	RoSE	RoSE	North West	North	South West
	Wales	East Anglia	North	East Midlands	Gr. London
	East Midlands	South West	Wales	Wales	Wales
	South West	Scotland	East Midlands	York	East Midlands
	York	Wales	York	West Midlands	North
	West Midlands	East Midlands	Scotland	Scotland	West Midlands
	Scotland	York	South West	South West	RoSE
	North	North West	East Anglia	North West	York
	North West	West Midlands	RoSE	RoSE	North West
Larger	Gr. London	North	Gr. London	Gr. London	Scotland
(2) Fixed effects from 2FE-SAR (autoregressive term) models					
Smaller	North	Gr. London	West Midlands	North	East Anglia
	Scotland	RoSE	North West	York	South West
	York	East Anglia	North	Wales	Gr. London
	North West	South West	Wales	East Midlands	East Midlands
	East Midlands	Wales	East Midlands	Scotland	West Midlands
	Wales	East Midlands	York	West Midlands	RoSE
	South West	Scotland	Scotland	East Anglia	Wales
	East Anglia	York	South West	North West	North
	West Midlands	North West	East Anglia	South West	York
	RoSE	West Midlands	RoSE	RoSE	North West
Larger	Gr. London	North	Gr. London	Gr. London	Scotland
Correlations					
(1) - (2)	0.210	0.996	0.999	0.946	0.924
(1) - Manuf.	-0.200	0.737	-0.749	-0.649	0.125
(1) – B&F	0.524	-0.656	0.654	0.951	-0.192
(2) - Manuf.	-0.555	0.726	-0.730	-0.695	0.189
(2) – B&F	0.896	-0.681	0.655	0.890	-0.271

Notes: The last panel presents correlation coefficients between the distribution of the estimated fixed effects ((1) and (2)) and the regional employment shares of manufacturing and banking and finance (B&F).

In contrast, as we observe from the second panel of Table 8.5, the evidence for geographical clustering in the rankings of the fixed effects is stronger for the spatially autoregressive regressions. Evidence of clustering is now obtained also from the fixed effects of the employment participation regression, which is the regression with the strongest spatial autoregressive term. The ranking of the fixed effects for this regression changes significantly between the two specifications (compare the correlation coefficients in the first row of the third panel). In other words, when controlling for spatial dependence, the evidence of a spatial proximity (clustering) effect is amplified. Southern regions have -everything else set equal to zero- higher employment-to-population ratios, higher wages and productivity, and lower levels of investment and unemployment. Northern regions exhibit the reverse economic conditions, while the midlands stand somewhere in the middle. We are led to conclude that, if anything, there is clear evidence of a North-South divide, especially after controlling for spatial dependence.

It is, of course, somewhat puzzling that the evidence of spatial clustering is stronger when we control for spatial autocorrelation. One reasonable explanation for this is that there is more than one form of spatial dependence characterising our data (and, hence, the determination of economic outcomes in Britain). To examine this possibility, we correlated the estimated fixed effects with two measures of industrial composition (employment shares of manufacturing and banking and finance). The results presented in the last panel of Table 8.5 indicate a clear positive correlation between the employment share of banking and finance and the fixed effects and a clear negative correlation between the latter and the share of manufacturing

employment.[135] Bottom-line productivity and wages are higher in the more service-oriented regions, while unemployment is higher in regions where manufacturing is relatively more dominant. It is only the fixed effects of investment that seem not to be related to the industrial structure of the regional economies.

This finding has a very strong implication. There is a form of spatial dependence manifesting itself as geographical clustering (the North-South divide) and being strongly related to the industrial structure of the regional economies. This is successfully captured in our estimating regressions by the regional fixed effects. On the other hand, another form of spatial dependence is also present. This is captured by the spatial autoregressive terms in the 2FE-SAR regressions (as presented in Tables A.8.2 and A.8.3) and is related to economic proximity (spatial autocorrelation).

We can contrast this observation to our conclusion of the previous section to reach an overall conclusion about the nature of spatial dependence that characterises the relationships we investigated. A spatial homogeneity effect transmits national outcomes to the regional economies. This procedure is filtered through some regional fixed effects, which take the form of a geographical clustering (the North-South divide) and which are related to the industrial structure of the regional economies. Another form of spatial dependence -that of economic proximity- is also present, as regions compete with one another to attract factor flows -namely of labour and capital-, with a positive development in one region having adverse effects to its neighbouring regions. The spatial homogeneity and geographical clustering effects are stronger for some macro-economic indicators, like unemployment, productivity,

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[135] Note that the significance of the estimated correlations does not imply that the original regressions are mis-specified. Rather, it suggests that industrial structure, apart from any slope effects it has on economic outcomes has also a threshold effect.

wages and output growth. In contrast, the spatial autocorrelation effect is more specific to the factor-demand side of the economy, particularly employment growth and investment.

8.4.3. Unemployment flexibility, migration and productivity

We take now a closer look at the role of unemployment flexibility. We saw in chapter six that the treatment of the unemployed can have an impact on a regional economy, which goes beyond the direct economic and spatial proximity effects, as these have been estimated in sections 8.3 and 8.4.2. Specifically, there is the possibility of a second-level economic effect of unemployment flexibility that operates through migration. This effect is twofold. First, higher levels of unemployment flexibility, apart from their direct productivity-enhancing effect, can generate out-migration, as they reduce the returns to unemployment in the region. This can create labour shortages in the region and pose problems to further economic expansion. Second, everything else equal, out-migration is associated to outflows of human capital, as -for constant across regions wage premiums related to skills- the probability of migrating is positively correlated to skills. In other words, low unemployment benefits might be contemporaneously associated with higher levels of productivity but, by not withholding the (skilful) temporarily unemployed inside the region, they result to declines in labour productivity in subsequent periods.

Effectively, this rationale leads to two research hypotheses that can be examined either simultaneously or in isolation. First, one can investigate the effect of unemployment flexibility on migration. Then, one can assess the relationship between lagged unemployment flexibility and labour productivity, taking into account the effect of the former on migration. Examining simultaneously these research

hypotheses requires the application of IV, which is not without problems, as discussed in section 8.2. Hence, we estimated the two regressions related to the research hypotheses independently, although we also experimented with the IV estimations, as discussed below.

Table 8.6: Unemployment flexibility and migration

In-migration rate	OLS	RE/FE	2-FE	2-FE
Constant	0.0104	0.0021	-0.0078	0.1912
	(3.95)	(1.13)	(-1.94)	(3.91)
Real Wage	-0.00002	-4.8e-06	0.0001	0.0001
	(-3.27)	(-0.96)	(3.72)	(4.61)
Unemployment	-0.0004	-0.0001	-0.0010	-0.0011
	(-3.88)	(-1.06)	(-4.76)	(-5.02)
Output per capita growth	0.0142	0.0025	0.0009	-0.0004
	(2.60)	(0.55)	(0.14)	(-0.07)
Unemployment flexibility	-	-	-	-0.2240
				(-4.08)
Region	-	31.45^+	31.09^+	9.52^+
		0.000	*0.000*	*0.000*
Year	-	-	1.45^+	2.38^+
			(0.108)	(0.002)
R^2 (Adj. R^2)	0.08	0.08	0.68	0.70
	(0.07)	(-)	(0.63)	(0.66)
Heterosk.	24.67	-	25.64	26.52
	0.000		*0.000*	*0.000*
Breush-Pagan	-	676.02^{++}	-	-
		0.000		
Hausman	-	0.001^{++}	-	-
		0.999		

Notes: $^+$**:** This is an F-test for the significance of the fixed effects. $^{++}$**:** The Brausch-Pagan and Hausman tests approve the fixed-effects model against the random-effects model and against the no-effects model.

Table 8.6 presents the empirical investigation of the role of unemployment flexibility on migration, as discussed in section 6.4. In the first three models we try different econometric specifications, starting from a simple pooled regression estimated with OLS. When we test for region-specific effects (second column) the Breusch-Pagan and Hausman tests indicate that the performance of the model is improved when region-specific fixed effects are also included. Employing a two-way error component specification (third column) improves further the performance of the

estimating regression. Hence, the final model, where our measure of unemployment flexibility is introduced, is estimated using a two-way fixed effects specification.

As we have already discussed, according to economic orthodoxy high unemployment benefits (lower levels of unemployment flexibility) must make local unemployed workers more reluctant to migrate (while they will also make some unemployed people from other areas migrate in the high-benefits – low-flexibility area). If this was the case, we should find a significant negative relationship between unemployment flexibility and immigration. Indeed, this is what the empirical results show, as higher unemployment flexibility is found to reduce net in-migration. The stability and signs of the other coefficients increases our faith on the robustness of this finding.[136] Hence, the rationale suggesting that "high-benefit areas are also high unemployment areas from which people out-migrate" (implying a positive relationship between flexibility and in-migration) is not supported by our data. It is still possible, however, that high benefits have a positive impact on productivity by retaining the temporarily unemployed in the region, until they get a new job. As the most likely to migrate are the high-skilled, this possible withholding could result in discouraging the outflow of the region's human capital ("brain drain"), thus increasing labour productivity in the next period.

This possibility is not directly rejected by our data, although it was impossible to find a significant negative relationship between lagged unemployment flexibility and labour productivity. The last column of Table 8.1 (section 8.2.2) reported a regression of labour productivity on the one-year lag of unemployment flexibility. When holding constant the impact of migration, unemployment flexibility has a clear

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[136] Note that in the approved specification (2-way FE), the sign of the wage coefficient is correct (positive).

positive impact on productivity (column 4), indicating a motivation relationship, where high unemployment benefits encourage workers to shirk and discourage them from investing in human capital. When not controlling for migration, unemployment flexibility fails to be significant at any level (model 6). Further, our preliminary experimentation with the IV regressions (not reported), where migration is instrumented with unemployment flexibility and the control variables of Table 8.6, suggested that the (positive) productivity effect of migration is much stronger when its endogeneity is controlled for, implying that unemployment flexibility has a negative productivity effect operating through migration. These results indicate that although the motivation effect of unemployment flexibility on productivity seems to dominate, the withholding effect is also present.

8.5. Labour market flexibility and wage inequalities

In this section we turn our focus to the issue of wage inequalities. We first look at the different forms of wage inequalities that might be of interest to economic research and then perform an empirical investigation on the impact of labour market flexibility on one specific form of wage inequalities. Our focus is on cross-personal inequalities in wages, although cross-regional inequalities in average wages and in within-regions wage distributions are also considered. The next sub-section discusses these issues.

8.5.1. Forms of wage inequalities

The last two decades have witnessed a well-reported increase in cross-personal wage inequalities, both in the UK and elsewhere. As we discussed in more detail in chapters two and four, changes in female labour force participation,

technology and international trade explain only a limited amount of either the trends or the levels of cross-personal wage dispersions. The role of institutional factors, mainly trade unionism and minimum wage legislation, has also been investigated in the literature. As our empirical investigation of chapter four showed, for a sample of OECD countries, the decline in trade unionism (in terms both of size and power) is the single most important factor, among all labour market institutions, responsible for the widened wage inequalities in the OECD.

Of course, labour market institutions, as well as the other factors identified in the literature, are possible determinants not only of inequalities among persons, but also of inequalities among regions. Labour market flexibility in particular can generate regional inequalities in two ways. First, there is the possibility of an effect operating through average wages. If flexibility increases (or reduces) average wages, regional differences in labour market flexibility -other things equal- will produce regional differences in average wages, resulting to regional wage dispersions. Second, if labour market flexibility is responsible for wider wage inequalities across people, it is possible that regions with different skill, occupational and gender compositions of their labour forces will exhibit different average wage levels. Again, this effect will manifest itself as regional wage dispersions.

There is also a third domain of wage inequalities where labour market institutions can have an impact, that of regional differences in within-region (cross-personal) wage inequalities. Recent evidence for the UK (Monastiriotis, 2000) suggests that regional wage differentials are only a minor part of cross-personal wage inequalities. The major part of the latter is related to occupational and educational wage differentials. Nevertheless, the evidence suggests that the structure of such wage differentials differs across regions. In other words, there are relatively small

regional dispersions in the first moments (average regional wages), but rather substantial regional dispersions in the second moments (standard deviation of regional wages). Figure 8.1 reproduces the evolution of regional differences in within-regions wage dispersions for the British regions from Monastiriotis (2000).

Figure 8.1: The evolution of regional differences in wage dispersions
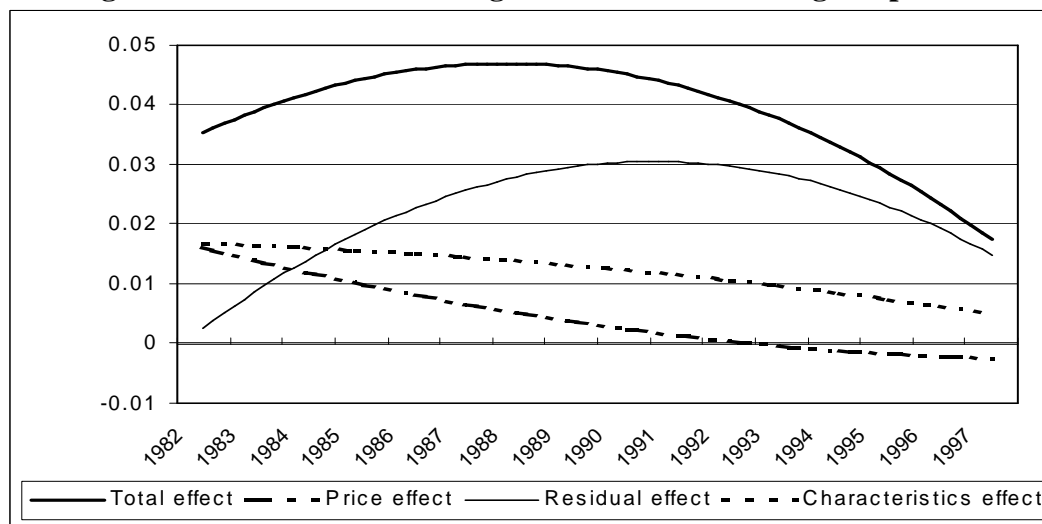
As it can be seen, this form of regional inequalities has risen during the 1980s and declined in the 1990s ("total effect"). There is a strong trend towards regional convergence in the distributions of measured characteristics (gender composition, education and experience) and their prices (returns) throughout the period ("characteristics effect" and "price effect", respectively). This trend is slowed down (while in the 1980s it was totally cancelled) by the increase in unexplained regional differences ("residual effect", including the sectoral and occupational distribution of regional employment and the returns to occupational and sectoral characteristics). Although intuitively labour market institutions and labour market flexibility in particular could be considered as possible determinants of this evolution, our preliminary investigation, as well as the more detailed evidence presented in

Monastiriotis (2000), suggest that the effect of the latter on this form of regional inequalities is minimal, if significant at all.

With this observation, the interest as far as it concerns regional dispersions turns to the impact of labour market flexibility on regional inequalities in average wages. As stated already, changes in labour market flexibility can generate changes in the levels of cross-regional wage inequalities by affecting differently average wages across regions. In the light of increasing (or, at least, non-decreasing) regional wage inequalities, we wanted to test the role played by increasing labour market flexibility. Duranton and Monastiriotis (2000) have presented detailed evidence suggesting that the increase in regional inequalities in the UK over the last two decades is solely attributable to national labour market developments. Cross-personal and cross-regional wage inequalities have risen following the significant increases in the returns to experience and education and females labour force participation. Although all these factors exhibited regional convergence over the same period, this led to increased regional wage disparities, as a result of the uneven distribution of human capital (experience and education) across regions.

The finding that wage inequalities (across both regions and people) have increased because of increases in the returns to human capital is consistent with the argument about skilled-biased technological change (see for example, Berman et al., 1998 and Kiley, 1999). It is also consistent with an explanation stressing the role of labour market flexibility. Specifically, it is reasonable to assume that the deregulation of labour relations had a liberating role for the supply and demand forces and that, consequently, labour market flexibility allowed the returns to human capital (and thus wage inequalities) to increase. We tried to test this possibility by performing a number of time-series regressions on the standard deviation of regional wages.

Although most of the economic factors were not significant in explaining the evolution of regional dispersions over time, the variables measuring regional variations in female labour force participation rates as well as national returns to education and experience (human capital) were found to be significantly and positively related to regional wage disparities.[137] Interestingly, these three variables explained more than 80% of the evolution of regional wage dispersions in our sample years.[138] In contrast, the inclusion of the labour market flexibility variables (either the detailed or the aggregate indexes) did not improve the performance of the regressions. All forms of labour market flexibility were insignificant in all specifications, including quadratic and log-linear models. By implication, we had to conclude that labour market deregulation has not been responsible for the evolution of regional wage inequalities over the last two decades.

In the light of these results, our focus turned on the impact of labour market flexibility on cross-personal wage inequalities within regions, which is presented in the next section. This investigation is analogous to the one presented in chapter four, for the OECD countries. However, the results from these two exercises are not directly comparable, as the structure of the labour market flexibility indicators differs among them, as do the measures of wage inequality that we use (a measure of range in chapter four and the standard deviation of regional wages here).

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[137] Among the other factors that we tried were productivity, technological intensity, industrial composition and migration. The non-significance of such variables is not particularly puzzling, especially given the results obtained for the returns to human capital. Returns to education and experience have been estimated from a large number of regional wage equations, based on data derived from the Family Expenditure Survey, as explained in Duranton and Monastiriotis (2000).

[138] Additionally, the overall performance of the regressions was satisfactory, as there was little evidence of any problems associated to heteroskedasticity or serial autocorrelation.

8.5.2. Cross-personal wage inequalities

As was also discussed in section 4.4, there is little information in the literature about the possible ways in which one could model the determination of cross-personal wage inequalities at an aggregate level. Economic theory and economic intuition suggest that factors like international trade and technological change might play a significant role. However, for our cross-regional (panel) analysis, such factors were either constant across space or impossible to quantify. In the first case, this does not result in any bias in the estimation of the regressions, as the constant-across-space effects, if they are significant, will be successfully captured by some time-specific fixed effects. In a similar way, some significant spatially variable determinants of wage inequalities (e.g.: openness to trade) might be successfully captured by region-specific effects or by some other explanatory variables.[139] On the other hand, theory identifies a number of possible determinants of cross-personal wage inequalities at the micro-level. Such factors include female labour force participation, the skill and occupational composition of the workforce and labour mobility. These factors are indirectly derived from a standard wage equation framework, where an individual's wage is a function of her education, skills, occupation, sector of employment, and labour market experience (or age).

Under these considerations, our model made wage inequalities a function of some measures of regional workforce characteristics. Consequently, the original model included the following variables: professionals as a share of total employment, to control for the occupational composition of employment; education (average years

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[139] Think of the openness to trade case. If openness is the result of some structural characteristics that are quite constant over time (e.g.: a country's capital is normally more integrated to the international economy than most of the country's regions), region-specific effects will be sufficient controls for this effect. Also, if openness is related to the industrial structure of a region, the latter will be sufficient in controlling for the effect of the former.

of schooling), to control for the skills of the regional workforce; the female employment share, to control for the presence of (typically, less well-paid) females in the workforce; the share of manufacturing employment, to control for industrial composition; and the share of employment in banking and finance, to control for the typically higher labour compensations in the business services sector. Additionally, the following variables were originally included, to control for less workforce-specific determinants of wage inequalities: regional unemployment rate, net in-migration rate and a measure of the demand for skills in the region.[140] Unemployment is included as a control for the possibility that workers accept a more unequal pay (e.g., compensation below the minimum wage) when their probability of finding alternative employment is lower. However, unemployment could also reduce average wages and thus artificially lead to a narrowing of wage dispersions inside the region. In-migration is assumed to control for the availability of external pools of labour, but it could also be capturing an element showing the attractiveness of the regional economy. In this respect, both the impact of unemployment on wage inequalities and that of in-migration can go either way. Finally, the demand-for-skills variable is included as a proxy for skill biased technological change and is expected to enter with a positive sign in the estimating regressions.

Following the results obtained in the previous section, the original model was specified as a two-way error component model, including both region-specific and time-specific fixed effects. However, the fixed effects were always insignificant, despite our experimentation with different functional forms and econometric specifications, including log-linear and semi-log models, as well as spatially and

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[140] The "demand for skills" variable, obtained from Duranton and Monastiriotis (2000), is derived from a panel of wage equations and calculated as the estimated returns to skills in each region for each year.

temporally autoregressive models. Moreover, not all explanatory variables from the original model were found to be significant. Specifically, the female, manufacturing and banking employment shares were always insignificant, despite our prior expectations. The growth of employment in banking and finance was in some specifications significant, but its overall performance indicated that this variable offered little additional information and should, therefore, be dropped. In any case, this did not affect our estimates of the labour market flexibility effects.

These results have significant implications. The insignificance of the sectoral composition variables and of the temporal effects indicates that international factors like (openness to) international trade and globalisation have had little impact on within-regions wage inequalities in the UK over the last two decades. The insignificance of the regional fixed effects suggests that the same forces that generate and perpetuate wage inequalities in the UK operate in all regions. Finally, the insignificance of the female employment variable verifies the results found elsewhere (Machin, 1998; Monastiriotis, 2000; Duranton and Monastiriotis, 2000) that the increase in cross-personal wage inequalities is mainly the effect of changes in the distribution of, and returns to, skills and occupational status.

Table 8.7 presents the main results from our cross-personal wage inequalities regressions. The first column reports the results for the basic model, excluding the theoretical variables that were always insignificant, as discussed above. As the fixed effects were also insignificant, the basic model has been estimated with simple OLS. The fit of the regression is satisfactory and typical for such kinds of exercises. All the micro-level structural variables are highly significant and have the expected signs. Cross-personal wage inequalities increase with education, professional employment and the demand for skills. The last effect is an indirect verification of the role that

skill-biased technological change can have on wage inequalities (Berman et al., 1998). Unemployment and in-migration are at the margins of significance and both enter with a negative sign, possibly indicating that for each variable both effects considered earlier are in operation, with the wage-reducing effect for unemployment and the attractiveness effect for migration dominating.

The model in the second column adds some of the detailed labour market flexibility indexes to the original model. Some of those indexes, like external numerical flexibility and labour mobility, were not significant in any specification and have thus been excluded. The estimated coefficients for our control variables are very robust to the inclusion of these indexes, increasing our confidence on the model specification. The inclusion of the flexibility indexes increases the fit of the regressions by more than 10%, while the regression residuals are well behaved (normal and homoskedastic). Internal flexibility is found to increase within-regions wage inequalities although the effect of internal functional flexibility is non-linear and, for extreme values, becomes negative. In contrast, the impact of wage and unemployment flexibility is negative, although at the margin of (in)significance.

The wage-inequality effects of unemployment and wage flexibility are highly surprising, as we would expect that wage stickiness and generous unemployment benefits would lead to a more equivocal distribution of wages across the workforce. This result is also in contrast with our findings of chapter four, but is very robust across different specifications.[141] Quite surprising is also the result obtained for unionism flexibility. This variable has the correct sign (positive) but is not significant

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[141] One possible explanation is that the estimated unemployment flexibility coefficient is capturing the effect at the middle-to-top part of the wage distribution. It is possible that unemployment flexibility increases the range of the wage distribution but reduces its standard deviation, by compressing wage differentials across workers receiving close-to-average wages. Such an explanation is compatible with both the results presented here and those presented in Table 4.5.

at any acceptable level, in contrast with the findings in chapter four and numerous relevant studies in the literature. More striking is the finding that aggregate flexibility is not significant in the determination of wage inequalities (results not shown here). Given the statistical insignificance of some of the detailed flexibility indexes, however, we view this result as being specific to our sample (and, thus, to the specific mix of flexible labour market arrangements).

The models presented in the next three columns of Table 8.7 deal with further specification issues, specifically with the issue of temporal autocorrelation and spatial dependence. The regression in the fourth column introduces spatial dependence in the form of spatial autocorrelation in the dependent variable (using a rather steep distance decay function, which was found to perform better than flatter ones). The fourth model uses an alternative specification for spatial dependence, replacing the spatially autoregressive term with a spatial lag of overall (aggregate) flexibility, which has the same distance decay function as the spatially autoregressive term. As it can be seen, the spatially autoregressive term is highly insignificant, while the spatial lag of aggregate flexibility is marginally significant. The positive coefficient indicates a clear neighbourhood domino effect, where proximity to flexible labour markets (but not local labour market flexibility) generates wider wage inequalities. This result calls for a more careful investigation of the spatial effects of specific elements of labour market flexibility. However, this would require an extensive investigation of possible forms of spatial dependence and is thus left for future research. This decision is further strengthened by the fact that the estimated spatial-lag effect is only significant at the 10% level.

Table 8.7: Wage inequalities and labour market flexibility

Regressors	OLS	OLS	OLS-SAR	OLS-SAR	PSAR1-SARE
Constant	0.1681 (3.25)	6.1972 (1.94)	6.2266 (1.94)	6.4875 (2.04)	4.9934 (3.48)
Professionals	0.1857 (3.18)	0.1864 (2.88)	0.1936 (2.97)	0.1934 (3.01)	0.1633 (3.81)
Education	0.0175 (4.02)	0.0167 (3.31)	0.0158 (3.06)	0.0108 (1.84)	0.0128 (4.23)
Unemployment	-0.0014 (-1.53)	-0.0021 (-1.26)	-0.0019 (-1.16)	-0.0024 (-1.49)	-0.0008 (-0.95)
Migration	-1.0832 (-1.69)	-1.6737 (-1.84)	-1.6806 (-1.85)	-1.7845 (-1.98)	-1.5968 (-3.09)
Demand for skills	1.2869 (8.13)	1.1862 (7.15)	1.1518 (6.74)	1.1277 (6.73)	1.0249 (9.52)
Internal numerical		0.0816 (2.03)	0.0627 (1.37)	0.0497 (1.15)	0.1197 (5.08)
Internal functional		0.1596 (2.77)	0.1625 (2.81)	0.1544 (2.69)	0.1977 (6.33)
Wage flexibility		-0.1000 (-1.62)	-0.0941 (-1.51)	-0.1669 (-2.36)	-0.0198 (-0.64)
Unemployment flexibility		-12.627 (-1.83)	-12.7719 (-1.85)	-13.3268 (-1.95)	-10.1298 (-3.29)
Unionism flexibility		0.0385 (0.90)	0.0328 (0.76)	0.0367 (0.87)	0.0572 (2.66)
Square of unempl. flex.		6.5930 (1.78)	6.6527 (1.80)	6.8809 (1.87)	5.2204 (3.16)
Square of int. functional		-0.1908 (-2.65)	-0.1988 (-2.74)	-0.2032 (-2.83)	-0.2084 (-4.91)
Spatial lag			0.1519 [D] (0.85)	0.3085 [E] (1.91)	
R-squared (Adj. R^2)	0.373 (0.357)	0.424 (0.388)	0.426 (0.387)	0.435 (0.396)	342.19 0.00 [F]
Heteroskedasticity	0.05 0.823	0.02 0.900	0.05 0.819	0.01 0.933	
Normality	2.85 0.002	2.25 0.012	2.32 0.010	2.38 0.009	

Notes: t-statistics (z-statistics for the GLS regressions) in parentheses. Figures in *italics* show significance levels. As the fixed effects and 2-way fixed effects models were rejected at all levels of significance, all but the last regressions have been estimated with OLS. The FGLS regression (last column) allowed for first-order serial autocorrelation for the dependent variable, with panel-specific autocorrelation coefficients (PSAR1), and for spatially autocorrelated heteroskedastic errors (SARE).. [D]: Spatial lag of the dependent variable. [E]: Spatial lag of the aggregate flexibility index. [F]: This is a LR-test for the joint significance of the regressors

Given these considerations, as well as the fact the inclusion of the spatial lags does not add much information to the original model, in the last column we report the results from an alternative model, which applies a feasible GLS estimation, allowing for a general form of spatial autocorrelation and panel-specific serial autocorrelation in the regression errors. As it can be seen from comparing the significance of the regressors, the performance of the regression is substantially improved when both

spatial and temporal residual autocorrelation is introduced. Further, some of the results become now more compliant with our prior expectations. Professional employment, education and the demand for skills are still highly significant and remarkably stable. Interestingly, unemployment becomes now totally insignificant, while the in-migration effect is now strengthened. More importantly, wage flexibility is in this case insignificant, which is a much more plausible scenario compared to the negative effect estimated before. Above all, union flexibility has now a highly significant positive coefficient, which is in accordance to both intuition and the vast majority of findings in the literature. Finally, the impact of internal flexibility (both numerical and functional) remains positive and significant, as before. Still, overall flexibility is insignificant (results not shown).

8.5.3. Synopsis of findings – implications

In this section we attempted to estimate the impact of labour market flexibility on wage inequalities. There are various forms of wage inequalities that one could consider. The three forms that we considered here were inequalities between regions, within regions (across people) and between regional wage distributions. Our preliminary investigation revealed that labour market flexibility offers little information in the explanation of regional wage inequalities, in both the first (average wages) and second (standard deviation of wages) moments. In other words, labour market flexibility was not found to be significant in the determination of regional wage inequalities or of regional differences in within-regions wage inequalities. This finding is also supported by the limited relevant empirical findings in the literature (Taylor, 2000; Monastiriotis, 2000).

On the other hand, specific elements of labour market flexibility are significant in explaining wage inequalities within regions. Our empirical investigation has shown that the increase of this form of wage inequalities in the UK over the last two decades is partly attributable -along with other factors identified in the literature, predominantly skill-biased technological change- to the decline in trade union densities and the increase in internal flexibility (both numerical and functional). Unemployment flexibility has a rather counter-intuitive (negative) effect on wage inequalities, while also unexpected was our finding that external numerical flexibility and flexibility in the mobility of labour are not significant.

The results obtained here share many similarities with those obtained in chapter four, under a rather different specification. Above all, the most striking similarity is that in none of the cases have fixed effects been found to be significant. This is a clear indication that developments in wage inequalities are determined at a scale wider than the region or even the nation. Local factors matter, but only because of their differences across spatial units. In other words, had all countries and regions had the same levels (and qualities) of labour market flexibility, demand for skills and occupational and skill compositions, inequality levels would be remarkably uniform across space.

Probably the most interesting finding is that aggregate flexibility is not a significant factor explaining wage inequalities. Specific elements of flexibility have specific and rather diverse effects, but overall levels of flexibility exhibit no association with the dispersion of wages across people. The extent to which this conclusion is specific to our sample is, of course, not known. It is conceivable, however, that the specific mix of labour market flexibility arrangements matters, in

the sense that the individual elements of labour market flexibility can cancel or re-enforce the (negative or positive) wage inequality effects of aggregate flexibility.

Irrespectively of that, however, our finding that internal flexibility and the decline in unionism have resulted in higher levels of cross-personal wage inequalities is highly important, raising an issue of equity-versus-efficiency. Both union flexibility and internal flexibility have been found to have some positive effects on productivity, employment, or growth. Although the debate about inequality and growth (equality versus efficiency) occupies a distinct part of the economics literature on its own, our impression is that it is mainly a policy question as to which of the two is of higher priority. Moreover, in line with the conclusions of other researchers (Nickell, 1997a; Siebert, 1997), our empirical analysis suggests that, as far as it concerns labour market flexibility, this is not a dilemma between two mutually exclusive alternatives. Rather, policy can concentrate on enhancing those forms of flexibility that are found to improve economic performance, while guaranteeing at the same time such a mix of flexible arrangements and labour market institutions that can help overcome the possible adverse flexibility effects on labour incomes and their distribution.

APPENDIX A.8.1: List of variables

Table A.8.1: List of variables used in the empirical analysis

Variable name	Variable description
Dependent variables	
Productivity	Real regional output per worker
Output per capita	Real regional output divided by regional population
Wage	Real average regional wage
Empl/pop ratio	Share of employees to total regional population
Investment	Real gross fixed capital formation (private investment)
Unemployment	Regional unemployment rate: share of unemployed to economically active population (registration-based)
Employment growth	Annual logarithmic change of regional employment
Wage dispersion	Standard deviation of real regional wages (FES-based)
Explanatory variables	
Female employment	Share of female employees to total regional employment
Manufacturing	Share of manufacturing employees to total regional employment
Technological intensity	Ratio of manual to non-manual employees (inverse measure) (FES-based)
Migration	Net in-migration rate: share of net immigration to regional population
Inflation	Annual logarithmic change of regional price index
Investment share	Share of real gross fixed capital formation to regional output
Professionals	Share of professional employees to regional employment (FES-based)
Education	Average years of full-time continuous education of the regional employees (FES-based)
Demand for skills	Estimated real returns to education from a panel of wage equations
Flexibility	The flexibility indicators have been described in detailed description in chapter seven (LFS-based)

Table A.8.2: Fixed effects and spatial dependence in the employment regressions

	2FE PSAR1-SARE	2FE-SAR (flexibility)	2FE-SAR (dependent)	2FE PSAR1-SARE	2FE-SAR (flexibility)	2FE-SAR (dependent)	2FE PSAR1-SARE	2FE-SAR (flexibility)	2FE-SAR (dependent)
	Employment-population ratio			Employment growth			Unemployment		
Real GDP pc*	6.37E-06 (4.94)	2.00E-06 (6.32)	-2.76E-07 (-0.13)	0.203 (4.35)	0.205 (2.15)	0.166 (2.14)			
Real wage*				-0.385 (-3.14)	-0.305 (-1.23)	-0.285 (-1.41)	0.023 (11.57)	0.036 (10.77)	0.036 (10.89)
Empl/population ratio							-18.821 (-14.46)	-18.314 (-9.70)	-16.899 (-8.39)
Unemployment**	-0.008 (-13.68)	-0.140 (-9.79)	-0.007 (-7.51)	4.95E-06 (2.45)	-0.003 (-3.00)	-0.003 (-3.24)	-0.729 (-1.36)	-4.497 (-2.82)	-5.202 (-3.32)
Migration	-1.022 (-6.50)	-1.289 (-2.74)	0.131 (0.45)	0.521 (1.36)	2.245 (5.53)	1.235 (3.60)	-38.298 (-5.64)	-102.06 (-6.66)	-108.95 (-7.27)
Female LF participation	-0.699 (-65.96)	-0.736 (-26.38)	-0.386 (-15.48)	-0.136 (-5.21)	-0.121 (-3.60)	-0.088 (-3.25)			
Technology intensity	0.008 (2.15)	-0.027 (-1.81)	-0.014 (-1.54)	0.054 (3.52)	0.041 (4.25)	0.027 (3.50)			
Manufacturing Share*				-3.124 (-53.42)	-3.136 (-33.66)	-2.144 (-17.52)	-20.672 (-13.60)	-20.631 (-9.01)	-19.466 (-8.23)
Overall Flexibility	-0.372 (-1.49)	-1.530 (-2.42)	-1.289 (-3.46)	2.748 (8.47)	1.732 (2.40)	1.534 (2.82)	-4.138 (-4.59)	-11.693 (-2.95)	-8.000 (-3.40)
Square of Overall flex.	0.235 (1.67)	0.819 (2.23)	0.752 (3.53)	-1.566 (-8.22)	-1.053 (-2.45)	-0.877 (-2.78)			
Spatial lag of Overall flex.		-1.067 (-1.50)	-3.805 (-18.98)		-1.241 (-1.23)	-2.589 (-10.30)		-57.579 (-1.23)	-0.756 (-1.78)
Year	3355.51 *0.000*	6.56 *0.000*	36.70 *0.000*	3624.09 *0.000*	7.03 *0.000*	20.41 *0.000*	31983.94 *0.000*	95.70 *0.000*	13.44 *0.000*
Region	533.82 *0.000*	7.61 *0.000*	11.90 *0.000*				1208.52 *0.000*	63.72 *0.000*	76.41 *0.000*
R² [+]	930.87	0.91	0.97	707.51	0.89	0.93	45.94	0.97	0.97
Heteroskedasticity		51.09 *0.000*	7.55 *0.011*		19.17 *0.000*	5.72 *0.024*		1.51 *0.220*	0.64 *0.421*
Normality [++]	29442.92 *0.000*	4.93 *0.000*	2.04 *0.019*	31205.16 *0.000*	5.001 *0.000*	1.572 *0.063*	115036.41 *0.000*	1.409 *0.079*	0.778 *0.223*

Notes: t-statistics (OLS) and z-statistics (FGLS) in parentheses. Figures in *italics* show significance levels. *: the growth rate of this variable (rather than its level) has been included in the employment growth regressions. **: Investment and inflation (rather than unemployment), for the employment growth and unemployment regressions, respectively. [+]: For the 2FE-PSAR1-SARE regressions, the log-likelihood rather than the R-square is reported. [++]: For the 2FE-PSAR1-SARE regressions, a Wald-test for the joint significance of the regressors is reported instead of the normality test.

Table A.8.3: Fixed effects and spatial dependence in the output regressions

	2FEPSAR1-SARE	2FE-SAR (flex.)	2FE-SAR (depend.)	2FEPSAR1-SARE	2FE-SAR (flex.)	2FE-SAR (depend.)	2FEPSAR1-SARE	2FE-SAR (flex.)	2FE-SAR (depend.)	PSAR1-SARE	2FE-SAR (flex.)	2FE-SAR (depend.)
	Productivity			Real Wage			Investment			Output growth		
Productivity *				0.364	0.479	0.454	7.29E-05	6.26E-05	5.16E-05			
				(18.75)	(14.94)	(15.00)	(20.34)	(13.57)	(10.83)			
Inflation **				-0.277	-0.217	-0.174	0.854	2.081	2.393	-0.685	-0.6372	-0.5747
				(-10.45)	(-3.39)	(-2.87)	(3.95)	(2.66)	(3.30)	(-8.28)	(-3.86)	(-3.62)
Empl/population ratio *	-18.688	-13.726	-18.622							0.093	0.0819	0.0982
	(-9.14)	(-4.60)	(-5.28)							(8.63)	(2.33)	(2.89)
Unemployment	0.510	0.6531	0.5736	0.003	0.005	0.001	-0.062	-0.064	-0.020	0.008	0.0053	0.0047
	(9.89)	(9.75)	(7.67)	(2.66)	(2.14)	(0.33)	(-5.04)	(-2.67)	(-0.85)	(5.78)	(3.45)	(3.38)
Migration	55.676	104.279	108.998							0.624	1.3650	1.4732
	(5.31)	(4.86)	(5.11)							(1.67)	(2.71)	(3.07)
Female LF participation	9.127	14.5386	15.6615	-0.706	-0.970	-0.910						
	(5.59)	(4.86)	(4.20)	(-15.46)	(-12.37)	(-12.18)						
Manufacturing share	34.026	30.2413	26.7765									
	(11.51)	(6.14)	(5.20)									
Overall Flexibility	50.313	156.506	156.277	0.191	0.401	0.214	-9.626	-25.285	-38.119	-1.552	-1.6531	-1.698
	(2.68)	(5.59)	(5.62)	(6.08)	(3.69)	(2.40)	(-2.42)	(-2.62)	(-4.23)	(-2.82)	(-1.94)	(-2.24)
Square of overall flex.	-28.029	-86.193	-86.540				5.091	13.751	21.596	0.835	0.9461	0.9741
	(-2.65)	(-5.40)	(-5.46)				(2.23)	(2.33)	(4.15)	(2.72)	(1.83)	(2.21)
Spatial lag		26.3606	0.2908^C		1.491	0.764		0.830	-2.349		-0.2884	1.3202^C
		(2.04)	(2.48)		(1.53)	(5.14)		(0.03)	(-5.34)		(-0.21)	(4.25)
Year	3649.85	44.46	11.36	2957.75	26.72	7.20	2701.47	8.99	6.69	5944.73	28.49	1.14
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.322*
Region	811.45	26.79	29.02	466.10	33.05	47.84	513.04	25.74	26.90	30.17		
	0.000	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*		
R$^{2 +}$	-18.15	0.958	0.958	789.76	0.972	0.972	172.85	0.980	0.983	702.52	0.789	0.805
Heteroskedasticity		1.41	1.25		0.17	2.45		7.10	1.32		4.59	0.51
		0.242	*0.261*		*0.681*	*0.120*		*0.011*	*0.253*		*0.032*	*0.481*
Normality $^{++}$	112*10^3	1.603	1.818	24610.3	3.33	2.52	91763.2	4.346	4.375	86770.7	3.831	3.646
	0.000	*0.051*	*0.033*	*0.000*	*0.000*	*0.011*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*	*0.000*

Notes: t-statistics (OLS) and z-statistics (FGLS) in parentheses. Figures in *italics* show significance levels. *: Real GDP instead for productivity for the investment regressions and employment growth instead of the employment ratio in the output growth regressions. **: Investment share instead of inflation in the output growth regressions. +: For the 2FE-PSAR1-SARE regressions, the log-likelihood rather than the R-square is reported. ++: For the 2FE-PSAR1-SARE regressions, a Wald-test for the joint significance of the regressors is reported instead of the normality test. ^{C}: For this regression a steeper distance decay function (beta-coefficient –0.7) has been used for the calculation of the spatial lag, as this improved the performance of the regressions.

CHAPTER NINE

CONCLUSIONS

The empirical investigation of the impact of labour market flexibility on regional economic performance in the UK over the last two decades concludes our inquiry into the nature and economic effects of labour market deregulation and flexibility. In this final chapter we summarise the main points of our inquiry, synthesise our empirical results, draw some implications for policy and theory and discuss directions for future research. The chapter is organised into four sections, but our primary focus throughout is the role of labour market flexibility for the economy and society at large.

9.1. Overview of the study

The main purpose of this study has been to identify and measure the regional economic effects of labour market flexibility in the UK over the last twenty years. Because of the complexity of the issue and the relative absence of a coherent analytical background on which to base the empirical investigation, this analysis was effectively divided into two parts. The first part dealt mainly with theoretical issues. This provided a framework for analysing (i) the concept of labour market flexibility, (ii) the evolution of flexibility over time and (iii) the theoretical expectations and empirical evidence regarding its impact on the economy. The second part focused explicitly on the main research question, attempting to measure the changing levels of

flexibility in the UK over the last two decades (at a regional level) and link them to regional economic performance.

Limited by sample size (data availability) and the panel nature of our data, the empirical investigation focused solely on the short-run economic effects of flexibility. As the last two decades have been a period of significant change in the UK and global economies alike, it is possible that the long-run effects of flexibility might have been very different from the short-run effects we observed. However, our examination of the flexibility effects on a large number of economic indicators allows us to speculate on the possible long-run effects. For example, the positive wage and productivity effects estimated in our short-run specifications are at odds with the negative investment and output growth effects. Our expectation is that in the long-run productivity and wages will stabilise or decline if the adverse short-run effects of flexibility on investment and growth cannot be offset.

We return to this issue in the following sections of this chapter. In this section we summarise the four main research questions that our study attempted to answer. The first referred to the conceptualisation of labour market flexibility.

- *Which are the forces that necessitate labour market deregulation and flexibility?*

- *Which are the elements that characterise a flexible labour market?*

- *What are the targets of labour market flexibility and which is the strategic framework within which these targets are derived?*

These questions were dealt with in chapters one and two. We reviewed the wider socio-economic, political and technological developments that created the conditions for enhanced flexibility in the labour markets. We provided alternative definitions for labour market flexibility and identified its main elements through an analytical

decomposition of the term. We also discussed the alternative developmental models that the search for enhanced labour market flexibility is assumed to reflect, according to different theoretical approaches. Finally, we reviewed the OECD experience of labour market deregulation and changes in flexibility.

The second question inquired to the economic impact of labour market flexibility.

- *What do theory and empirical evidence suggest about the economic role of labour market institutions and their regulation?*

- *Which are the main relationships; which are the direct and which are the indirect effects?*

- *Do these effects differ between the short and the long-run?*

- *Is there a trade-off between efficiency and equality in the effects of flexibility?*

- *Finally, can we construct a behavioural microeconomic model, where the predicted impact of labour market deregulation and flexibility will successfully reflect patterns observed in reality?*

In chapter three we reviewed the main literature on the economic impact of labour market flexibility, dividing our review into analytically distinct parts. Thus, we examined separately the labour market, macroeconomic, static, dynamic, and equality effects of labour market flexibility. Chapter four presented original empirical evidence from an international sample, showing that at the macroeconomic level there is little evidence of an economically significant relationship between labour market flexibility and economic performance. However, strong evidence was provided for a positive relationship between aspects of flexibility and within-country wage inequality. Finally, in chapter five

we developed a detailed theoretical framework and a corresponding formal model to examine the impact of changes in labour market regulation. Such changes created the conditions for enhanced labour market flexibility. Under plausible assumptions, the latter led to gains in economic efficiency but also generated inequalities among workers. These predictions of the model are consistent with the stylised facts and empirical evidence reviewed earlier.

The work then proceeded to examine the two core research questions. First,

- *What was the evolution of labour market flexibility in the regional labour markets of the UK, given the far reaching programme of labour market deregulation followed since the early 1980s?*

- *What evidence is there to suggest that labour market flexibility increased in the UK over the same period?*

- *How did the regional distribution of flexible working arrangements change, if at all, over the last twenty years?*

- *What patterns can be identified and what inferences can be drawn?*

To answer these questions we had to introduce the spatial aspects of the issue and discuss the relevance of the various possible spatial scales of analysis. This was undertaken in chapter six, where we stressed the importance of spatial analysis and discussed the possible spatial dynamics that can affect the regional economic impact of labour market flexibility. This allowed us to "regionalize" our earlier theoretical considerations and laid the foundations for the regional empirical analysis of chapters seven and eight. In chapter seven we examined the changes in flexible labour market arrangements across the UK regions over the last two decades. We found evidence of cluster convergence (group specialisation) in different elements of flexible arrangements and verified the widely held belief that overall labour market flexibility

had increased in the UK since the late 1970s. Nevertheless, our evidence for the relative importance of each type of labour market flexibility also revealed that some arrangements have penetrated the social relationships of the labour market faster than others. For example, internal numerical flexibility increased faster than unemployment flexibility in all UK regions between 1979 and 1998.

Our last but central research question was dealt with in chapter eight.

- *What was the specific impact that the flexibilisation of the UK labour market(s) had on its own regional economies?*

- *Which elements of flexibility have affected which economic outcomes and by how much?*

- *Did all effects move in the same direction?*

- *Is there any evidence of non-linearities, either due to size or due to spatial dependence?*

- *Has clustering (specialisation) altered the severity of the economic effects of flexibility and if so, under which mechanisms has this happened?*

The empirical analysis produced a rich set of findings. Overall, these suggest that it is somewhat simplistic and not particularly helpful to consider labour market flexibility as a single and indivisible thing. *Specific* elements of flexibility have had *specific* effects on *specific* indicators of regional economic performance. Overall, labour market flexibility was found to have had a positive impact on some main economic indicators, while on aggregate it was not responsible for the increase in cross-personal wage inequality. However, it significantly contributed to lower levels of investment and slower output growth. Furthermore, spatial dynamics were present, but they were neither uniform across space nor were they singular: distinct forms of spatial

dependence and clustering were identified and seemed to operate differently across the various sets of relationships.

Because the issue of the economic impact of flexibility is the most important addressed in this study, it is important to synthesise these empirical results and their implications at greater length. The next section attempts to provide such a summary. In section 9.3 we return to the conclusions drawn from the theoretical discussion and provide some implications for theory and policy.

9.2. Empirical findings

The main body of the empirical analysis referred to the estimation of the economic effects that labour market flexibility had on the UK regions during the 1980s and 1990s. Reflecting the theoretical analysis, the empirical investigation split flexibility into seven categories, quantified in the following indexes: (i) internal numerical flexibility, (ii) external numerical flexibility, (iii) internal functional flexibility, (iv) unemployment flexibility, (v) wage flexibility, (vi) flexibility in wage bargaining (union flexibility) and (vii) labour mobility.[142]

Mainstream economic theory suggests that all of these elements should be positively related to economic outcomes. On the other hand, theoretical approaches more sceptical of labour market flexibility generally expect flexibility to produce both beneficial and adverse economic effects. One of the few cases were a consensus can be identified across theoretical approaches, refers to the expectation that the economic impact of flexibility would usually be non-linear. For this reason, we investigated the existence of non-linearities by introducing in the regressions quadratic terms of the

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[142] Definitions for these indexes and the corresponding theoretical categories have been provided in sections 7.2 and 2.2, respectively. See in particular Tables 7.1 and A.2.1.

flexibility variables, but otherwise tried to keep our estimating models as unrestrictive and general as possible.

Our empirical evidence clearly supported the expectation about the non-linear flexibility effects. With the exception of wages and unemployment, "overall" labour market flexibility affected all economic indicators in a non-linear fashion.[143] The effect of the quadratic term always counteracted that of the linear term, suggesting that for very high levels of flexibility its economic impact flattened out. On the other hand, the evidence for non-linearities for the detailed elements of flexibility (the constituents of the "overall" index, individually) was much weaker and applied only to a few indexes. Furthermore, the estimated impacts of the detailed flexibility indexes were not all in the same direction. Opposing effects for different indexes were found.

These two pieces of evidence (the non-linearity of the effects for overall flexibility and the variability of the effects for the detailed indexes) provided strong support to our prior expectation that the economic impact of flexibility is basically an issue of composition. In other words, that it is generally related more to the appropriate mix of flexible arrangements than to a hypothetical optimal amount of flexibility. Take the example of the investment regression (Table 8.4). The impact of overall flexibility is non-linear (fourth column). In contrast, the investment effects of the detailed flexibility indicators are all linear (third column). These effects are limited to internal flexibility (numerical and functional), unemployment flexibility and union flexibility. Clearly this suggests that the obtained non-linear effect is the

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[143] Note, however, that the wage regression had by construction a semi-log specification and so the insignificance of the quadratic flexibility term cannot be interpreted to suggest the absence of non-linearities.

result of the specific composition of flexible arrangements in our sample.[144] Thus, instead of looking at the optimal levels of flexibility or simply at generally enhancing overall flexibility, policy optimisation should consider the optimal composition of flexible working arrangements in order to maximise the economic returns of overall flexibility.

   Putting aside for the moment the issues of composition and of the appropriate policy responses, the most interesting finding of our empirical investigation is that not every aspect of labour market flexibility matters in the determination of every economic outcome. Overall, labour market flexibility affects each and every one of our economic indicators, but specific elements of the composite indicator affect only specific aspects of the economy. Table 9.1 summarises the results obtained from the empirical analysis of chapter eight.

Table 9.1: Summary of empirical results from chapter eight

Economic Index **Flexibility index**	Producti-vity	Empl/pop ratio	Empl. growth	Unempl. rate	Wages	Invest-ment	Output growth	Wage inequality
External numerical	B				B			
Internal numerical				B	B	A	B	A
Internal functional				B		A	A	A
Wage flexibility				A			A	B
Unemployment flexibility	B	B	A	A	B	B	B	B
Union flexibility	B	A	B	B	A	A	B	A
Labour mobility		B		A	B			
Overall flexibility	**B**	**A**	**B**	**B**	**B**	**A**	**A**	

Notes: A shows an adverse effect (e.g.: a positive effect on unemployment or a negative effect on investment); B shows a beneficial effect. For wage inequality B corresponds to a negative effect. Empty cells indicate an insignificant relationship. Results are based on Tables 8.1, 8.3, 8.4 and 8.7.

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[144] In particular this effect is probably due to the fact that unemployment flexibility in the UK regions has risen faster than internal and union flexibility. Because the estimated impact of unemployment flexibility is positive (in contrast with the other statistically significant elements), a non-linear effect is obtained for the overall flexibility index.

External numerical flexibility, contrary to the predictions of mainstream analysis, is only weakly related to the economy and does not seem to enhance labour demand (employment) and production (output). Internal numerical and internal functional flexibility enhance the short-run dynamism of the economy by reducing unemployment and increasing wages and rates of output growth, but have a negative effect on investment. Moreover, they have a robust positive effect on wage inequalities, with the implication that their positive wage effects are not equally distributed across the workforce. Overall, then, such types of flexibility (which together constitute what we called earlier "labour-input flexibility") can be regarded to benefit the economy, as suggested by mainstream economic analysis. However, although not dominant in our estimating sample (the UK regions over the last two decades), our evidence also suggested the existence of an investment substitution effect (which can have potential negative economic effects in the long-run) and of an inequality effect (which can potentially generate social tensions). These two effects are consistent with more institutional theoretical approaches.

Regarding wage flexibility (the unemployment elasticity of wages), its impact was found to be surprisingly small and at odds with economic intuition. Wage flexibility is related to higher unemployment and lower rates of economic growth. Although the possibility of inverse causality in the estimating relationships cannot be easily dismissed, the empirical evidence suggests that this type of flexibility should not be viewed as a possible remedy for economic backwardness. At least for the case of the UK regions during the period of labour market deregulation, this was not the role played by wage flexibility.

In contrast, flexibility in wage bargaining (union flexibility) was found to have a strong positive effect on employment and employment growth, output growth and productivity. It was also found to reduce unemployment, although it had a negative impact on wages and investment and was also significantly associated with the increase in cross-personal (within-region) wage inequalities over the last two decades. Although the wage effect is rather standard in the literature, the negative (short-run) investment effect can be seen as an indication that this type of flexibility can impact negatively on the long-run dynamism of the economy, as was the case with the two types of internal flexibility. Such a negative effect can be due either to investment substitution (cost-saving strategies employed by non-unionised firms), or to worker discouragement (similar to what we called in chapter two "the low pay – low productivity trap", especially given the impact of union flexibility on wage inequality).

Unemployment flexibility (lower unemployment benefits) has important positive effects on productivity, growth, wages and investment. It is associated, however, with higher levels of unemployment and lower levels of employment growth. Interestingly, this type of flexibility appeared to be associated with lower levels of wage-inequality.

Taking the impact of the three types of flexibility in wage determination (wage, unemployment and union flexibility) together, there are two general conclusions. Flexibility in wage bargaining and flexibility in the treatment of unemployed (union and unemployment flexibility, respectively) have positive effects on the economy, although long-run dynamism can be possibly threatened by their adverse investment effects. In addition, increasing the responsiveness of wages to the unemployment rate

(wage flexibility) seems of little relevance for -and may even be detrimental to- economic performance.

Finally, the impact of labour mobility (including occupational, regional and job-mobility) is found to be more relevant for the workforce than for the economy at large. Labour mobility is related to higher wages and levels of employment, but is statistically unrelated to any of the other economic indicators included in our analysis. In this sense, the encouragement of labour mobility in more flexible labour market settings might be an important complement to other types of flexibility, in that it can reduce the latter's potentially adverse effects on workers (e.g., wage losses), while not affecting the main economic indicators.

Interestingly, the overall effect of aggregate flexibility reveals a somewhat different story, compared to the results based on the detailed indexes. The experience of the UK regions over our period of analysis suggests that aggregate labour market flexibility played only a limited role in improving economic performance. Increases in overall flexibility seem to have led to higher levels of labour productivity, employment growth and wages, and kept unemployment at levels lower than what would have otherwise obtained. On the other hand, there is a clearly negative (albeit non-linear) effect on investment, labour force participation and output growth. Consequently, one can interpret these effects as attributing again a dual role to labour market flexibility. On the one hand, flexibility can enhance short-run dynamism by increasing productivity, labour incomes and employment. On the other hand, the negative effects of investment substitution and labour discouragement, also found earlier for the specific cases of union flexibility and labour-input flexibility, seem to have led the regional economies of the UK to growth rates below their long-run potential.

We will return to the discussion of the implication of this duality (between the short-run microeconomic type of effects of aggregate flexibility and its long-run and more macroeconomic effects) in the next section. For now, we close this section with some conclusions about the spatial relationships that were identified. Labour market flexibility seems to generate supra-regional clusters of specialisation, as its effects are transmitted across neighbouring regions. This is indicated by the fact that the spatial lags of aggregate flexibility (see Tables A.8.1 and A.8.2) had, in most cases, the same signs as the local flexibility coefficients. This pattern was reversed only for the cases of investment and employment growth, which correspond to the temporal evolution of the two main factors of production (physical capital and labour). In these two cases, spatial dependence took the form of negative autocorrelation, revealing a picture of competition among regions. Regions with more flexible labour markets seem to lose out in capital growth and gain in terms of employment growth in relation to neighbouring regions with more rigid labour markets.

9.3. Policy implications

In this section we combine the conclusions drawn from the various parts of the analysis and draw out a number of policy implications about the role of labour market flexibility. Our question here is how the empirical findings relate to and inform the theoretical discussion in the previous chapters, in relation to: (i) the forces that seem to have driven the wave of labour market deregulation over the last twenty years, (ii) the theoretical considerations on the economic role of labour market flexibility, (iii) our model of the labour market effects of deregulation in labour standards and (iv) the evolution of flexible labour arrangements in the UK regions.

In chapter one we argued that increasing labour market flexibility constitutes a pragmatic response to a changing global economic environment, characterised by greater uncertainty, volatility and competition. This response was formed under specific political conditions that provided ideological justification for the shift of policy from equality and income stability towards efficiency and growth. We also argued, however, that such a response is not necessarily optimal in the long run. Tensions and contradictions related to the disorganisation of the social relations of production and the externalisation of the social costs of investment in human and physical capital could arise, harming long-run economic dynamism and possibly cancelling the short-run benefits of deregulation. Admittedly, these arguments had a clear ideological component.

However, in chapter two, a more organised discussion of the forms, types, manifestations, targets and sources of labour market flexibility provided the necessary analytical framework for the arguments made earlier. By attempting to define and analytically decompose the terms flexibility and deregulation, we showed that they referred to a redistribution of power towards those who organise production. We argued further, that the forms of socio-economic re-organisation that these terms reflect, include the introduction of new sets of institutional arrangements rather than the complete withdrawal of policy intervention (i.e., labour market regulation). By identifying the array of elements believed to comprise labour market flexibility, we also argued that many of these elements may conflict by pulling the organisation of the relations of production in opposite directions thus posing a potential threat to the coherence and stability of the socio-economic system.

Our main example in chapter two referred to the "flexible firm" model and the conflicting needs of a highly skilled and immobile core workforce (internal labour

markets and functional flexibility) and of a relatively unprotected and highly mobile peripheral workforce (secondary labour markets and numerical flexibility). These conflicting needs can generate either internal contradictions (which, as such, are unsustainable in the long-run) or duality in the labour market (which can lead to labour market segmentation and probably segregation and social exclusion). The presence of such inconsistencies and contradictions may well explain the comparative failure of alternative theoretical approaches (e.g., the "flexible firm" model, or other humanitarian and structuralist approaches) to account for the processes that generate the specific forms of labour market arrangements observed in contemporary economies.

Our review of the country experiences with respect to labour market deregulation strengthened our conclusion that such forms of labour market arrangements (and, thus, increasing labour market flexibility) are largely the random outcome of a range of well-intended reactions to a changing economic order (as opposed to being a systemic response to the latter). As such, they require a self-regulating framework in order for their internal contradictions to be overcome. Such a perspective is compatible with the plethora of qualitatively different combinations of flexible working arrangements observed in reality (across countries and workplaces). It is also consistent with the variety of -often conflicting- effects of labour market institutions identified in the theoretical and empirical literature, as reviewed in chapter three.

As was discussed in section 3.5, the literature review raised two issues. First, that the firm-level and short-run effects of flexibility can be different from its economy-wide and longer-run effects. It is perfectly possible that flexibility can increase wages, employment, productivity and profitability in the short-run, while

simultaneously having a negative long-run effect on human capital accumulation, investment, income distribution and consumption. The second issue is that flexibility can increase efficiency only at a cost, which is related to the removal of regulations that have been in place largely to protect the workers and achieve social as well as economic goals. Under such a perspective, it is a matter of choice as to which effects and relationships one wishes to focus on: possible increases in (part-time) employment, or (equally) possible reductions in job-security and educational attainment. To overcome this problem, we concluded in chapter two that the issue of flexibility and labour market deregulation should really be viewed as the selection of carefully structured and appropriately implemented regulations, so that both economic and social goals could be achieved.

The empirical evidence presented in chapter four, drawn from the scarce quantitative information available internationally, supported these two points raised from the literature review. Furthermore, it cast doubt on the widespread belief that countries with more flexible labour markets necessarily perform better economically than others. It showed that different elements of flexibility have conflicting effects on economic performance and (wage) inequalities and revealed only weak relationships between flexibility and such economic indicators as unemployment, labour supply, productivity, and output growth.

In an attempt to explain the conflicting effects identified and the resulting uncertainty about the overall impact of flexibility on the economy, in chapter five we returned to theoretical considerations. We developed a model which introduced labour standards in an efficiency wages framework. This model showed how (and when) labour market deregulation can lead to enhanced flexibility in labour markets. It also showed how enhanced flexibility might lead to the emergence of duality and

non-standard forms of employment, thus generating inequalities in wages, working conditions and employment opportunities. Despite these possible adverse effects, the model allowed for increases in average wages, employment levels and profitability to follow the deregulation of labour relations. This was consistent with the conclusions drawn from the preceding discussion.

In chapter six we turned to the spatial dimension of our analysis by introducing the notion of space into our earlier theoretical considerations. Our discussion showed that labour market flexibility can have a cumulative causation-type of effect on regional economic disparities. The economic backwardness of less favoured regions can be sustained while more advanced regions (and possibly the country as a whole) can experience improvements in their economic performance. Interestingly, by employing a regional economic perspective, the contradictions between short-run efficiency and long-run sustainability of labour market flexibility (this time, between short-run gains in regional economic performance and widening regional economic disparities in the longer-run) were exacerbated.

Our review in chapter seven of the specific experiences of the UK regions in terms of labour market flexibility suggested that despite the presence of a general (national) trend followed by all regions, regional specialisation in specific forms of flexible labour arrangements was clearly identifiable. We understood the presence of such patterns of specialisation to represent an empirical illustration of the following notion: that the "appropriate" mix of labour market institutions and regulatory arrangements is specific to the tradition, history, economic circumstances and socio-economic structure of a particular (regional) economy. Naturally, the question of flexibility is not how much flexibility is enough, but rather what are the appropriate regulations and what mixture can guarantee the "reproducibility" of the socio-

economic system (social justice and economic stability) and also achieve improvements in short- and long-run economic performance.

The empirical results presented in the last chapter offered further support for the above observation. Labour market flexibility has indeed on average played a positive role in the overall economic performance of the UK regions. Moreover, the sharp increase in wage inequality is only partly attributable to increased flexibility, since it is only specific to elements such as internal and union flexibility. Nevertheless, investment and output growth were lower in regions and periods of greater labour market flexibility. Some regions improved their relative position due to the specific mix (and qualities) of flexible labour arrangements that prevailed there as the outcome of regional responses to the national deregulation programme. On the other hand, some regions fell further behind, as the flexibilisation of their labour markets did not assist their economic dynamism.

Given our theoretical discussion and analysis, we posit that labour market flexibility is in some sense a necessity in advanced contemporary economies. The relatively recent international forces producing greater uncertainty, increased competition and accelerating technological progress have altered the endurance and efficiency of older rigid systems of labour market regulation. But, interestingly, many of the components of labour market flexibility also produce adverse economic outcomes.

It is probably unwarranted to argue that such adverse effects could threaten the stability of the economic system and of the social networks upon which markets operate. Nevertheless, it must be noted that the new forms of flexible labour arrangements have altered the social relationships that govern labour markets. To facilitate change and adaptation while simultaneously sustaining the smooth operation

of the socio-economic system, the deregulation of labour relations must take specific regional conditions into account. The specific social and economic structure of each (regional) economy must be examined before the appropriate combinations, qualities and quantities of labour market regulations can be approved, in order for them to guarantee the smooth and efficient functioning of both the economy and the society. In this respect, of course, the specific experience (and empirical evidence) of the UK regions over the last two decades is of little relevance for other economies, characterised by different political and historical traditions, economic structures, cultures and aspirations.

For the UK, however, it seems that some prescriptions can be made. Internal (functional and numerical) flexibility, unemployment flexibility and labour mobility seem to be important assets for a well-functioning economy. However, their increase would appear to require extra attention to be paid to redistribution policies, social security, educational provision and the encouragement of investment, in order to alleviate any adverse social and economic effects. Trade unions have played a mixed role, by harming short-run economic performance but apparently by increasing long-run efficiency. As in chapter four, our conclusion here is that specific effort must be directed so that the deregulation of union power does not promote the disappearance of unionism but instead strengthens the co-operative, productivity-enhancing "face of unions". In contrast, external flexibility and wage flexibility, although important from a theoretical micro-economic perspective, apparently have not had any significant beneficial effects on the UK economy and should not be considered as crucial for the improvement of national or regional economic performance.

9.4. Extensions – epilogue

We have here engaged in a detailed analysis of the concept of labour market flexibility and, by measuring the levels of flexibility in UK regional labour markets and employing a detailed econometric analysis, have hopefully provided useful insights into the issue of labour market regulation and policy intervention. Two important contributions can be obtained from this study. First, the empirical analysis of the economic effects of labour market flexibility was based on a detailed theoretical discussion. As a result, the specific indexes used in the empirical analyses are directly related to theory and exhibit a degree of homogeneity that is often absent from related macroeconomic studies. Second, and more importantly, this study provides a direct and sufficiently precise measurement for a large number of elements that comprise labour market flexibility, at a regional level over a twenty-year period for one of the most advanced countries in the world. It is not an exaggeration to say that this exercise is unique in the literature. Equally unique is the nature of the empirical analysis. By utilising a panel of data, the study was able to focus on one single country over a significant time period. The technical experience gathered here might prove to be very useful for future research on the issue.

There are, however, limitations that this study was not able to overcome. A significant number of aspects that can be theoretically included in a measure of labour market flexibility were not included in the indexes derived here, as it was not possible to collect or quantify every relevant piece of information. The empirical analysis therefore did not take into account union power and recognition, union-employer co-ordination, unemployment duration, external functional flexibility, the extent of use of multi-tasking in the production, the quality of specific labour standards and working conditions, and other aspects that might have been of interest. And, as we

have already mentioned, the construction of the indexes must inevitably reflect the author's subjective judgements, since there are no objective guidelines as to how to combine available information into specific indexes of flexibility.

At another level, it was effectively impossible to investigate empirically certain research questions that the theoretical discussion (especially of the neo-institutionalist literature) raised. Clearly, the impact of the specific regime of labour market regulation on the stability of the economic system, or the impact of deregulation on worker attitudes and family structures, are issues that cannot be investigated with a twenty-year-period dataset derived from general-purpose surveys. Furthermore, specific econometric problems and sample size did not allow us to investigate other interesting questions. For example, what is the direction of causality between labour market flexibility and economic outcomes, the degree of spatial co-integration[145] in terms of flexible labour arrangements, or even the significance of dynamic terms in the estimating regressions.

The last issue is clearly important and it is fair to say that it has been rather underplayed here as well as more generally in the literature. It is entirely possible that the impact of labour market flexibility on the economy is not contemporaneous, but rather operates with a lag structure. Specific econometric limitations did not allow for the estimation of dynamic panel regressions with simultaneous controls for fixed effects and spatial autocorrelation. The investigation of dynamic effects had to be limited to controlling for serial autocorrelation in the dependent variables. It must be noted, however, that we examined the impact of flexibility on a wide range of economic indicators, to substitute for our inability to examine explicitly the dynamic

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[145] The term "spatial co-integration" is the spatial equivalent of time-series co-integration. It relates to the complementarity in the movement of economic aggregates across spatial units. For an empirical application of this not yet fully developed technique, see for example Lauridsen (1999).

relationship between flexibility and economic performance. By looking at the various impacts of flexibility on the economy one is able to draw wider conclusions about the dynamic mechanisms that are behind the observable static effects.

Probably the most important limitation of the present study, however, is the fact that we did not enter into a detailed investigation of the specific regional socio-economic conditions that uniquely shape the prevailing forms of flexible labour arrangements and their effect on economic performance. All we were able to do was examine the estimated regional fixed effects and attempt to associate them with the wider economic structures of the UK regions.

Naturally, what appear to be the limitations of our study present a challenge for future research to analyse and understand. Further research might address the regional specificities responsible for the particular combinations of flexible labour arrangements prevailing in a regional economy along with their economic impact. Given the comparative availability of pertinent data for the London economy and the international character of London, future research could focus on this economy and associate the specific developments in terms of labour market flexibility in London (which are distinctive when compared to the rest of Britain), to its social, economic and cultural structures, probably in comparison with other characteristic areas of the UK.

Future research could also focus on the mathematical model developed in chapter five. Using specific information on worker attitudes and production costs by cost category, the model can be directly tested and, if required, amended. Such an analysis could provide a better understanding of the relationship between changes in the provision of labour standards and equilibrium levels of employment, wages and economic opportunities. Additionally, the technical development of a regional

economic version of this model, taking into account the points made in chapter six, could significantly contribute to the analysis of the economic role of labour market flexibility. We believe that such extensions of the present study could potentially lead to the development of an economic theory of labour relations, organising the not yet fully developed discussion on the issue.

We hope that the analysis undertaken here and the contributions made will constitute a solid basis for further investigation into the issues addressed. Our results provide coherent evidence that the social and economic implications of labour market flexibility are not an issue that can be easily resolved with aggregate data and country-level comparative studies. Rather, these implications can only be understood in conjunction with the peculiarities and uniqueness of each specific *place* and the appropriate social infrastructure that these characteristics require.

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