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EXPLAINING UNEMPLOYMENT DEVELOPMENTS IN EUROPE:

THE ROLE OF WAGE-SETTING INSTITUTIONS AND MACROECONOMIC POLICIES[1]

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Abstract

This study seeks to explain unemployment patterns in western European countries prior to the Great Recession. Criticising the standard view that good unemployment performance is primarily due to liberal labour market institutions, the argument advanced here is that different unemployment trajectories can be explained by the different ability or willingness of policymakers in the countries, at different points in time, to influence two key variables: nominal aggregate demand and nominal wages. In a mixture of theoretical and empirical analysis, the scope for, the constraints on, and the institutional and structural prerequisites for policymakers to exert influence on nominal output and wages are identified. Time series analysis suggests that countries that ensure or experience relatively stable growth of nominal output or demand and (less so) wage variables enjoy better labour market performance (especially since 1981). On the other hand, given demand/output volatility, an adaptive wage strategy might be desirable.

A fuzzy set qualitative comparative analysis (fsQCA) is conducted for OECD countries for three twelve-year periods: 1970-1981, 1982-1993 and 1994-2005. Main findings include: Coordinated collective wage bargaining and flexible labour market institutions constitute functional equivalents. The former performed better in the first two periods, the latter in the third period. In the anti-inflationary struggle characterising the second period, there is strong evidence that a *lack* of collective wage setting was associated with particularly poor labour market performance, and somewhat weaker evidence that its *presence* helped deliver relatively good performance. From a longitudinal perspective monetary policies oriented towards employment are closely associated with favourable unemployment trends; cross-sectionally the picture is more complex, however. In most specifications counter-cyclical fiscal or monetary policies to stabilise demand prove favourable to labour market outcomes. Almost no systematic relationship between labour market performance and the degree of openness of an economy was found.

Overall the findings of this analysis suggest that the existing literature has unjustifiably focused, in a one-sided manner, on the importance of liberal labour market institutions, while it has underplayed the role for both employment-oriented macroeconomic policies and coordinated wage-setting.

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Summary

The thesis begins by setting out the stylised facts of (western) European unemployment which any theory of unemployment should be able to explain. The different experience of some large and small European countries and the idiosyncratic development in Austria are noted. The literature on European unemployment prior to the global economic crisis is reviewed. A number of limitations of the standard New Keynesian approach to determine the equilibrium rate of unemployment are suggested. The findings of cross-country econometric comparisons centred on labour market institutions (LMIs) are shown to lack robustness. It is argued that the impact of macroeconomic policy-setting is not adequately considered in empirical work, which only considers 'shocks' or short-run deviations from an equilibrium that is supply-side determined. Collective bargaining institutions are considered in this literature, but the consistent findings on the positive role of bargaining coordination for labour market outcomes are not reflected in standard policy recommendations which are, rather, focused on liberalising labour market institutions.

The standard view is that good unemployment performance is primarily due to liberal labour market institutions. These determine the NAIRU or equilibrium rate of unemployment, primarily via their impact on wage-setting behaviour. Demand enters the explanatory model typically only in the form of exogenous shocks (and this is also how the post-2008 crisis has largely been conceived in employment-policy terms).

The focus of this study, rather, is the link between the institutions and policies that determine the path of nominal aggregate demand and those that determine the path of nominal wages. Expressed at the most general level, the argument advanced here is that different unemployment trajectories can be explained by the different ability or willingness of policymakers in the countries, at different points in time, to influence these two key variables. Countries are likely to be most successful in achieving and maintaining low unemployment if the setting of nominal wages is actively coordinated with the pace of aggregate demand growth. Alternatively, nominal wage growth may be tailored to the requirements given by demand trends that are largely exogenously determined. The study examines, theoretically and empirically, whether this approach can at least complement, if not substitute, an explanation focusing on the importance of deregulation of labour market and welfare-state institutions.

As a first step, drawing on data gathered as part of the influential OECD Jobs Strategy of the early 1990s and its subsequent review in 2006, the unemployment performance and institutional frameworks of a number of European countries are compared up until the mid-2000s. Large discrepancies between the unemployment performance of a number of countries and those expected by standard theory in the light of the levels of and changes in their labour market institutions are identified.

The second chapter derives simple expressions, starting from national accounting identities, for employment growth in terms of changes in just three variables: nominal output, nominal wages

and the wage share. The rate of employment growth is shown to be equal to that of nominal output minus that of wages minus an expression for the shift in national income from labour to profits. The relationship between employment growth and changes in the unemployment rate is examined: under normal circumstances an acceleration of the pace of employment growth is a necessary condition to cut the unemployment rate. By way of illustration the 'story' of aggregate European unemployment is then told in terms of changes in these variables. European employment has grown strongly whenever, over a run of several years, nominal output/demand expanded, provided the growth rate of nominal wages has lagged somewhat behind it. In the short run these effects have been partially masked or muted by changes in the wage share. Particularly beneficial unemployment-reducing effects result from extended periods of stable nominal output/demand growth accompanied by slightly slower nominal wage growth.

Chapter 3 examines the drivers behind nominal output and nominal wages, exploring the extent to which policymakers can influence, independently, these variables. To the extent that this is possible, namely, the identities of Chapter 2 can be read as equations of a causal nature. Nominal variables can have real effects. In a mixture of theoretical and empirical analysis, the scope for, the constraints on, and the institutional and structural prerequisites for policymakers to exert influence on nominal output and wages are identified. This analysis suggests various employment policy options for countries with different characteristics. It is shown that in countries with multi-employer collective bargaining the scope for wage-setters to 'set' the path of nominal wage growth may be greater than usually allowed for in standard economic analysis, in which it is essentially endogenous to the unemployment rate. A country's openness to trade and its position within the European monetary regime are shown to have important implications for both wage setting and macroeconomic policymaking, thus influencing countries' choice of strategies and chances of employment success, irrespective of labour market institutions.

Chapter 4 subjects the theoretical considerations in previous chapters to empirical analysis. It looks at the time series of employment, nominal wage growth, nominal demand and output, and shifts in the wage share for a set of OECD countries over a period of some 35 years. It examines the panel data set and performs some statistical analyses and tests to shed light on the co-movement of the variables. The main findings are as follows:

- The gap between nominal wage and output growth generally closely foreshadows employment growth, although for periods of time – mostly temporary but sometimes extended – shifts in the national income towards wages (profits) can lead to faster (slower) employment growth than that implied by the output-wage gap.
- Rates of nominal output and domestic demand growth frequently differ, sometimes substantially, in the short run. But balance of payments constraints usually prevent discrepancies from persisting. Three-quarters of all shifts between a negative and a positive output-demand gap occur within two years. There is a positive but weak correlation between trade openness and the absolute size of output-demand differentials.

- The data does not suggest that different wage bargaining systems systematically deliver more or less stable nominal wage trends. Rather, wage volatility tends to move, across time and place, in parallel with the volatility of nominal output and demand. These findings are consistent with a prevalence of national strategies of tailoring the pace of wage growth to changing macroeconomic circumstances. Alternatively, a common third factor might be driving wage and demand/output trends. There is only very weak evidence that nominal output is more volatile in small open economies; this strongly suggests that they have developed methods to stabilise nominal output and domestic demand in the face of a greater potential exposure to external shocks.
- When we consider these developments against the background of varying (un)employment performance, the data suggest that countries that ensure or experience relatively stable growth of nominal output or demand and (less so) wage variables enjoy better labour market performance (especially since 1981). This is in line with the evidence for the EU-15 reviewed at the end of Chapter 2 and with the view that a conscious policy design that successfully constrains the volatility of demand and output developments can be seen as an employment-friendly policy regime. On the other hand, given demand/output volatility, an adaptive wage strategy might be desirable.

The fifth chapter presents a detailed empirical analysis of the institutional configurations conducive to good employment performance that enables us to address the question of whether coordinated wage-setting and employment-oriented demand management play a role in explaining positive labour market outcomes. The analysis covers three twelve-year periods: 1970-1981, 1982-1993 and 1994-2005. The methodology deployed – fuzzy set qualitative comparative analysis (fsQCA) – is described and its relevance for answering the central research question of this dissertation is explained. The process of data selection and collation, the construction of indicators, and the coding of the data is described. The results obtained can be summarised as follows:

- Unemployment is characterised by causal complexity, with different policy options available for reaching positive, and constellations responsible for poor labour market outcomes.
- Coordinated collective wage bargaining and flexible labour market institutions – as represented here, at least – constitute functional equivalents. The historical record suggests collective wage bargaining is more unambiguously associated with positive labour market outcomes, at least until the period since the early 1990s, when countries with flexible LMIs tended to perform better.
- From a longitudinal perspective monetary policies oriented towards employment are closely associated with favourable unemployment trends. None of the other variables changed as much – on average across the countries – over the three periods. Changes in the monetary stance – the shift from employment-oriented policies in the 1970s to mon-

etary rigour in the neo-liberal 1980s and a partial reversal from the early 1990s – are very clearly associated with corresponding, often long-lasting changes in the average unemployment rate across Europe and the OECD.

- The monetary policy story is somewhat more complex from a cross-sectional perspective. Notably, in the first period, within Europe, unemployment was lower in "core" countries than in the southern and western periphery, where monetary policy, as measured here, was more expansionary.
- In most specifications counter-cyclical fiscal or monetary policies to stabilise demand prove favourable to labour market outcomes.
- In the anti-inflationary struggle characterising the second period, there is strong evidence that a *lack* of collective wage setting was associated with particularly poor labour market performance, and also – somewhat weaker – evidence that its *presence* contributed to an institutional configuration that delivered relatively good performance for the period. This was notably *not* the case for flexible LMIs whose role in this period appears to have been decidedly ambiguous.
- Almost no systematic relationships between labour market performance and the degree of openness of an economy was found, nor was the latter systematically associated with either a "liberal" or a "coordinated" strategy.

This study has not answered all the questions pertaining to the causes of unemployment and conditions favourable for its lasting reduction. Further case-study research would be needed to flesh out the findings from the empirical analyses presented here, particularly with regard to policy interactions in different countries at different times. But the findings of this analysis suggest that the existing literature has unjustifiably focused, in a one-sided manner, on the importance of liberal labour market institutions, while it has underplayed the role for both employment-oriented macroeconomic policies and coordinated wage-setting.

Zusammenfassung

Die Arbeit beginnt mit der Darstellung einige der wesentlichen Merkmale der Arbeitslosigkeit in (West-) Europa, die jede Theorie der Arbeitslosigkeit zu erklären in der Lage sein sollte. Es werden die verschiedenen Erfahrungen kleinerer und größerer europäischer Länder sowie die idiosynkratrische Entwicklung Österreichs dargelegt. Auf die existierende Literatur zu Arbeitslosigkeit in Europa vor der Krise wird Bezug genommen. Mehrere Unzulänglichkeiten des Neukeynesianischen Standardansatzes für die Bestimmung der gleichgewichtigen Arbeitslosigkeitsquote werden vorgebracht. Es wird gezeigt, dass es den Resultaten von ökonometrischen Ländervergleichen mit Fokus auf Arbeitsmarktinstitutionen an Robustheit fehlt. Es wird argumentiert, dass die Auswirkungen makroökonomischer Politik in der Empirie nicht in angemessener Form berücksichtigt werden. Diese ist zumeist fokussiert auf Schocks und kurzfristige

Abweichungen von einem angebotsseitig bestimmten Gleichgewicht. Zwar beschäftigt sich diese Literatur auch mit tarifverträglichen Institutionen, aber die in fast allen Studien festgestellten Resultate, die von einer förderlichen Rolle der Lohnverhandlungskoordination für den Arbeitsmarkt zeugen, werden in Standardempfehlungen an die Politik kaum rezipiert. Die Betonung liegt überwiegend auf der Liberalisierung des Arbeitsmarktes.

Die Standardsicht ist, dass eine niedrige Arbeitslosenquote vor allem Resultat liberaler Arbeitsmarktinstitutionen ist. Durch sie wird die NAIRU oder die gleichgewichtige Arbeitslosenquote bestimmt, in erster Linie durch den Einfluss auf das Lohnsetzungsverhalten. Die gesamtwirtschaftliche Nachfrage findet in diesen Modellen typischerweise nur in Form eines exogenen Schocks Eingang (in dieser Form wurden auch die Beschäftigungsfolgen der Krise nach 2008 betrachtet).

Der Fokus dieser Studie liegt demgegenüber auf der Verbindung zwischen den Institutionen und *policies*, die einerseits den Pfad der nominalen, aggregierten Nachfrage und andererseits den der nominalen Löhne bestimmen. Vereinfacht ausgedrückt, die hier vorgebrachten Argumente laufen darauf hinaus, dass unterschiedliche Verläufe von Arbeitslosigkeit durch (auch zeitliche) Unterschiede in der strukturellen Fähigkeit oder Willigkeit der Politik bestimmt sind, diese beiden Variablen zu beeinflussen. Es werden die Länder erfolgreich sein, eine niedrige Arbeitslosenquote zu erreichen und zu halten, die die Nominallohnsetzung und den Pfad des Wachstums der aggregierten Nachfrage aktiv koordinieren, so dass sie kompatibel verlaufen. Alternativ könnte das Wachstum der Nominallöhne an die Erfordernisse von Nachfragetrends angepasst werden, die primär exogen bestimmt sind. Diese Studie untersucht, theoretisch wie empirisch, ob dieser Ansatz den Standardansatz mit seiner Fokussierung auf die Liberalisierung von Arbeitsmärkten und Wohlfahrtsstaaten zumindest ergänzen, wenn nicht sogar ersetzen kann.

Als erstes werden die Daten der einflussreichen OECD Jobs Strategy aus den frühen 1990ern sowie ihre Revision 2006 zum Ländervergleich bis zur Mitte der 2000er herangezogen, um die Entwicklung von Arbeitslosigkeit und relevanten Institutionen nachzuzeichnen. In zahlreichen Ländern werden große Diskrepanzen zwischen der Entwicklung der tatsächlichen Arbeitslosigkeit und der Arbeitslosenquote, die im Lichte der Standardtheorie und angesichts der jeweiligen institutionellen Strukturen zu erwarten wäre, identifiziert.

Das zweite Kapitel leitet, auf Grundlage von Identitäten aus der volkswirtschaftlichen Gesamtrechnung, einfache Ausdrücke für das Wachstum von Beschäftigung her. Dieses Wachstum wird bestimmt durch die Veränderung nur dreier Variablen: Nominaler Output, nominale Löhne und die Lohnquote. Es wird gezeigt, dass die Wachstumsrate der Beschäftigung gleich ist derjenigen des nominalen Outputs minus derjenigen der Löhne minus eines Ausdrucks für die Umverteilung nationalen Einkommens von Löhnen zu Profiten. Die Beziehungen zwischen Beschäftigungswachstum und Veränderungen in der Arbeitslosigkeit werden untersucht: Unter normalen Umständen ist eine Beschleunigung des Beschäftigungswachstums eine notwendige Bedingung für eine Reduktion der Arbeitslosenquote. Durch Illustration wird anschließend die

„Geschichte“ aggregierter europäischer Arbeitslosigkeit als Geschichte der Veränderungen dieser Variablen erzählt: Europa erlebte dann Beschäftigungswachstum, wenn über mehrere Jahre hinweg nominaler Output bzw. nominale Nachfrage gewachsen sind, vorausgesetzt, dass das Wachstum der Nominallöhne etwas zeitversetzt folgte. Kurzfristig wurden diese Effekte von Veränderungen in der Lohnquote verdeckt. Längere Phasen, in denen das Wachstum von nominalem Output begleitet von etwas verzögertem nominalem Lohnwachstum war, begünstigten in besonderer Weise die Reduktion der Arbeitslosigkeit.

Kapitel 3 untersucht die Bestimmungsfaktoren für die Entwicklung von nominalem Output und den Nominallöhnen; dadurch wird erforscht, in welchem Maße Politik in der Lage ist, diese Variablen unabhängig voneinander zu beeinflussen. In dem Maße wie dies möglich ist, können die Identitäten aus Kapitel 2 als Gleichungen kausaler Natur gelesen werden. In einem Mix aus theoretischer und empirischer Analyse werden Ausmaß, Grenzen und institutionelle Vorbedingungen einer politischen Beeinflussung des Entwicklungspfads des nominalen Outputs und der nominalen Löhne dargestellt. Die Analyse zeigt mehrere Optionen für Beschäftigungspolitik in verschiedenen Ländern auf. Es wird gezeigt, dass in Ländern mit koordinierten Lohnsetzungssystemen, in höherem Ausmaß die Möglichkeit besteht, den Wachstumspfad der nominalen Löhne „festzusetzen“, als in Standardmodellen angenommen wird. In ihnen geht dieser Wachstumspfad mehr oder weniger vollständig endogen aus der Arbeitslosenquote hervor. Die Offenheit für Handel und die Position im europäischen monetären Regime haben ebenfalls wichtigen Einfluss auf Lohnsetzung und makroökonomische Politik. Dadurch werden die Wahl der Strategie eines Landes und die jeweiligen Chancen auf Erfolg im Beschäftigungsaufbau beeinflusst, unabhängig von den Arbeitsmarktinstitutionen.

Kapitel 4 unterzieht die theoretischen Betrachtungen vorheriger Kapitel einer empirischen Überprüfung. Es werden Zeitreihen von Beschäftigung, nominalem Lohnwachstum, nominaler Nachfrage und Output, sowie Verschiebungen der Lohnquote über die letzten 35 Jahre für eine Gruppe von OECD Ländern betrachtet. Das Panel Datenset wird untersucht, statistische Analysen und Tests werden durchgeführt, um die Bewegungen und Interaktionen der Variablen zu beleuchten. Die wichtigsten Resultate sind folgende:

- Die Lücke zwischen nominalem Lohn- und Outputwachstum hat eine Vorlaufeigenschaft gegenüber dem Beschäftigungswachstum. Jedoch können in einigen Zeiträumen, meistens nur kurzzeitig, manchmal aber auch länger, Verschiebungen des Nationaleinkommens zu Löhnen (Profiten) zu einem schnelleren (langsameren) Beschäftigungswachstum führen, als impliziert durch die Lücke zwischen Lohn- und Outputwachstum.
- Wachstumsraten des nominalen Outputs und der inländischen Nachfrage stimmen mit gewisser Regelmäßigkeit kurzfristig nicht überein. Zahlungsbilanzbeschränkungen sorgen aber dafür, dass diese Diskrepanzen nicht andauern. Drei Viertel aller Verschiebungen zwischen einer positiven und einer negativen Output-Nachfrage-Lücke treten innerhalb von zwei Jahren auf. Es gibt eine positive, aber schwache Korrelation zwischen

Offenheit für Handel und der absoluten Höhe der Output-Nachfrage-Lücke.

- Die Daten lassen nicht den Schluss zu, dass unterschiedliche Lohnverhandlungssysteme systematisch stabilere oder weniger stabilere nominale Lohntrends herbeiführen. Eher läuft die Volatilität der Löhne, über Ort und Zeit, parallel zu der Volatilität des nominalen Outputs und der Nachfrage. Dieses Resultat ist konsistent mit der Existenz nationaler Strategien, den Pfad des Lohnwachstums an makroökonomische Umstände anzupassen. Alternativ könnte auch noch ein dritter Faktor die Entwicklung von Lohn- und Output/Nachfrage-Trends bestimmen. Es gibt geringe Evidenz dafür, dass nominaler Output volatiler in kleinen, geöffneten Volkswirtschaften ist; das heißt, dass dort Mechanismen entwickelt wurden, um den nominalen Output und die inländische Nachfrage gegenüber potentiell größeren externen Schocks zu stabilisieren.
- Betrachten wir diese Entwicklungen vor dem Hintergrund variierender Beschäftigungserfolge, legen die Daten den Schluss nahe, dass Länder, in denen nominaler Output oder die Nachfrage, in geringerem Maße die Löhne, relativ stabil wachsen (vor allem seit 1981), einen robusteren und erfolgreicheren Arbeitsmarkt vorweisen können. Dies stimmt überein mit der Analyse der EU-15 am Ende des zweiten Kapitels, die zu dem Ergebnis kommt, dass eine Politik, die erfolgreich die Volatilität von Output und Nachfrage einschränkt, beschäftigungsfreundlich ist. Andererseits, geht man von gegebenen Schwankungen von Output/Nachfrage aus, dann könnte auch eine adaptive Lohnstrategie wünschenswert sein.

Das fünfte Kapitel präsentiert eine detaillierte empirische Analyse institutioneller Konfigurationen, die einer guten Beschäftigungsentwicklung zuträglich sind. Dies ermöglicht uns, die Frage zu beantworten, ob koordinierte Lohnsetzung und beschäftigungsorientierte Nachfragesteuerung dazu beitragen können, positive Entwicklungen auf dem Arbeitsmarkt zu erklären. Die Analyse erstreckt sich über drei Zwölf-Jahres-Räume 1970-1981, 1982-1993 und 1994-2005. Die angewandte Methode, fuzzy set qualitative comparative analysis (fsQCA), wird beschrieben und ihre Relevanz für die Beantwortung der zentralen Forschungsfrage dieser Dissertation wird erklärt. Der Prozess der Auswahl und Zusammenführung von Daten, die Konstruktion von Indikatoren und die Codierung der Daten wird beschrieben. Die erzielten Resultate können wie folgt beschrieben werden:

- Arbeitslosigkeit wird charakterisiert von kausaler Komplexität, es gibt mehrere mögliche Optionen um positive Entwicklungen auf dem Arbeitsmarkt zu erreichen und verschiedene Konstellationen, die negative Entwicklungen verursachen.
- Koordinierte, kollektive Lohnverhandlungen und flexible Arbeitsmarktinstitutionen, wie hier dargestellt, sind funktionale Äquivalente. Die Analyse aus der Längsschnittperspektive legt nahe, dass kollektive Lohnverhandlungen eindeutiger mit positiven Beschäftigungsentwicklungen einhergehen, zumindest bis zur Periode der frühen 1990er, ab der Länder mit flexiblen Arbeitsmarktinstitutionen tendenziell bessere Ergebnisse

erzielen.

- Aus der Längsschnittperspektive ist eine beschäftigungsorientierte Geldpolitik eng verbunden mit positiven Arbeitslosigkeitstrends. Keine der sonstigen Variablen hat sich im Durchschnitt der betrachteten Länder während des betrachteten Zeitraums so stark verändert. Veränderungen der geldpolitischen Orientierung, von der beschäftigungsorientierten Politik der 1970er zu den strikten Regeln der neoliberalen 1980er und ihrer teilweisen Revision in den 1990ern, sind häufig mit korrespondierenden, oft langfristig anhaltendenen Veränderungen der durchschnittlichen Arbeitslosenquote in Europa und der OECD verbunden.
- Von einer Querschnittsperspektive betrachtet, ist die Erklärung über die Geldpolitik etwas komplexer. Es sticht heraus, dass in der ersten Zeitspanne in Europa die Arbeitslosigkeit in den „Kernländern" geringer als in der südlichen und westlichen Peripherie war. Dort war die Geldpolitik, wie sie hier gemessen wird, allerdings expansiver.
- In den meisten Spezifikationen tragen antizyklische Fiskal- und Geldpolitik mit dem Ziel der Nachfragestabilisierung dazu bei, die Lage auf dem Arbeitsmarkt zu verbessern.
- Im anti-inflationären Kampf, der die zweite Zeitspanne prägt, zeigt sich, dass schwach koordinierte kollektive Lohnsetzung einherging mit besonders schwachen Entwicklungen auf den nationalen Arbeitsmärkten. Etwas weniger deutlich sind die Hinweise darauf, dass die Existenz von koordinierten kollektiven Verhandlungssystemen zu institutionellen Konfigurationen beigetragen hat, die zu relativ guten Arbeitsmarktentwicklungen in dieser Periode in den betroffenen Ländern geführt hat. Dies ist auffällig nicht der Fall für liberale Arbeitsmarktinstitutionen, ihr Effekt auf die Arbeitsmarktperformanz ist durchaus ambivalent in dieser Periode.
- Kaum eine systematische Beziehung wird zwischen Arbeitsmarktentwicklungen und dem Grade der Offenheit einer Volkswirtschaft gefunden. Ebenfalls war die Offenheit nicht systematisch mit einer „koordinierten" oder einer „liberalen" Strategie assoziiert.

Diese Studie hat nicht alle Fragen bezüglich der Ursachen von Arbeitslosigkeit und der Bedingungen ihrer nachhaltigen Reduktion beantwortet. Weitere Fallstudien sind von Nöten, um die Resultate der vorliegenden empirischen Studie zu konkretisieren, vor allem in Hinblick auf die Politikinteraktionen in verschiedenen Ländern in den unterschiedlichen Phasen. Aber die Resultate legen nahe, dass in der bisherigen Literatur ein ungerechtfertigter, einseitiger Fokus auf liberale Arbeitsmarktinstitutionen gelegt wird. So wurde die Bedeutung beschäftigungsorientierter makroökonomischer Politik und koordinierter Lohnsetzung heruntergespielt.

1 EUROPEAN UNEMPLOYMENT: FACTS TO BE EXPLAINED, SURVEY OF THE LITERATURE, RESEARCH DESIDERATA

1.1 Empirical facts about European unemployment: what must any theory be able to explain?

The key stylised facts about unemployment in western Europe[1] between 1960 and the mid-2000s[2] can be succinctly portrayed. With each cyclical downturn the EU15 aggregate unemployment rate[3] ratcheted up from the low levels that prevailed until the mid-1970s (<3%), reaching roughly 5%, 9% and 10% in the mid-70s, and early 80s and 90s respectively (Figure 1.1). There was a decline beginning in the mid-1990s, however, although at an EU average of around 7.4% on the eve of the 2008 crisis, the figure remained high, especially in comparison with the US; subsequently it rose rapidly in both regions as the global economic crisis played itself out. Consistently a better performer than the US in terms of unemployment until the mid-1980s, the EU15 saw a widening unemployment gap with the US open up in the late 1980s and, especially, the 'roaring nineties' (Stiglitz 2003).

At the same time unemployment trends *within* western Europe have been highly diverse (Figure 1.2). Rather than look at all 15 EU member states separately, it is useful to group countries together as a first step towards identifying empirical regularities that can help to develop hypotheses regarding the underlying drivers. We can distinguish two main country groups, drawing on a stylised fact, identified by many authors (e.g. Auer 2000, Nickell 1997), of a small-large country divide from the early 1990s until into the economic crisis. The first, which can be termed large unsuccessful employment performers (LUEPs), consists of Germany, France, Italy and Spain. The second group is composed of three small successful employment performers (SSEPs), namely Denmark, Netherlands, and Ireland. Separately we consider two individual country cases which do not fit this pattern, Austria and the UK.

1 This research project will be limited to western European countries (and some non-European OECD countries) for the following reasons: The central and eastern European countries had totally different economic systems until around 1990 when unemployment in western Europe was already very high; they were then hit by a transition crisis that in most cases drove unemployment up, for reasons that had little to do with those in western Europe; more pragmatically, time series data, especially for institutional variables, are available for these countries for much shorter times periods and in some cases not at all. Finally, I lack expertise in these countries.

2 The main body of this study does not seek to engage in explaining unemployment trends in the wake of the global economic and financial crisis since 2008. My interest in the topic long predates the more recent rise in unemployment across the advanced market economies. The aim of this study, work on which started back in 2006, has been to engage in the 'classical' literature on European unemployment from the 1990s and 2000s, and the policy recommendations exposed therein. In a concluding chapter I reflect on some of the lessons that can be learnt from this study in the late of developments in the crisis. This will constitute a fruitful field for ongoing research.

3 Standardised data are used based on the ILO concept. Unless otherwise indicated the source is the AMECO database of DG EcFin, European Commission: cf. http://ec.europa.eu/economy_finance/indicators/annual_macro_economic_database/ameco_en.htm

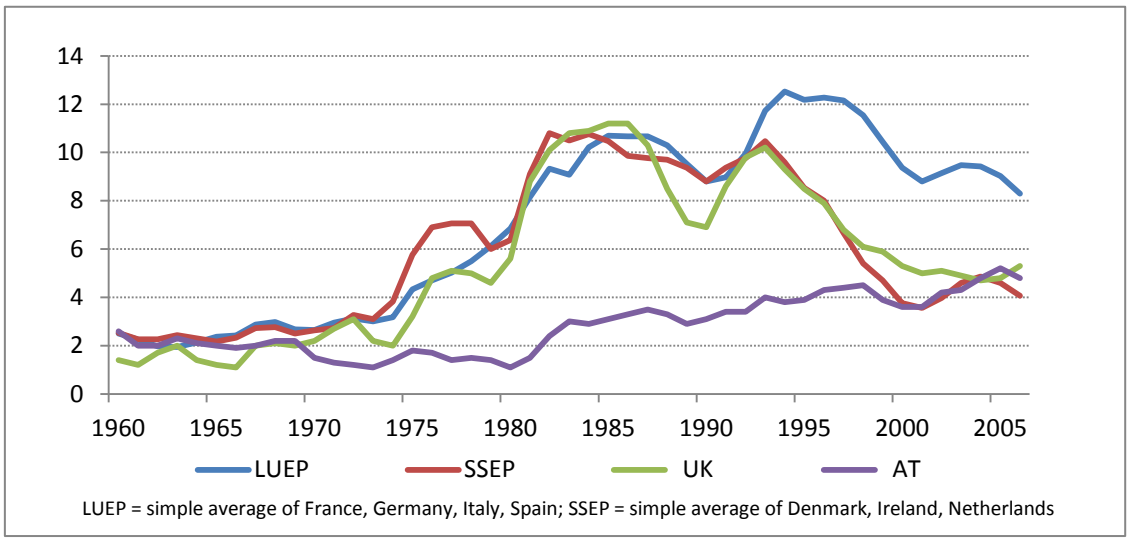
Figure 1.1
Unemployment rate, USA, EU-15 in %, 1960 - 2006

Source: AMECO

Leaving aside Austria for the moment, the first striking thing to note is that the four LUEPs, the three SSEPs and the UK all had a very similar unemployment record until the recession of the early 1990s[4]. Unemployment was actually somewhat higher in the subsequently successful, smaller economies for much of the 1970s and early 1980s. The UK saw a more dramatic rise and also sharper subsequent fall in unemployment during the 1980s. But essentially the two country groups plus the UK moved closely together. This changed abruptly and dramatically from 1993. In that year the unemployment rate was almost exactly equal in all three cases, at the historically high level of around 10%. The three SSEPs and the UK then brought down unemployment sharply and in a sustained way: by some 6 percentage points (p.p.) in as many years, stabilising at comparatively low levels (4-5%). The four LUEPs, by contrast, saw unemployment *rise* by a further 2 p.p. followed by a stabilisation. Not until 1998 did the rate in the large countries begin to fall, only to suffer a renewed setback in the wake of the slowdown after 2001. In the mid-2000s the rate came down, but remained at an average of 8.3%, and the gap largely unchanged at more than 4 p.p. above the three small successful countries and 3 p.p. higher than in the UK.

[4] Simple averages are taken for the two country groups. This does not affect the numbers significantly: ES and IRE are rather smaller than the other respective group members. Given their national unemployment trends, the gap between large and small countries would be slightly more pronounced if weighted averages were used.

Figure 1.2
Unemployment rate, selected country groups, 1960 - 2006



Source: AMECO, own calculations

Strikingly, Austria bucked these trends over virtually the entire period. Unemployment stayed around 2% in the 1960s, barely rising in the recession of the mid-1970s. Not until the recession associated with the second oil shock did the unemployment rate rise substantially, and even then the increase was much less pronounced than in all the other countries considered. The rate gap remained a full 7-8 p.p. below rates in the other countries throughout that decade. However, since the early 1990s unemployment in Austria has continued to rise, slowly but inexorably, and in marked contrast to the sharp fall in the other three small countries; reflecting this convergence, since 2001 its unemployment rate has been very close to that of the SSEPs and subsequently also the UK.

These basic empirical facts, across time and space, about (west) European unemployment form the backdrop to this research project and to a substantial literature. Before reviewing that literature, it is worth asking, what is the justification for adding one more study to this long list?

Most obviously, even before the recent global crisis, unemployment remained high in Europe as a whole and particularly so in some of its largest economies, while it has been reduced in others. At the time of writing it is rising again sharply. This could imply – at least if we assume that because of its high costs and associated voter dissatisfaction[5] policymakers *want* to

[5] 'Unemployment' or 'jobs' are regularly cited as being the most important or one of the most important issues in opinion polls, especially when unemployment is high. For example, according to MORI, in the UK unemployment was the key issue in the 1979 election that brought Thatcher to power, as it was in 1992 when Major took the premiership. It was third when Blair came to power in 1997, by which time the unemployment rate had almost halved, sliding further down the scale in 2001 as unemployment fell further (Cowling 2005).

reduce unemployment – a number of things. It may be that the numerous studies of the unemployment problem have very mixed findings and overall have failed to deliver the correct diagnosis of the problem, leaving policymakers without an effective guide.

However, as we will see, there is a 'conventional wisdom'. One of the most renowned researchers on European unemployment summed it up:

> *'Here is the received wisdom. The European job market is rigid and inflexible. Result: high unemployment. The North American job market is dynamic and flexible. Result: low unemployment. So Europeans had better do something about their labour market unless they want permanent double-digit unemployment.' (Nickell 1997: 55)*

In an oft-quoted remark, Jean-Claude Juncker, at the time Prime Minister of Luxembourg and President of the Eurogroup of EU finance ministers, said that '(e)very government knows what structural reforms are required, but none knows how to win the subsequent general election'.[6]

The problem, on this view, appears to be more a political one. The diagnosis – inflexible labour markets – is the considered opinion of the vast majority of unemployment physicians, and correct. The remedies proposed have been proven appropriate and effective. The medicine may be 'bitter' (Elmsekov et al. 1998) but it works. It is a matter of political will. Some countries have shown the political will to implement unpopular remedies and have succeeded. Others have not, and languish as failures (e.g. Nickell 2006).

Even before looking in detail at the facts, this view logically begs certain questions. For example, do no other remedies (more politically tractable ones) flow from the standard diagnosis? Is it really true that reforming governments lose elections? Is it always the same remedies that work, or do countries differ in their policy requirements and options? And, of course, lastly, is the diagnosis that underpins the conventional wisdom correct? Do we really know what has caused unemployment to rise and do we know therefore what reforms are needed to bring it down?

This study suggests that there are problems with the conventional argumentation at a number of levels. The standard diagnosis is in parts faulty or at least incomplete. The policy conclusions drawn from that diagnosis do not always follow from the diagnosis. And some successful countries in Europe have brought down unemployment or kept it low by other means than reform of their labour market institutions according to liberal preconceptions.

To examine these issues is the task of this study. It does so by looking at the evidence through a non-standard lens: the ability and willingness of policymakers to steer the path of nominal wage growth and nominal demand under varying institutional and structural conditions.

[6] At a European Policy Centre Breakfast Policy Briefing, 30 May 2006: http://www.epc.eu/en/er.asp?TYP=ER&LV=293&see=y&t=2&PG=ER/EN/detail&l=&AI=640/

Bridging a number of separate literatures, it seeks, not to offer a replacement theory to the 'conventional wisdom', which contains many valuable insights, but to explore the possible degrees of freedom for analytical and also policy alternatives.

In this chapter, the main section (1.2) summarises the findings from a structured review of the literature relating to European unemployment. It considers the predominant New Keynesian theories of unemployment (1.2.1) before examining post Keynesian critiques and alternative explanations (1.2.2). Subsequently, the econometric literature is reviewed (1.2.3), coupled with a brief empirical analysis of validity of the centrality of labour-market with respect to a number of the countries considered above (1.2.3.1). In sub-section 1.2.4 the analysis turns to the literature on policy coordination and the interaction between economic policy actors, especially wage-setters and macroeconomic policy. Section 1.3 draws some conclusions for the design of the present study.

1.2 A review and critique of the literature on European unemployment

I have drawn up an extensive review of the very voluminous literature related to the causes of and remedies for European unemployment, whereby the field has been divided into four main areas:

- the now mainstream New Keynesian/New Consensus approach in which equilibrium employment outcomes reflect the behaviour of wage and price setters against the background of a central bank following a monetary rule or targeting inflation, and actual unemployment deviates from equilibrium only temporarily and to a minor extent;
- a literature in the post-Keynesian tradition, critical of the New Consensus and insisting on the paramount importance of aggregate demand and the accumulation of capital for labour market outcomes;
- empirical econometric studies on the link between labour market institutions (LMIs) and (un)employment performance; and
- a political-economy literature pertaining to policy coordination at national level and in the context of European Monetary Union (EMU) that focuses on modelling the interacting behaviour of policy actors, notably those responsible for monetary policy and wage policy, subject to different institutional and other assumptions.

A primarily industrial-relations and institutionalist/economic-sociology literature on trade unions, corporatism and incomes policies was also reviewed. While there are some overlaps with the political-economy literature, for expositional reasons this literature is discussed in Chapter 3, Section 3).

The main findings of the literature review are summarised in what follows.

1.2.1 The conventional wisdom on the causes of unemployment: New Keynesian or 'New Consensus' economics

New Keynesian models were developed beginning in the 1980s in response to the successful usurpation of both theoretical and policymaking dominance from 'traditional' Keynesianism by monetarist and New Classical macroeconomic schools. At the most basic level, the New Keynesian research programme sought to avoid the criticised, supposedly *ad hoc* assumptions of post-war Keynesianism (such as sticky prices). In accordance with the strictures of rational expectations and the now dominant baseline assumption that markets cleared in the absence of institutional rigidities, the aim was to develop 'microfoundations' for such features, i.e. derive them from utility maximising behaviour by individual agents (Snowdon and Vane 2005, ch. 7, esp. p. 366).[7] If this is successfully done, namely, 'Keynesian' properties emerge from economic models that are otherwise 'classical', including the non-neutrality of money (at least in the short run) and equilibrium involuntary unemployment.

The seminal work in the (European) New Keynesian tradition focussing on unemployment is *Unemployment, macroeconomic performance and the labour market* by Layard, Nickell and Jackmann (1991, henceforth: LNJ). It has spawned a huge amount of theoretical discussion and served as a theoretical basis for much empirical work (1.2.4) and political strategy, not least the OECD Jobs Study and Strategy of the early 1990s. The main features of the LNJ model can be summed up as follows:

- The labour market is not a simple market in which supply and demand intersect at a price (real wage) that ensures market clearance. Instead there is a wage setting curve in which workers, usually organised in trade unions, seek to set nominal wages at a mark-up over prices. At the same time firms, which operate in product markets of varying degrees of monopolisation, set prices as a mark-up over wages (LNJ: 12ff.)
- Equilibrium unemployment is that level of unemployment required, in the absence of shocks, to balance claims on national income by workers and 'firms' (i.e. to avoid rising inflation); this is the non-accelerating inflation rate of unemployment, or NAIRU. If institutional factors reduce the effectiveness of this disciplining impact of unemployment on wage-setting[8], equilibrium unemployment will have to be higher to prevent rising inflation.
- The actual rate of unemployment at any time will also be affected by 'shocks' which push the current rate of unemployment away from the equilibrium rate; it will subsequently tend to move back towards equilibrium, but this may take considerable time.

[7] A useful guide to different theoretical approaches to unemployment is the paradigmatically structured textbook by Heise (2010).

[8] In principle also on price-setters, although in practice LNJ and the entire literature focus overwhelmingly on wage-setting.

Only in chapter eight of LNJ are the 'macroeconomics of unemployment' discussed. Moreover, this is exclusively in terms of shocks to demand (and supply). In the summary of the chapter dealing with policies (Ch. 10) there is no mention of demand-side policies. The last point, no. 9, states 'All the policies discussed in this chapter relate to the supply side, which in the long-term dominates in determining unemployment. But in the shorter term demand is important. If there is significant hysteresis (…) demand should ensure that unemployment is prevented from rising too far after a temporary shock – even if this means that it has to remain higher longer' (p. 509). Yet the policy levers of demand are not discussed and the demand-side forces that stabilise unemployment close to the (supply-side determined) NAIRU are left extremely vague: demand adjustment comes 'via real balance effects, for example, or as a result of a shift in policy' (p. 384).

An additional noteworthy feature of LNJ is that the size of the capital stock does not affect unemployment: 'unemployment in the long run is independent of capital accumulation' (p.107). The reason is that the capital stock is held to determine wages only: all improvements in productivity get translated into higher wages not higher employment due to the assumption of a Cobb-Douglas production function.

An influential statement of the current mainstream model is Carlin and Soskice (2006), which is based on the '3-equation (IS-PC-MR) model (which) is the basic analytical structure in much of contemporary macroeconomics' (op. cit.: x) and also has a strong focus on unemployment (op. cit.: 1).[9]

While the complete model is complex – Carlin/Soskice develop it over 600 pages – it can be boiled down to three equations, as follows:

- IS – the investment-savings balance relating interest rates and output.
- PC – an expectations-augmented Phillips curve in which there is an inflation-unemployment trade-off in the short run, but a vertical Phillips curve at a supply-side determined rate of unemployment in the long run, and, to close the system,
- MR – a central bank that sets interest rates which determine medium-run aggregate demand, after forecasting exogenous influences on demand, in order to hit an inflation target (monetary rule).

In equilibrium, the interest rate set by the central bank is 'neutral', keeps output at its potential level, inflation at the bank's target and unemployment at the – supply-side determined – NAIRU (or, in the authors' preferred language, at the equilibrium rate of unemployment, ERU). In response to both supply and demand-side shocks the central bank adjusts interest rates up (down) to shift actual output below (above) potential output, raising (reducing) unemployment, tempo-

[9] Of course there are numerous other textbooks that cover similar ground. Carlin and Soskice is taken here as representing this class of models. Franz (2009: 370ff), probably the best-known German labour market economics textbook, develops similar ideas and makes explicit reference to LNJ and earlier work by Carlin and Soskice (op. cit.: 378).

rarily reducing (increasing) inflationary pressures in the economy, thus bringing inflation back towards its target, at which point the interest rate policy is reversed.

The price/wage setting curves are similar to those in LNJ. Consequently '(t)he equilibrium rate of unemployment is the outcome of structural or supply-side features of the economy that lie behind the wage-setting and price-setting curves. It can therefore in principle be changed by supply-side policies or structural changes.' (op. cit.: 52). The key difference to the LNJ approach is the explicit modelling of macroeconomic (especially monetary) policy, criticised above as lacking in the earlier work. This draws on work by economists such as Woodford (2003).

The model has many important strengths. It is microfounded, in the sense of having a (claimed) basis in individual rationality, while incorporating many real-world features such as product market imperfections and trade unions; these are the supply-side features of the economy just referred to. And it has an empirically grounded and explicitly modelled incorporation of macroeconomic policy, specifically the way modern central banks, in particular, actually work; this marks a significant advance, avoiding reliance on the real balance effect (see 2.2 below).

The model also incorporates the open economy (Chapters 10-13). In particular, the analysis shows that the unique unemployment equilibrium in a closed economy can give way to multiple equilibria in an open economy. This is because higher domestic demand leads to a higher real exchange rate which improves the terms of trade, and affects the real wage, implying that different rates of unemployment may be compatible with stable inflation in a small open economy (op. cit.: 350). There is a brief discussion of 'wage accords' as a means of raising activity (op. cit.: 388f.), and interdependence between countries, but the beggar-thy-neighbour impact of a policy of wage moderation on competitor countries is not explicitly discussed.[10]

The approach has a number of weaknesses and limitations, however. The possibility of demand-side effects having longer-run impacts on the equilibrium level of (un)employment is denied. The possibility of hysteresis on the labour market, where actual unemployment leads to withdrawal and strengthening of insiders and thus higher structural unemployment, or through a loss of capital stock are briefly mentioned (op. cit.: 117ff.) but never incorporated into the model.

As such it has difficulties explaining the sudden and marked upward (downward) revisions in the NAIRU whenever actual (i.e. cyclical) unemployment increases (falls); Morley/Ward/Watt (2004: 123). Similar considerations apply to the capital stock (see the LNJ discussion above and 1.2.2). Noticeably the discussion on investment (Chapter 7) is weak, focusing on determinants and demand effects, but not adequately conceptualising the dual function of investment as that component of spending that simultaneously expands current demand and future supply (at least raising equilibrium employment, if not reducing the ERU). The authors

[10] The authors also incorporate institutional policy interaction within countries in game theoretic terms (Ch. 16); these issues are discussed in section 1.2.4 below).

themselves note that accelerator models (where current output determines next period investment) work well empirically, even if they are theoretically unsophisticated (Carlin and Soskice 2006: 227ff.). This alone casts doubt on the strict long-run/short-run dichotomy in their basic model.

Turning to the implications of the model for policy, a noteworthy feature is the reliance on the central bank to close the model. One reason why hysteresis is played down is the conviction that an effective central bank will not wilfully ignore extended periods when unemployment is above the ERU, as this will be signalled by disinflation. This is a sanguine view, however.[11] The disinflationary trend may be masked by hikes in imported goods prices, indirect taxes, etc. (Bibow 2006: 79). Gottschalk and Fritsche (2006) find evidence of a negative long-run correlation between inflation and unemployment for Germany (implying a positively sloped long-run Phillips Curve). The economy may be in a situation where (low) inflation is rather insensitive to changes in the gap between potential and actual output and the Phillips curve is flat; unemployment way above the ERU has only a small downward impact on inflation (Akerlof/Dickens/Perry 1996). Changes in short-run interest rates feed through the banking system in a complex process that may lead to longer-term rates and, in particular, changes in actual lending (Stiglitz/Greenwald 2003, especially 192ff.). Monetary policy is certainly constrained by the impossibility or at least difficulty of driving nominal interest rates below zero, which might be necessary in the face of a major recession and/or when inflation is very low or even negative.[12] More fundamentally still, a country may simply lack the required monetary (and fiscal) policy levers; this can clearly be the case for a country operating in a monetary union (e.g. Allsopp 2006: 44ff.). EMU is discussed by the authors (Carlin and Soskice 2006: 438ff.). The key issue for the present analysis is that the basic model will not always function in a textbook way in all countries at all times.

1.2.2 Post-Keynesian critiques of the new consensus – hysteresis and an endogenous NAIRU

Formative thinkers in the Post-Keynesian tradition, alongside John Maynard Keynes, include Keynes' followers at Cambridge (such as Joan Robinson and Nicolas Kaldor), Keynes' contemporary Michal Kalecki, and Hyman Minsky. No attempt is made here to survey the whole range of Post-Keynesian thought, a task that is in any case difficult because of the heterogeneous nature of the school or, indeed, the multiplicity of schools.[13] The discussion that follows focuses

[11] Some of the critiques touched on here are developed in the next sub-section and in Ch 3, section.

[12] This consideration was not relevant – with the possible exception of Japan – during the period considered in this study. Of course it has become a crucial issue in the wake of the global financial and economic crisis. See also Ch. 3, 2.1.2)

[13] In addition to the literature cited in the section, see overviews in Arestis (1996), Davidson (2005), Lavoie (2007) and the contributions to Hein/Stockhammer (2011) and King (2012). Heise (2010) compares Post and New

on (un)employment determination in Post-Keynesian thought and its critique of New Keynesian/New consensus models in that area.

Some key common features are: adherence to the view that money (and thus macro policy) is non-neutral, not only in the short but also the long run; a denial of any causal or operational role for the money supply, instead an insistence that money is 'endogenous' in modern economies, created by the banking system in response to demand for money (e.g., Arestis/Sawyer 2005, Dullien 2004, Palley 2013); that employment outcomes are determined not by 'equilibria' on the labour market but by aggregate demand on product markets and in particular by a capital accumulation process over historical time that is subject to fundamental uncertainty (Davidson 1998). A key implication of these features is that capitalist economies tend towards instability, can become locked into high-unemployment equilibria and require, as a minimum, active macroeconomic steering by fiscal and monetary policy, if this fate is to be avoided.

A number of the key criticisms of mainstream economics raised by Post-Keynesians target neoclassical/monetarist conceptions. A case in point is the real balance effect: falling prices in a recession raise the real value of cash holdings, and this is seen as a crucial adjustment mechanism. As we have seen, this was a feature of the LNJ model. Dullien (2004, Ch. 3) goes to considerable lengths to criticise the 'real balance effect' on which a number of earlier analyses of central bank/wage-setter interaction relied. Similarly Stockhammer (2004: 57) (correctly) doubts the ability of the real balance effect to bring unemployment back to the NAIRU, but only mentions central bank interest-rate setting in passing. Yet for many years now this has clearly been the pre-dominant monetary policy mechanism used in all the advanced capitalist countries. Moreover, this critique has lost theoretical salience with the more modern New Consensus model as exemplified by Carlin/Soskice 2006: as we have seen, following the likes of Woodford (2003) they have dropped the old LM curve in favour of active interest rate setting, to steer aggregate demand and stabilise unemployment close to the NAIRU.

Arestis/Sawyer (2005) criticise the role accorded to monetary policy in the New Consensus view. Their criticisms can be summarised as follows: inflation targeting is too narrow an approach, ignoring financial stability and asset bubbles (cf. Dullien 2004, Ch. 6); non-inflation targeting central banks have also reduced inflation successfully; the impact of changes in interest rates on demand is small and unpredictable, fiscal policy is more effective; the real and monetary sectors are not independent but linked especially through investment: 'investment impacts on the time path of the capital stock, and hence on the future supply-side position' (op. cit. 17; see also Sawyer 2006).

Counter arguments can be made to some of these points (see also Ch. 3 Section 2.1.2). For instance, differences in central banks' formal mandates conceal a great deal of – although far

Keynesian ideas across a range of economic policy fields. Skott and Zipperer (2010) emphasise differences between heterodox positions. Davidson (1998) provides a trenchant Post Keynesian critique of the mainstream view of the determination of employment.

from complete – congruence in terms of actual policy. The effects of fiscal policy on demand may be more direct, but fiscal policy is generally accepted to be much more difficult to implement and calibrate with a view to managing aggregate demand, as it involves parliamentary processes and decisions that are taken for other reasons than current demand management. While Setterfield (2005: 40) is right to point out that neither the NAIRU nor potential output are known and the central bank actions can lock in any given estimate as a sort of self-fulfilling prophecy, there can be little doubt that both output and inflation was more stable after the widespread advent of central bank independence and inflation targeting; see Goodhart (2005) and Roberts (2005). It is conceivable that this was partly due to smaller shocks (Stock/Watson 2003) or other structural factors (such as greater international trade or a shift from manufacturing to services), though (Bernanke 2004). While this is disputed, and almost certainly numerous factors were at play, the so-called Great Moderation certainly came to an end with the economic crisis.[14]

Overall, the New Keynesian conceptualisation of demand-management via monetary policy, as discussed above, is oversimplified, and at best relevant to normal times in which disturbances and shocks are limited in magnitude Nonetheless, for both empirical/practical and theoretical reasons a fundamental post-Keynesian attack on the basic conceptualisation of central banking appears exaggerated. In such relatively benign circumstances at least, the central bank, as long as its independence is assured, can take fiscal policy decisions into account and, ultimately, enforce its desired rate of inflation, albeit potentially at high cost (Heise 2001: 56f., Carlin/Soskice 2006: 650; issues of policy interaction and coordination are discussed further in section 1.2.4). Booms can be reliably choked off with higher interest rates. In a recessionary environment, though, especially when inflation is already low, or where financial transmission channels are blocked and the Philips curve flat, additional measures will be necessary to turn the economy round. (e.g. Hein/Stockhammer 2011: 126).

The critique of the exclusion of the capital stock and capacity utilisation from the analysis of unemployment appears to be on strong ground. It is also explicitly addressed by Rowthorn (1999), who criticises the LNJ approach for arbitrarily assuming a Cobb-Douglas production function and thus that any increases in productivity from faster accumulation are necessarily absorbed in higher wages and can never create employment. Indeed, Rowthorn claims that 'the problem of unemployment is ultimately one of investment' (1995: 38). Moreover, the existence of spare productive capacity is a key factor preventing firms from raising prices (increasing the mark-up). Extended periods of depressed investment lead to capacity constraints biting early in response to any demand-induced rise in output. This is turn leads to accelerating inflation before 'full employment' is reached; this is a form of hysteresis via the capital stock, rather than the labour market.

[14] This is supportive of Minsky's (1992) financial instability hypothesis in which periods of low nominal and real volatility encourage excessive leverage and risk-taking and, in the absence of effective counter action, eventually lead to crisis.

Arestis, Baddeley and Sawyer (2006) review a number of supportive studies. Sawyer (2006, esp. 341) argues for replacing the NAIRU with a CILO (a constant inflation level of output) which has some similarities with the NAIRU but where 'the supply-side equilibrium is not set by the features of the labour market. Instead the emphasis is placed on the role of productive capacity.' (op. cit. 341). Kapadia (2005) develops a specific model to incorporate the issue of capacity constraints. Additional investment will tend to raise the rate of productivity growth. Whether this has an effect on employment depends on whether it is fully absorbed by faster real wage increases (cf. Hein 2006: 318).

The Post Keynesian position on the impact of wages on employment essentially goes back to Keynes' (1936) rejection of wage cuts as being an ineffective way out of high unemployment: nominal wage cuts will be matched by falling prices, leaving real wages unchanged (e.g. Davidson 1998, Flassbeck/Spiecker 2006). An implication is that labour market 'rigidities', to the extent that they are nominal wage rigidities, are not part of the problem. (Indeed in certain circumstances they can be part of the solution, by providing a nominal wage anchor and preventing a deflationary spiral.)

Post-Keynesians have long conceptualised inflation as emanating from a conflict between social groups, and especially between workers and capitalists, over the distribution of real resources which takes the form of efforts to raise nominal wages and prices. Following Kalecki's famous ruminations on the political business cycle (Kalecki 1948), or for that matter Marxian ideas on the so-called "reserve army of labour", the role of unemployment as a disciplining device in that conflict played a prominent role. For a long time this was explicitly in theoretical opposition to prevailing monetarist-inspired conceptions in which inflation is, in Friedman's famous phrase, always a monetary phenomenon. However, with the advent of new Keynesian theorisation in the tradition of LNJ, the underlying difference to mainstream views narrowed appreciably, even if the language in which it is discussed does not (e.g. Heise 2005: 7ff., Stockhammer 2004: 57ff.).

Post-Keynesians have emphasised that incomes policies can potentially address nominal income conflict – the cause of inflation – directly, freeing the authorities to set demand so as to achieve full employment (e.g. Davidson 1985). Watt (2007: 180-82) discusses the 'rise and fall' of incomes policies also in post-Keynesian thought. Most modern conceptions revolve around setting a nominal wage guideline based on medium-term aggregate productivity plus an allowance for (low and stable) inflation (among many others, Hallwirth 1998, Heise 2001, Hein 2006, Watt 2007). However, a weakness is that, besides recommending that wage-setters follow a specific wage guideline, authors in this tradition have done little work on the institutional preconditions for such wage setting actually to take place. This is, rather, the subject of a literature (which is reviewed separately in Chapter 3 of this study) that has remained largely divorced from macroeconomic theoretical work.

A key element in much post-Keynesian thought, and which plays a role also in a number of works on unemployment by some mainstream economists, is the view that, to the extent that while there is at any given point in time a rate of unemployment that keeps inflation stable, it reflects not supply-side institutions so much as macroeconomic developments that generate a certain level of unemployment, which is then effectively transformed into the NAIRU. These macroeconomic developments can be external demand shocks that hit an economy from outside or domestically generated demand shocks. The NAIRU is then endogenous, rather than exogenously determined by supply-side institutions (Stockhammer/Sturn 2008: 3). The rate of unemployment is then not an ephemeral and theoretically rather uninteresting variable that is always tending towards the slow-moving equilibrium represented by the NAIRU, which should be the key focus of economists' and policymakers' interest. Rather, conversely, it is the NAIRU that is pulled towards the current rate of unemployment (e.g. Logeay 2006).

There is a substantial literature on various aspects of unemployment hysteresis: the tendency of the unemployment rate, once shocked to exhibit persistence around its current value. The pioneering study is by Blanchard and Summers (1986). Most recently Cross (2014) provides a detailed discussion of the theory and empirics of the NAIRU and hysteresis, finding substantial evidence for large hysteretic effects Blanchard and Wolfers (2000) offered an interpretation of European unemployment in terms of (negative) demand shocks interacting with unfavourable labour market institutions, which prevented a return of unemployment to its initial level. Logeay and Tober (2005) use a filter to distinguish cyclical and structural components of unemployment and they find an important role for hysteresis in the rise in the NAIRU in euro area countries.

While Blanchard and Wolfers emphasised demand "shocks", and in their analysis ultimately it is unfavourable labour market institutions that cause unemployment to be hysteretic, Ball (1999) explicitly focused on the role of monetary policy. Based on a limited sample, with controls for labour market institutions, he concludes that it is the failure of monetary policy to effectively counteract recessions that is the prime reason why unemployment in some countries rose permanently whereas in others it swiftly fell again after recession. Following a similar methodology, but with a much larger sample and much more sophisticated controls for labour market institutions, Stockhammer/Sturn (2008) find "strong effects of monetary policy (…) but weak (if any) effects of labour market institutions during recession periods. Those countries which more aggressively reduced their real interest rates in the vulnerable period of a recession experienced a much smaller increase in the NAIRU (…).' (op. cit.: 15).

1.2.3 Cross-country econometric studies on the link between LMIs and employment

In addition to the empirical material in Layard/Nickell/Jackman (1991) and Carlin/Soskice (2006), I have reviewed seventeen empirical cross-country regression analyses of the causes of European unemployment, mostly with a focus on labour market and welfare institutions, and

thus broadly within the same framework as the macroeconomic literature discussed above. The studies are: Siebert (1997), Nickell (1997), Elmsekov, Martin and Scarpetta (1998), Blanchard and Wolfers (2000), Fitoussi, Jestaz, Phelps and Zoega (2000), Belot, M. and J. van Ours (2000), Bertola, Blau and Kahn (2001), Nickel, Nunziata, Ochel and Quitini (2001), Traxler et al. (2001), Schettkat 2003, Stockhammer (2004), Baker et al. (2005), Howell (2005), Bassanini and Duval 2006[15], Nickell (2006), Palley (2006), and Amable, Demmou and Gatti (2007).

These studies contain a wealth of interesting findings. A critical review suggests the following general conclusions, to which are added some remarks on particular studies considered of particular relevance to this analysis.

The studies are fairly similar in terms of approach.[16] There are some differences, but also major overlaps in terms of the countries considered and the data used. Increasingly the institutional data base accumulated by the OECD – on which more later – became standard for such analyses. Attention has focused on: employment protection legislation, the relative value of minimum wages, trade union density, the coverage of collective bargaining, and the generosity of the unemployment benefit system. Some studies also consider the tax wedge between gross and take-home pay and, less often still, indices of product market regulation. A variety of other variables are incorporated in some studies to allow for 'shocks', cyclical trends etc.

The nature of such cross-country regressions means that single quantitative indicators need to be constructed for highly complex institutions. At best this is likely to be crude (e.g. a 'generous' UB system ought to be evaluated differently if it is only available to a very limited section of the working population; the proportion of the working population on fixed-term as opposed to permanent contracts must logically affect the evaluation of the relative importance of changes in EPL for these categories).[17]

Given the rather high degree of data standardisation, and not least in view of the considerable consensus on the problem diagnosis and policy package, comparison of the study findings reveals a surprising degree of variation in the results. On the whole studies do conclude that LMIs play an important role in determining equilibrium unemployment, but there are major differences in the institutions that are considered most important for determining unemployment and the size of the effects (Baker et al 2005: 101f.). Stockhammer 2005 finds at best weak evidence for the role of LMIs, while Palley (2006: 22) considers the evidence for their importance 'problematic'.

[15] For reasons that will become apparent, a more detailed evaluation of the influential Bassanini/Duval study is postponed until the following sub-section (1.3.1).

[16] Traxler et al. (2001) differs in being written by industrial relations scholars rather than economists. Its strength is, correspondingly, its much more detailed discussion of collective bargaining institutions and their relation to economic performance, based on national reports of national institutional configurations, On the other hand it ignores other LMIs, and the modelling of economic institutions, and especially monetary policy is rudimentary, if not actually misleading. We draw on these findings in Chapter 3.

[17] Traxler et al. (2001: 23) discusses these and other problems of fitting institutional variables into regression analyses.

Baker et al (2005) show on the basis of a systematic review of the econometric studies published until that time that study findings are highly inconsistent and often not robust to rather minor changes in specifications.[18] Moreover, there are concerns about 'reverse causation' with the tax wedge and the unemployment benefit variables: even if a correlation between these variables and high unemployment emerges, it seems at least equally plausible that high rates of joblessness *induce* policy changes that raise benefit levels or entitlement duration[19], in turn forcing hikes in tax rates, than that these variables are the *cause* of higher unemployment.[20]

A number of countries' performance is widely acknowledged as being poorly explained by the nature of their labour market institutions. The lack of empirical support for widely held beliefs about the relevance of labour market institutions for unemployment performance for a selection of countries is shown in the next sub-section.

The findings unearthed in the studies regarding the impact of the wage bargaining system – union density, collective bargaining coverage and bargaining centralisation and/or coordination – are overall highly ambiguous. There is only one institutional variable that has consistent effects in virtually every regression in every study, that is the coordination of collection bargaining, which is found to have an unemployment-*reducing* effect.[21] At the same time high union density typically emerges as bad for employment. Yet the – obvious – question is typically not addressed by such studies: how are weak unions with low membership density supposed to coordinate wage setting? (Palley 2006). Clearly the indicators used here are crude and there is a need for more careful interpretation based on more detailed case studies and work of industrial relations experts (cf. Traxler et al. 2001 and refer to the discussion in chapter 3.).

There is substantial disagreement about the role of 'shocks' and macroeconomic policy and their interaction with LMIs. For some, shocks are out of the model (and policymakers' hands) and have at most temporary effects (cf. Nickell 1997 and 2006). For others (notably Blanchard and Wolfers 2000) LMIs serve as a transmission mechanism that can have (unforeseen) effects in the context of shocks. With the exception of Amable et al. (2007) none of these studies take

[18] Not least this critique was the impetus behind the decision by the OECD to conduct a thorough review of the econometric evidence and conduct perhaps the most detailed and thorough of the panel regression studies, as part of its review of its Job Strategy (Basaninni/Duval 2006). We use the data from this study in the next sub-section to illustrate empirical weaknesses in the LMI approach (1.2.3.1).

[19] A prominent recent example is the duration extension in the USA in response to the economic crisis. Indeed as the US Department of Labor acknowledges this is a built-in feature of the US system: 'Extended Benefits are available to workers who have exhausted regular unemployment insurance benefits during periods of high unemployment.' (emphasis added): http://workforcesecurity.doleta.gov/unemploy/extenben.asp/

[20] It is worth quoting the summary conclusion of Baker et al. (2005: 108): 'Our results suggest a yawning gap between the confidence with which the case for labor market deregulation has been asserted and the evidence that the resulting institutions are the culprits. It is even less evident that further weakening of social and collective protections for workers will have significant positive impacts on employment prospects. The effects of various kinds of deregulation on unemployment are very hard to determine and may be quite negligible. Moreover, such effects as there are may influence labor force participation rather than employment…'

[21] Reviewing a large number of studies Calmfors (2004: 96f.) calculates that on average coordinated/centralised bargaining associated with an unemployment rate that is between 5 and 7 percentage points lower than in uncoordinated systems.

explicit account of institutional macroeconomic policy variables like central bank independence; that study finds an unemployment-*increasing* impact of central bank independence.

There is a missing causal link in most analyses (Traxler et al. 2001 being an exception). The impact of the different LMIs on (un)employment is supposed to run through wage pressure. Yet the studies do not look at this directly. But unless the salience of that causal link is established by examining wage outcomes, there must always be doubts whether the LMIs are genuinely affecting employment or are not proxying for other factors (or, worse, reflecting reverse causation processes).

The methodology of these pooled cross-country regressions excludes by definition causalities that run from one country to another. Yet given the causal chain in the underlying theory, which runs, essentially, via wage moderation, it is obvious that – at least within a monetary union or with de facto or de jure fixed exchange rates – institutional reforms in one country that 'successfully' moderate wage growth will negatively impact on the competitiveness and on demand in other countries. These negative externalities cannot be picked up by panel regression studies analysis, but under certain circumstances they can be expected to be very considerable; indeed within a monetary union, employment growth that is driven by wage moderation in one country tends towards a zero-sum game.

In their analyses Palley (2006) and Stockhammer (2004) offer alternative, 'Keynesian' specifications in their econometric analyses which bring in macro variables, which they find to give a more plausible explanations of labour market performance. Problematic with these studies, however, is that the variables (growth, capital accumulation) are macroeconomic *outcomes*, rather than "inputs", i.e. institutional arrangements. The finding that rapid growth and high rates of capital accumulation are associated with positive labour market developments, by itself, is not particularly revealing of the real drivers of labour market performance.

1.2.3.1 Limited explanatory power of the LMI approach: a simple empirical analysis

In the previous section it was stated rather baldly, with some references to the literature, that the LMI approach did not offer plausible explanations for a number of the empirical stylised facts relating to different countries. I interrupt the literature review in this sub-section to substantiate that claim with a simple empirical exercise. This exercise illustrates the difficulties that an explanation focussing on LMIs has in explaining trends in some European countries.

The following approach is taken. I have performed calculations based on data from Bassanini/Duval 2006, which is currently the 'gold standard' in terms of the econometric analysis of the role of labour market institutions in unemployment, and can be considered a 'hard test' in that the authors, OECD economists, are associated with the LMI view. For this reason their institutional codings can be accepted uncritically for the purposes of this analysis.

As set out in the previous section, according to the standard view, favourable institutions (i.e. ones that negatively correlate with unemployment) are: unemployment benefit systems that offer low replacement rates and, in particular, benefits of short duration; a small tax wedge, low levels of employment protection legislation, low levels of product market regulation (PMR), and low union power, as measured by union density and collective bargaining coverage.[22]

The full institutional data set is available for the period 1982-2003. As the variables are slow-moving the numbers were split up into three periods for which averages were taken: 1982-1989 ('1980s'), 1990-1996 ('early 1990s') and 1997-2003 ('late 90s early 00s'). The country-period averages for unemployment outcomes for each institutional variable were then expressed as a percentage of both the total-period average and the corresponding-period average for all the OECD countries in the sample.[23] Mostly it makes sense to use the comparison with the OECD average in the respective period. However if this OECD-wide average is changing rapidly over time, it can also be useful to check against the OECD average for the entire period, as is done on occasion below.[24] The graphs are based on own calculations using the data set in Bassanini/Duval 2006 and show the country's position as a percentage of the OECD average for that indicator in the respective period. Higher values represent more developed/stronger institutions which is held to be unfavourable for unemployment outcomes in the LMI view.

The indicators of national institutions compared with the OECD average can then be set against the actual rates of unemployment and their changes over time in the countries of interest. The countries have been chosen with a view to the country groupings identified above (Section 1) as being illustrative of stylised facts about European unemployment.[25] The results are as follows.

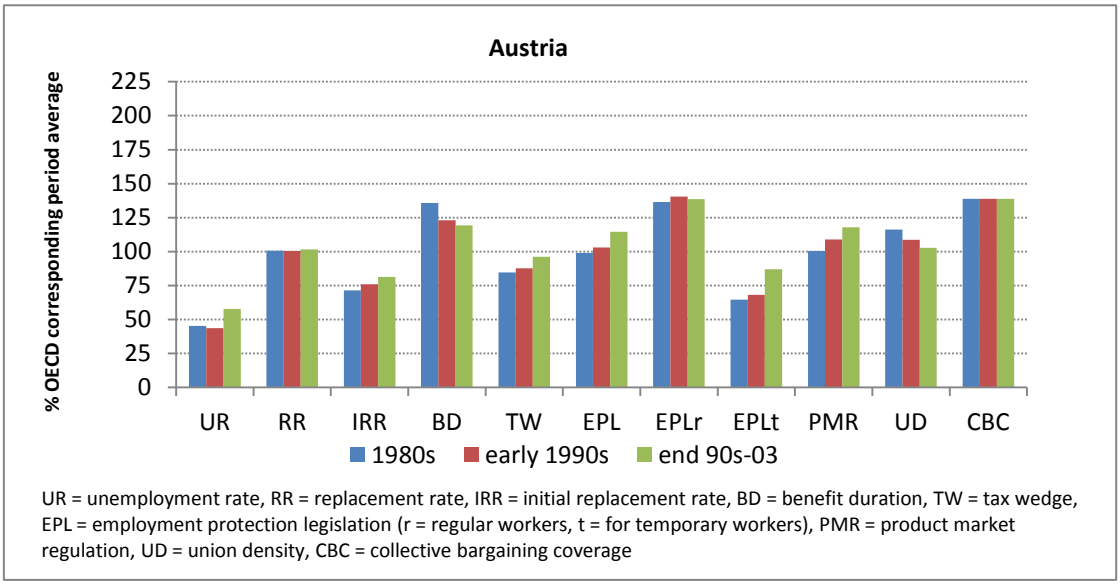
[22] Bassanini and Duval are much more nuanced in their conclusions to this paper than earlier OECD-inspired work (which was a major reason for the not insubstantial revisions to the OECD Jobs Strategy from 2006; on this see Watt 2006b). The aim here is to illustrate empirical limitations of the overall LMI approach, not to produce a definitive critique of this specific paper. Minimum wages are not incorporated because data is only available for a limited number of countries.

[23] Australia, Austria, Belgium, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, UK, Ireland, Italy, Japan, Netherlands, Norway, New Zealand, Portugal, Sweden, USA

[24] A country can, for example, appear to be regressing on a certain indicator, merely because it is not reforming as much as other countries. In practice this only makes an important difference in the case of PMR and EPL for temporary workers, both of which fell sharply across the OECD substantially over the period; there were smaller increases in the indicators of the generosity of the unemployment benefit system.

[25] Clearly this is a crude and preliminary form of analysis. Note, though, that cyclical influences are not entirely excluded. By expressing the unemployment outcomes in terms of the respective OECD average some allowance is made, at least for the area-wide business cycle.

Figure 1.3 LMI performance, Austria



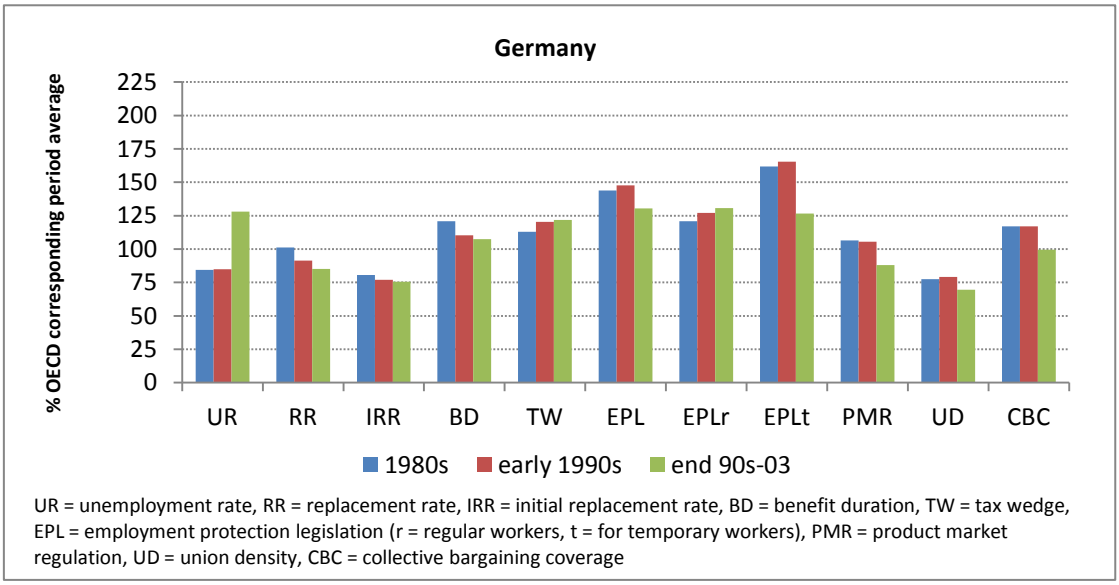
UR = unemployment rate, RR = replacement rate, IRR = initial replacement rate, BD = benefit duration, TW = tax wedge, EPL = employment protection legislation (r = regular workers, t = for temporary workers), PMR = product market regulation, UD = union density, CBC = collective bargaining coverage

Source: Own calculations using data from Bassanini/Duval 2006.

According to the country's unemployment profile - extremely low levels until early 1980s, relatively small increases during 1980s and 1990s, converged from below with the declining rates in DK, UK, NL – we would expect to see, if the standard LMIs are an important determinant of unemployment, extremely favourable institutional structures in Austria, deteriorating somewhat over time absolutely and/or relatively to other countries. However we see that the unemployment benefit system is rather generous: the replacement rate is average overall, relatively low initially, and recipients enjoy well above average duration. This is in all three respects the exact opposite of the mainstream recommendation. It offers very high levels of employment protection to regular workers (the vast majority), but substantially below average to temporary staff[26]. The degree of PMR was initially at the OECD period-average but subsequently rose. This might seem to be vaguely consistent with the unemployment trend. However, PMR in Austria actually fell substantially in absolute terms, albeit less than in other countries (not shown). Collective bargaining coverage was the highest in Europe, while union density developments were precisely the opposite of what would be expected from an LMI perspective (initially high, falling towards average). The only variable that could be even considered to be in line with the traditional LMI story in the case of Austria is the tax wedge, which increased from considerably below to around average levels. In short the LMI story is completely at odds with Austrian experience.

[26] A serious weakness of the OECD' overall EPL indicator is that it takes a simple average of permanent and temporary-worker EPL, ignoring the substantial predominance of the former in most countries with, at the same time, substantial variation in the permanent-temporary mix between countries (a variance that is not independent of the strictness of protection for permanent workers).

Figure 1.4 LMI performance, Germany



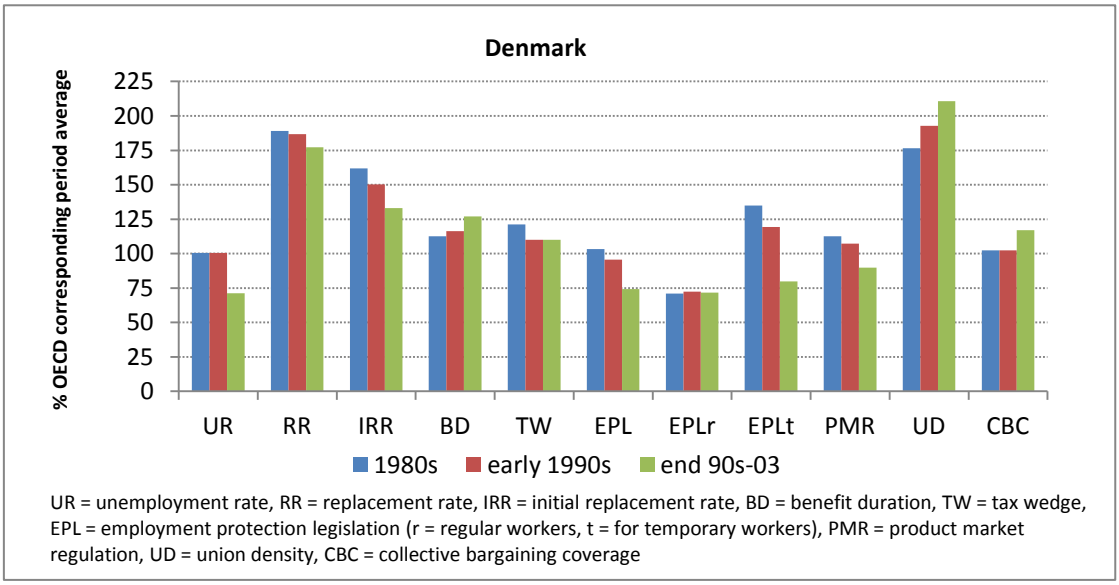
Source: Own calculations using data from Bassanini/Duval 2006.

Nor do LMIs seem particularly enlightening in explaining the German story[27]: Initially unemployment was substantially below average but gave way to an ever-worse performance during the 1990s. Germany's unemployment benefit system has never been particularly generous, and has become decidedly less so over time (with respect to the OECD period averages)[28]. Benefit duration was rather above average, but was successively reduced to close-to-average levels. The tax wedge is somewhat less favourable than average, but not dramatically so and has been broadly stable. EPL levels were rather high, but have been reduced (albeit mostly for temporary workers). The change in PMR was also in the 'wrong' direction to explain the sharp rise in unemployment. While otherwise quite similar to Austrian institutions, a major difference is found in the two indicators of the wage-setting system. Union density has always been comparatively modest in Germany. Collective bargaining coverage was above average, but has declined more recently. Once again the welfare state indicators, in terms of both levels and changes, are of virtually no help at all in predicting the level of change in unemployment, even if we recognise, as we certainly should, the particular impact of German unification on the outcomes in the third period.

[27] Bassanini/Duval acknowledge this: p. 13.

[28] Note that the data end before the severe tightening of the system under the so-called Hartz reforms.

Figure 1.5 LMI performance, Denmark



Source: Own calculations using data from Bassanini/Duval 2006.

Given the huge improvement in unemployment in Denmark from the mid-1990s, compared with very average and at times poor performance before, substantial positive changes over time in LMIs should be visible in the Danish data with low levels in the latter period and probably also in the second period, given the lagged effects of institutional change.[29] A number of findings are in line with predictions on the first count: a number of LMIs did improve between the early and late 1990s, at least according to the Bassanini/Duval codifications. Replacement rates were reduced and product markets deregulated to a greater extent that in other countries. Benefit duration, though, actually increased from high levels with respect to the (declining) OECD average. The EPL measure also fell, although this was concentrated amongst the (in Denmark extremely small proportion of) workers on temporary contracts. EPL for workers on permanent contracts has *always* been low in Denmark, even when unemployment was amongst the highest in western Europe.[30]

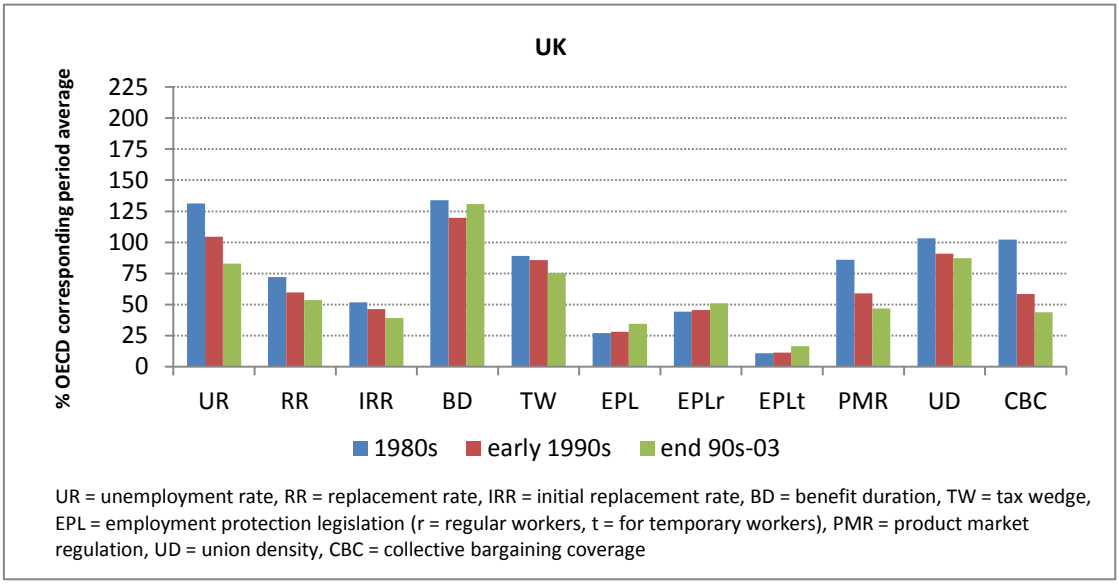
However, the second part of the prediction is not visible at all. Even after the reforms the Danish unemployment benefit system remains one of the most generous in the OECD. While the tax wedge has been reduced slightly, it remains substantially above the OECD average. Notable moreover, are the very high rates of unionisation and the substantial *increase* over the period. Likewise the coverage of collective agreements has risen (from average levels). On the face of this evidence, it seems implausible to argue that the remarkable turnaround of the Danish

[29] The periodisation blurs the fact that, as we have seen, Danish unemployment had been extremely high at the start of the 1990s.

[30] An additional point is that the OECD codings used here neglect to allow for employment protection that is ensured by collective agreements rather than statutory measures.

labour market (and continued low levels of unemployment) had much to do with radical liberal reforms in its LMIs or particularly 'favourable' levels.

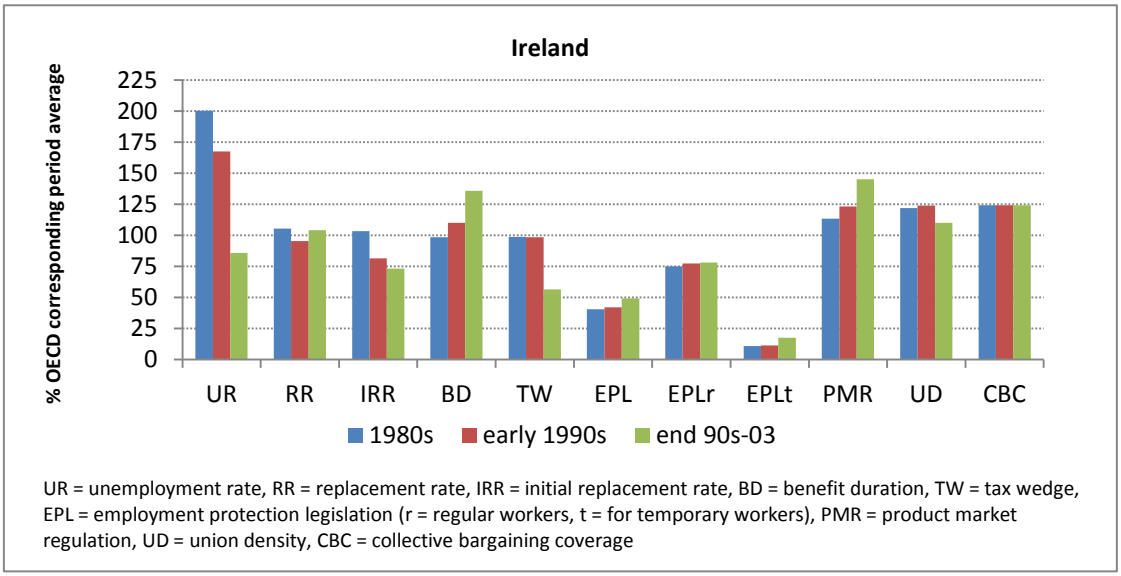
Figure 1.6 LMI performance, UK



Source: Own calculations using data from Bassanini/Duval 2006.

In some ways the obverse appears to be true of institutional developments in the UK, whose unemployment path resembles that of Denmark (although it was rather higher in the first period). Here, there have indeed been 'improvements' in a number of LMIs, consistent with the standard view. Notably, unemployment benefit replacement rates and the tax wedge were cut substantially. Yet replacement rates have always been particularly stingy in Britain, even when unemployment was very high. On the other hand, benefit duration, often seen as a more serious problem in terms of 'encouraging' unemployment, is very considerably above the OECD average. EPL actually rose slightly, but it remained very low. Noteworthy in the UK has been the dramatic weakening of trade unionism as measured by union density and, especially, collective bargaining coverage. The UK has made the most pronounced shift in the direction of a decentralised wage-setting system. Overall, on the face of it the LMI view appears at least to have some *prima facia* plausibility for the UK.

Figure 1.7 LMI performance, Ireland



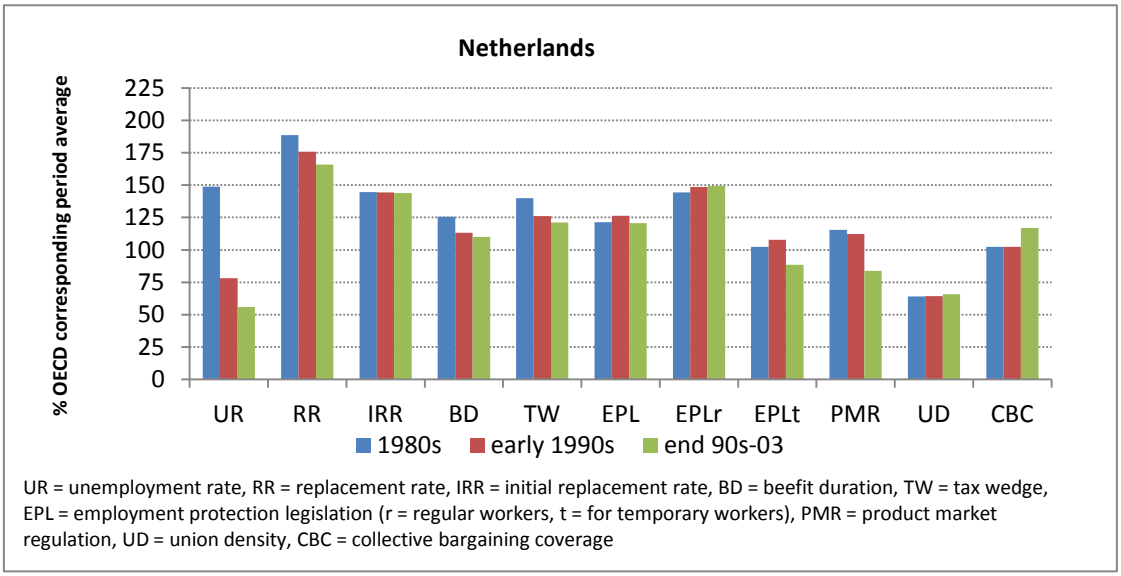
UR = unemployment rate, RR = replacement rate, IRR = initial replacement rate, BD = benefit duration, TW = tax wedge, EPL = employment protection legislation (r = regular workers, t = for temporary workers), PMR = product market regulation, UD = union density, CBC = collective bargaining coverage

Source: Own calculations using data from Bassanini/Duval 2006.

Ireland followed a somewhat similar trajectory to that of the UK in terms of unemployment rates, although the starting levels were much higher and the recent rates considerably lower, so that the improvement is more dramatic. Noteworthy here is that just *one* single institutional variable, the tax wedge, shows a marked improvement – in terms of the LMI approach – over this period. The UB regime has remained close to the OECD period average (with a notable rise in benefit duration). EPL has remained almost exactly unchanged at low levels. Union density has fallen somewhat in absolute terms, but scarcely at all compared with the OECD period averages, and remains above average (but not particularly high). Collective bargaining coverage is assessed by the OECD as being substantially above average and rather unchanged over the period[31]. Overall Ireland's dramatic labour market improvement is scarcely reflected in changes in LMIs; belief in a strong role for LMIs would, at least, have to assume a phenomenal efficacy of reductions in the tax wedge.

[31] As we will show in Chapter 5, this is an incorrect assessment in our view.

Figure 1.8 LMI performance, Netherlands



UR = unemployment rate, RR = replacement rate, IRR = initial replacement rate, BD = beefit duration, TW = tax wedge, EPL = employment protection legislation (r = regular workers, t = for temporary workers), PMR = product market regulation, UD = union density, CBC = collective bargaining coverage

Source: Own calculations using data from Bassanini/Duval 2006.

Characteristic of the Netherlands has been the sustained unemployment reduction in two separate phases from initially very high levels, one in the mid-1980s, the other in the mid-1990s. Two features stand out from the Dutch graph: most LMIs are considered to be decidedly unfavourable by the OECD, and there has been rather little change over the period considered. As with Germany this failure of the model is recognised by Bassanini/Duval (p. 13). The improvements in one measure of the replacement rate, is from an extremely high (relative) level to one that is merely very high. Similarly the improvement in the tax wedge indicator is comparatively small and from very high levels. Only in the case of PMR can a good match to the unemployment trajectory be posited. (While EPL for temporary workers was lowered, the overall EPL score is more or less constant, and even this is gained by weighting equally the temporary and very much more numerous permanent workers equally.) Overall the LMI variables would lead to a prediction of rather high and fairly stable unemployment, with at best a slight improvement in the Netherlands. This is completely at odds with the actual trends.

From an inspection of the data – processed so as to render them comparable across time and between countries – we do not find much support for the view, which constitutes the conventional wisdom, that for a number of European countries with different unemployment experiences the levels of – or changes in – standard LMIs are important in determining unemployment outcomes. Of the countries considered, with the possible exception of the UK, little of the cross-sectional or longitudinal variation in unemployment seems be explicable in terms of corresponding variation in the variables that are held to cause unemployment.

How can this finding be squared with the conclusions of the Bassanini/Duval study that LMIs *are* crucial (2006: 6, 13)? One answer is that the LMI approach is couched in terms not of actual unemployment, but equilibrium unemployment or the NAIRU. To allow for this the authors insert a number of control variables. These include so-called macroeconomic variables: the output gap (supposed to control for the business cycle), a total-factor-productivity shock, a terms-of-trade shock, an interest-rate shock and a labour demand shock. When these controls are held constant in multivariate regressions the LMIs are found to be, for the whole set of countries, significant predictors of unemployment performance.

Again, a full analysis will not be made here but a few points are in order. As is well known (e.g. Orphanides 2000, Horn/Logeay/Tober 2007) the output gap is a problematic variable, conceptually but especially in terms of empirical measurement: it is not directly observable, requires us to assume an equilibrium development path for the output and is subject to *ex post* revisions that make it tricky to use in econometric regressions. More fundamentally, all the other variables are described as 'shocks'. That is they are conceived as exogenous events affecting the outcome. There is no attempt made to explain the origins of these shocks nor to consider whether the size and direction of the shocks might themselves be affected by labour market variables; institutions such as unemployment benefit and dismissal protection legislation can be expected to cushion demand swings, for instance. In other words, are these variables – as is implied – genuinely exogenous, or is not rather the case that factors such as the interest and exchange rates are a result of policy-setting over which policymakers have – some – discretion, and that this in turn correlates with the observed LMIs in the regression?

Bassanini/Duval note (op. cit.: 7) that 'macroeconomic conditions *also* matter' (emphasis added). But what if these conditions – which seems plausible – are not completely exogenous but partly a result of policy decisions? It would then surely be better to discuss policy-*setting* in the different countries (adding, perhaps, that LMIs *also* matter). This view is corroborated by the fact that the shifts in unemployment in most countries have been long-lasting and are clearly not merely a reflection of cyclical shocks that are rapidly corrected. Moreover, the above analysis uses OECD averages to normalise the data, which at least removes the overall OECD – but not country-specific – business cycle effects. On the other hand the authors' model also includes fixed effects for each country, so as to allow for country-specific omitted variables. There is, however, no discussion in the paper of how much of the explanation achieved by the model is due to these fixed effects. But such fixed effects are in reality a measure of our ignorance. They sum up all the things that vary between countries that are not in the model. Only if these things are allowed for econometrically does the influence of the LMIs emerge from the data.[32]

Finally, as noted above, the approach taken in such studies generally – this is not a specific feature or critique of Bassanini/Duval (2006) – systematically precludes the possibility of inter-

[32] Cf Stockhammer (2004: 85) 'Identical specifications are estimated (in his study – AW) for all countries which may lead to the neglect of country specificities, but has the advantage that it provides a better test of the validity of the model (…) since we do not customize the specification to get a best-fit regression or high t-values.'

action between the explanatory variables in one country and outcomes in another. Yet this is very likely to be the case given that the explanatory variables are supposed to influence the labour market performance by affecting wages, while wage developments are a key determinant of national competitiveness and thus have knock-on effects on employment in trading partners, especially within a fixed exchange-rate system or monetary union.

Overall this review raises substantial doubts about the validity of according a privileged role to – liberal – labour marketing institutions in explaining good labour market performance.

1.2.4 Coordination between and within policy areas: limited bridging between theory and empirics

There is an extensive economics and political-economy literature on the interaction between policymakers and policy coordination. Some of this literature is of a more abstract game-theoretical nature, some makes with more specific reference to strategic policymaking within EMU. Examples of the latter include the debate about coordinating national fiscal policy within EMU and the need for, or stupidity of, the Stability and Growth Pact (among many others Buiter 2006); fiscal-monetary policy coordination (e.g. Von Hagen/Mundschenk 2002). Von Hagen/Mundschenk 2001 provides a general overview of policy coordination issues in EMU.

Here we focus on one specific branche of the policy interaction literature. Literature on the interaction between the central bank and wage-setters goes back to the debate about central bank independence that followed the monetarist/New Classical Macroeconomics counter-revolution against Keynesian ideas. In the late 1970s and early 1980s Kydland/Prescott (1977) Barro/Gordon (1983) and their followers developed a critique of government-controlled central banks based on the idea that there was a so-called 'time-inconsistency' problem in which they reneged on non-binding commitments to keep inflation stable by expanding demand. As this was 'surprise inflation', output and employment rose. But in time this led to adjustment processes by wage setters and ultimately resulted in higher inflation for no gain in output/employment: the system had an 'inflation bias'. The solution was to appoint an independent central bank committed to targeting only stable inflation.

This gave rise to a strand in the literature (for an overview see Dullien 2004: 16ff., Franzese 2004 and Calmfors 2004) in which games develop between central banks or governments, who are more or less conservative, (i.e. inflation averse), or accommodating/populist (keen to maximise short-run employment), and trade unions who are more or less monopolistic and have varying 'utility functions' (usually combinations of real wages, employment, and stable prices); for a concise overview of the underlying game theory see Carlin/Soskice (2006, Ch 16, especially pp. 640-648). This approach has weaknesses, however, in terms of analysing empirical behaviour. Firstly there are issues concerning the real-world relevance of assumptions frequently made in this literature, such as rational expectations and uncertainty, information etc., or the

assumptions of unions that simply 'set' nominal wages[33] and central bank that 'set' inflation. They cast doubt on the relevance of the literature; such objections relate to other types of game, however, and could be justified as necessary abstractions.[34] More worryingly, second, the set up in such models implies that the prime concern of wage-setters, i.e. trade unions, is that economic policy could be too loose, and that trade unions' 'typical behaviour is to call on central banks to tighten monetary policy' to avoid an erosion of their real wages (Calmfors 2004: 86). All experience shows that (unless perhaps inflation is really out of hand) unions are, on the contrary, concerned to induce as expansionary a monetary policy as possible from the central bank, while the incentives of modern central bankers are to err on the side of caution and price stability. Cukiermann/Lippi (1999) is an example of an oft-cited paper in which the blatant counterfactuality of the outcomes of the model that is developed does not seem to bother, or maybe even occur to, the authors.

A literature developed in recent years builds on the ideas developed within New Consensus economics discussed above, and reflects both the establishment (and acceptance) of inflation-targeting central banks and a more realistic view of the goals pursued by workers' organisations. At its most basic the idea is that if the central bank raises interest rates and cause unemployment if inflation is above its target, then trade unions that have some discretion over setting nominal wages will do so with a view to that target to the extent that a) their wage-setting behaviour affects the price level, b) they do not like unemployment and c) they believe that the central bank can and will raise interest rates and thus unemployment. A starting point for much of this debate is the seminal article by Calmfors and Driffill (1988) which first brought up the idea that different wage bargaining systems could interact with macroeconomic policies in different ways, generating more or less favourable outcomes. This paper set out the famous "hump-shaped" relationship whereby either very centralised or decentralised wage-setting systems produce favourable outcomes, with intermediate (sectorally based systems) leading to higher unemployment. Prominent examples of this literature tradition include Iversen 1998, Soskice and Iversen (1998 and 2000) and the contributions to Iversen/Pontusson/Soskice (2000); Coricelli et al. 2000; a more recent contribution is Pusch 2009.

Here too, the outcomes of the actors' interaction in terms of inflation and unemployment depend on the degree of concentration and coordination on the union side and the utility functions of the actors (see Franzese 2004 for a concise overview showing the very different possible outcomes; a graphic impression is given by the diagrams in the appendix.

[33] Noteworthy is that in almost all examples of this literature employers, normally the bargaining counterparts of trade unions, have no role in wage bargaining.

[34] A flavour of the rarefied nature of such models can be gained from the opening sentence of the model description in Coricelli/Cukierman/Dalmazzo (2006: 41): 'The economy is composed of a continuum of monopolistically competitive firms and of n, equally sized, labor unions that organize the entire labor force. (…) A quantity Lo of workers, equal across firms, is attached to each firm but works only if the union in charge signs a labor contract with the firm.'

Dullien (2004: 27ff.) criticises many of these models as relying on the real balance effect (nominal wage restraint in the face of a rigid money supply rule raises real demand and employment). Firstly he examines phases of wage restraint in European countries (31-46) showing that this raised demand in small countries (NL, IRE) but not in large ones (F, I, DE): the additional demand came from net exports in the former cases. He then demonstrates that the real balance effect cannot work in an endogenous-money world (48-75). As we noted earlier, Dullien's second critique has arguably become redundant given the preponderance of models in which demand is steered actively by monetary policy. However the reference to the small/large country dichotomy is important. It ties in with the empirical findings discussed in section 1 of this chapter and also with the critique of the inability of pooled regression analyses to pick up this causal channel.

A specific issue arises for unions (or countries) exercising nominal wage restraint within a monetary union (or fixed/pegged exchange rate). They cannot benefit (to the full extent) from a relaxation of monetary policy in the wake of the associated disinflationary pressure, because that pressure only enters into the aggregate inflation rate of the currency area (the focus of the central bank) to an extent corresponding to the weight of the country in the area economy. The effective 'decentralisation' of wage bargaining implied by the replacement of national monetary authorities by a single central bank, in the guise of the ECB, led to concern by some economists that this deterrent effect of tighter monetary policy on wage setters might be weaker in monetary union than without (e.g. Calmfors 2004: 87ff. or Iversen 1998: 497). On the other hand, wage setters have an increased incentive to moderate wages in order to gain employment through lowering the real exchange rate, because offsetting nominal currency appreciation is ruled out. This incentive is the greater, the more open the economy is to trade with other monetary-union members (Allsopp/Watt 2003, Hancke/Soskice 2003a).

Much of this literature has been primarily theoretical in nature. However, some studies have attempted to measure the outcomes of interaction between different types of central bank and wage-setting system. Franzese/Hall (2000) examine the impact of central bank independence and collective bargaining coordination (alongside control variables) on inflation and unemployment performance for 18 OECD countries: They find that both central bank independence and collective bargaining coordination independently dampen inflation. On unemployment: 'the unemployment costs of central bank independence depend negatively on the degree of coordination of wage bargaining and … the unemployment benefits of coordinated wage bargaining depend positively on the independence of the central bank.' (op. cit.: 188f). The authors' data only extends to 1990 however, and is purely cross-sectional: no time variation is allowed for. There is no consideration of LMIs, so their possible role cannot be assessed, nor that of fiscal policy (op. cit.: 193).

Iversen (2000) considers only coordinated models (10 OECD countries) and examines the impact of bargaining centralisation and the monetary regime (proxied by a hard-currency index) and a measure of the extent of decommodification of labour brought about by the welfare re-

gime, along with some control variables. Data are from the period 1973-93 and again the analysis is cross-sectional only. He finds that unemployment is favourable either with centralised bargaining and accommodative monetary policies, or more decentralised bargaining and a non-accommodating policy regime (op cit.: 214). These two regimes are best combined with, respectively, highly decommodifying and commodifying welfare regimes: the former shields workers from market forces, that latter treats it as a 'commodity'.

Traxler et al. 2001 conduct a whole range of empirical studies of the results of interactions of different wage bargaining systems with macroeconomic policy. Different alternative codings are used for the bargaining regimes and this analysis is extremely sophisticated.[35] When using coordination measures, the authors report that coordinated bargaining (specifically two regimes termed 'pattern bargaining' and 'voluntary peak coordination with high governability" provide for lower unit labour cost growth (op. cit.: 247). However, they also note – as a 'surprising finding' – that the 'interaction of wage bargaining and monetary policy is not much reflected in unemployment' (op.cit.: 273). Ultimately they conclude with the rather broad, if not so say odd, claim that 'all accounts directly relating wage bargaining to unemployment miss the point' (276). First of all, the point of the literature (and this project, too) is not to directly relate wage bargaining to unemployment, but rather to examine its effect conclusion in conjunction with macroeconomic policy. Moreover, it is not clear what the author's point then actually is: the findings of the last chapter (ch. 17) are a case of many trees and no wood. One can speculate on the reasons for this. The operationalization of monetary policy is poor; M1 growth is used as an output indicator for monetary policy, but this is influenced by many factors that are irrelevant to the analysis (such as population growth) and remains unconvincing. Fiscal policy is not considered. The linkage to the degree of country openness is not explored. Overall, this study is a mirror image of some of the econometric studies critiqued in section 2.2. It is very strong, and a valuable resource, on the industrial relations codings but the analysis of macroeconomic policy leaves much to be desired, and as a result the findings are rather opaque.

Clearly Iversen's and Franzese/Hall's findings appear to be in contradiction regarding favourable (for unemployment) interactions between monetary and collective bargaining regimes. It is not clear whether this is due to the different country sample or differences in the variables examined.

Iversen (1998), in which the author himself reached similar conclusions to those in his subsequent paper end his introduction with the fatalistic: "it is possible to find support in the literature for just about any view on the relationship among monetary regimes, wage bargaining and economic outcomes' (Iversen 1998: 473).

Finally, a number of studies, most located broadly in the post-Keynesian tradition, deserve mention that have sought to set out a normative framework for policy coordination, specifically

[35] The major strength of this study lies in the analysis of bargaining structures, and as such we will return to this publication in Chapter 3.

under the conditions of monetary union. Starting from a critique of the mainstream assignment of policy responsibility, these contributions have focused on ascertaining both the advantages of and constraints on coordinated policy in the EMU context involving, in particular, the Macroeconomic Dialogue established just after the start of EMU in 1999 (Koll 2005). Examples include Hallwirth 1998, the contributions to Hein et al. 2005, including that by the present author (Watt 2005); Heise 2001, Watt and Hallwirth 2003. A recent analysis of the same issues in the context of the new economic governance that has emerged after the economic crisis is Koll 2013. Similarly, Heine/Herr/Kaiser (2006) posit the importance of economic policymaking 'regimes' and consider the effect of policy consistency empirically for the USA, Germany, Japan and the UK, claiming that the internal consistency of the regimes in the English-speaking countries was of key importance (rather than labour market flexibility) in explaining their relative success.

The policy recommendation emerging from most of these studies is for a policy assignment consisting of symmetrical stabilising and employment-oriented monetary policy; coordinated wage setting to achieve target nominal wage growth equal to the rate of productivity growth plus the target inflation rate of the central bank; for fiscal policy at the very least the automatic stabilisers should be allowed to play – and where necessary discretionary (symmetrical) counter-cyclical policies should be pursued, while maintaining substantial and steady rates of public investment.

Some initial conclusions can be drawn from this branch of the literature for this analysis:

Firstly, most studies show that, virtually no matter what assumptions are made about the actors' behaviour, monetary policy has real effects in the context of market imperfections and strategic actors. If this finding is added to that in the previous section that coordinated collective bargaining is a – indeed, is arguably the only – institutional variable systematically affecting (namely reducing) unemployment, then a focus on both bargaining coordination and the interaction with them and nominal demand appears to be a fruitful avenue for research, not least within the context of EMU.

Secondly, much of the policy coordination literature is characterised by a high degree of abstraction and a reliance on game theory, necessitating some highly unrealistic assumptions. Notably, unions are often seen as autonomous wage setters and as setting wages with primary regard to the likely actions of the central bank. Yet unions bargain with employers over wages, not the central bank. And employers also have interests and power resources that need to be taken into account. This may be why such models have generated a whole range of theoretically plausible outcomes.

Thirdly, some authors have conducted empirical studies following the logic of some of these game-theoretical and policy-interaction models. To my knowledge all the studies are, however, now rather dated: the data used ends in the early 1990s. The cross-sectional approach

may blind the researcher to important changes over time. And here, too, a range of partly contradictory findings has been produced.

1.2.5 Conclusions from the literature review, research desiderata and a first statement of the argument

A number of desiderata emerge from this analysis of the existing literature for work on the issue of European unemployment. Very clearly our understanding of these crucial issues, in spite of the huge number of studies, remains incomplete, if not to say woefully inadequate. There are areas where the literature appears contradictory, empirically or theoretically weak, or where important concerns have not been addressed. Specifically it would be desirable to:

- Explicitly bring in macroeconomic *policy* to the empirical and theoretical study of (un)employment, rather than just demand shocks, but in a way that recognises feedback effects from and constraints imposed by the supply side, especially wage setting.
- Bring in the role of capital accumulation and capacity utilisation into the analysis of employment and consider further its role for equilibrium unemployment.
- Take full account of the consistent but (in mainstream economic analysis) underdiscussed finding on the positive impact of coordinated collective bargaining for employment and investigate its meaning and potential in the context of EMU.
- Investigate existing (and ultimately propose better) indicators of LMIs, particularly in the area of collective wage bargaining.
- Examine the determinants and the effects of wage restraint in single countries while allowing for externalities (beggar-thy-neighbour effects) between countries; this also involves bringing in the role of economies' openness.
- Flesh out the game-theoretical and policy-oriented literature on policy interaction between the monetary authority and wage-setters with new empirical evidence to examine such models' realism and feasibility.
- Better bridge the analyses conducted by economists and those by industrial relations specialists.

This list constitutes a set of challenges for on-going research in the area of European unemployment. These challenges remain, indeed have become yet more urgent, in the wake of the economic crisis that has led to large increases in unemployment in most advanced economies. No one study can, of course, meet all these demands and this one will not attempt to do so. Nevertheless my research design is such as to open up new avenues to addressing at least some of these issues.

As we have seen, the standard view is that good unemployment performance is primarily due to liberal labour market institutions as these determine the NAIRU or equilibrium rate of unemployment, primarily via their impact on wage-setting behaviour. Demand enters the explanatory model typically only in the form of exogenous shocks. The focus of this study, rather, is the link between the institutions and policies that determine the path of nominal aggregate demand and those that determine the path of nominal wages. It is argued, at the most general level, that different unemployment trajectories can be explained by the different ability or willingness of policymakers in the countries, at different points in time, to influence these two key variables. Countries are likely to be most successful in achieving and maintaining low unemployment if the setting of nominal wages is actively coordinated with that of the pace of aggregate demand growth so as to achieve sustained employment growth. Alternatively, the pace of nominal wage growth may be tailored so as to be compatible with demand trends that are largely exogenously determined. The choice of strategy and the likelihood of successful implementation depend on structural features of the economy, and not least its degree of openness. It will be examined in this study, theoretically and empirically, whether this approach can at least complement, if not substitute for, an explanation focusing on the importance of deregulation of labour market and welfare-state institutions.

Chapter 2 begins to make this case by setting out a simple framework for thinking about the relationship between employment, unemployment, nominal demand and output and nominal wage developments.

2 SETTING OUT A BASIC FRAMEWORK OF EMPLOYMENT CREATION AND UNEMPLOYMENT DETERMINATION

"The accounting identities equating aggregate expenditures to production and of both to incomes at market prices are inescapable, no matter which variety of Keynesian or classical economics you espouse. I tell students that respect for identities is the first piece of wisdom that distinguishes economists from others who expiate on economics. The second?... Identities say nothing about causation."

***James Tobin*[36]**

The aim of this chapter is to set out a framework of employment creation as a heuristic tool with which to analyse the European unemployment issues raised in the previous chapter, and in a way that takes account of the methodological issues and problems identified there. The framework is simple. It rests on a minimum of assumptions and specifically does not require the usual 'perfect market' hypotheses of standard economic models. Instead the approach is to start from basic macroeconomic accounting identities. The approach draws on earlier work by, amongst others, Flassbeck (1987: 157ff.), Koll (1988, 2005) and Hallwirth (1988 and 1998); see also Watt (2007).

Section 2.1 works through a number of specifications as a descriptive tool and shows how they enable us to interpret employment in terms of nominal variables interact. Section 2.2 examines the employment-unemployment-link. A first statistical illustration is provided using data for EU15 as a whole in section 2.3.

As the opening quotation from James Tobin makes clear, identities in economics have the major advantage that they are always true. They are a binding logical, but also real constraint. Much mischief occurs from ignoring them. Their corresponding drawback is that, to be more than self-evident truisms, they require an interpretation that enables a sense of causality to be incorporated, or that explains the adjustment mechanism at work. We know that in any given period savings always equal investment (in a closed economy) because both are defined as 'that which is not consumed' in a given period, on the income and expenditure side of the national accounts respectively. However, this identity tells us little by itself. Theoretical controversy often surrounds issues of causality between such identities. Is it savings that drives investment, or the other way around? Neoclassical economists tend to the former, Keynesians to the latter view.

In chapter three we consider which of the variables considered in this chapter can be considered as being at least partially exogenous, in the sense of being subject to control or at least influenced by various economic actors, the conditions of and constraints on it, and also issues of

[36] Quoted by Basil Moore (2003: 237).

measuring the stance adopted by policymakers. Together these two chapters establish the analytical framework that is then used to guide the subsequent empirical discussion.

2.1 The rate of employment creation: the inter-linkages with nominal variables

We start with a closed economy. Over anything but the short period goods and services produced are either consumed or invested, and aggregate demand and aggregate supply are equal (AD = AS)[37]. This is true whether we consider supply and demand in real terms or in nominal terms, i.e. at current prices.

Focussing on growth rates over time, the rate at which nominal demand (m) – throughout rates of change are indicated by lower case letters – expands is equal to the growth rate of aggregate supply, also in nominal terms. The aggregate nominal supply of goods and services has a quantity and a price component (Y and P), and the change in the nominal value of aggregate output – nominal GDP – is the sum of changes in real output (y) and prices (p). Since this is equal, in a closed economy, to the change in nominal demand, we can write, as a close approximation[38]:

$$d = y + p \qquad (1)$$

or

$$y = d - p \qquad (2)$$

where the latter expression simply indicates that real output growth is equal to the growth of nominal spending in the (closed) economy, minus any change in the price level.

The level of real output Y can also be expressed as the product of employment (E) and the productivity of labour (Y/E), whereby E can be expressed in persons or working hours. Thus changes in real output (i.e. economic growth) are equal to the sum of the change in employment (e) and in labour productivity (π):

[37] In the short run inventories can be run up or down, acting as a short-run buffer between changes in demand and supply.

[38] Strictly speaking, this transformation applies to changes in continuous time, not to first differences for discrete time periods. For the purposes of the subsequent empirical analysis, which draws on data published at, in most cases annual, intervals, it is more appropriate to use a discrete-time approach. But given that the rates of growth considered are small, the approximation is close; see the discussion in, for example, Pemberton/Rau 2011: 177f.

$$y = e + \pi \qquad (3)$$

Combining the two equations for y, and rearranging, we obtain a simple expression for employment growth:

$$e = d - p - \pi \qquad (4)$$

i.e. the rate of employment growth is equal to the growth of nominal demand less inflation, less the rate of labour productivity growth. This equation can also be written as:

$$e = d - (p + \pi) \qquad (5)$$

So far we have merely rearranged accounting identities. We can now introduce an assumption. If we assume that real wages increase in line with labour productivity, and thus that the rate of nominal wage increases is equal to the sum of inflation and productivity growth, we have:

$$w = p + \pi \qquad (6)$$

An equivalent way of expressing this is that the rate of growth of nominal unit labour costs (ULC), i.e. the wage costs of producing a unit of output, is equal to the inflation rate. Equivalently, real unit labour costs are constant. We will return to both the empirical evidence on this assumption, and its importance, later. Suffice to say, at this point, that this assumption is also a condition for the share of wages in national income to remain constant, that is for wages and profits to grow at the same rate. This is a feature of, amongst others, Cobb-Douglas-type production functions, and was the first of Kaldor's famous six 'stylised facts' about long-term growth (Kaldor 1957).

Replacing productivity growth plus inflation by money wage growth in our equation for employment growth, we arrive at the simple equation that, given the assumption of a constant labour share,

$$e = d - w \qquad (7)$$

In other words, employment growth is equal to the rate of nominal demand growth minus the rate of nominal wage growth (for a similar but slightly different approach see Flassbeck 1987: 157ff., Koll (1988: 22 und 2005: 189), and Hallwirth (1988 and 1998: 117ff); see also Watt (2007). Under the constant wage share assumption, the labour cost of producing a unit of output moves in lock-step with inflation, and this in turn determines the extent to which any increase in nominal aggregate demand is 'lost' to price increases rather than raising real output and, allowing for productivity, employment.

The key difference is that these authors focus not on nominal output/demand but on the money stock (M) and the rate of growth of the money supply (m). For the growth of the money supply to be related to employment and wages, an additional assumption is required, namely a constant velocity of circulation of money. Or alternatively a term has to be added to account for a trend fall in the velocity of circulation (e.g. Hallwirth 1998: 117). Casting the discussion in terms of the money supply clearly puts the emphasis on the central bank as the key demand-side actor. This was in line with the contemporary orthodox monetarist view of monetary policy held by the Bundesbank (even if the mentioned authors were never in the monetarist camp). The approach favoured here, by contrast, drops the idea of the monetary authority steering the money supply. The focus is rather on nominal domestic demand and the way it can be steered by both monetary and fiscal policy, alongside autonomous components, as discussed in Chapter 3.1. To that extent, this approach represents a significant extension of the framework underlying the earlier cited works.

Before looking at the statistical evidence regarding the relationship between these three key variables, we will consider some extensions of the basic equation which will be relevant at various points in the course of this study.

Firstly we note a special, or 'equilibrium', case of our basic equation.

If we further assume that wage-setters set nominal wage increases according to a formula whereby, whatever the current rate of inflation (and level of demand), nominal wages increase at a rate (w*) equal to the rate of (medium-run) labour productivity growth, plus the target inflation rate of the central bank (p*), rather than the current inflation rate, (p), i.e.

$$w^* = p^* + \pi \qquad (8)$$

we obtain an expression for an equilibrium case:

$$e = d - w^* \qquad (9)$$

This equation not only links employment growth to demand and wage growth but, in addition, and subject to the already-mentioned assumption of the stability of the wage share in national income, indicates that employment growth will be accompanied by prices rising at the target rate of inflation of the central bank. This implies a number of things. Firstly, whenever *nominal* output (in a closed economy: also nominal demand) increases, *real* output will increase by its rate of change, minus the target inflation rate of the central bank ($y = m - p^*$). Secondly, real wages grow in line with productivity. Third, employment will grow at that rate minus the rate of productivity growth. Fourth, and most importantly, inflation will oscillate around the central bank's inflation target.

Within such a framework, non-inflationary employment growth would be possible, mathematically to an unlimited extent, subject to three conditions, namely that:

- nominal output (in a closed economy: nominal demand) can be expanded
- the wage norm is respected
- the wage share does not systematically fall, offsetting the employment-creation effect.

We will return to this stylised 'equilibrium' model. However it can be noted that this conception underlies some post-Keynesian-inspired policy proposals for an alternative economic governance system aimed at achieving and maintaining full employment (see Ch. 1.2.3)

Next we consider an open economy. Unlike in a closed economy, where any discrepancy will be limited and temporary (changes in inventories), in an open economy, aggregate domestic demand will not normally be equal to aggregate domestic supply even over extended periods. An increase in the former could be met partly or exclusively by increasing imports. Aggregate domestic demand equals aggregate supply plus net imports (NIMP)

$$AD = AS + NIMP \qquad (10)$$

Thus in an open economy model – and moving back to rates of change – we need to replace d with an expression that is the weighted average of the change in domestic output and of net imports:

$$d = a(p + y) + (1-a)(nimp) \qquad (11)$$

where a is the weight of domestic supply in the total. The more open the economy, the smaller is coefficient a and, potentially, the greater scope for a discrepancy between aggregate domestic demand and domestic output.

In the longer run we can expect there to be limits to the extent to which a country can meet higher demand from foreign supply, because of the implications of the need to finance current account deficits. The direct pressures on countries persistently 'living below their means', i.e. keeping domestic demand below domestic supply and maintaining persistent trade surpluses, is less. Still, given that the sum of trade surpluses and deficits is always zero and deficit countries are under pressure, it is to be expected that overall an adjustment pressure will apply towards an equilibration of demand and output at the level of a national economy. Thus, over the longer term, the two variables – domestic demand and domestic output – can be expected to move together within a corridor. Over policymaking horizons, however, this need not, and probably will not, be the case. We will return to the issue of the relationship between demand and output in an open economy, and the complications that result for wage setting and demand-management in Ch. 3, in terms of theory, and Ch. 4, in terms of the empirical evidence.

Thirdly, we can allow for changes in the wage share, dropping the one assumption in our analysis so far. In the basic set-up, in a closed economy prices increase at the rate of nominal wage growth minus that of productivity growth. We can add a factor (s) that acts as a wedge between the rates of growth of prices and unit labour costs:

$$s = p - (w - \pi) \qquad (12)$$

If s is positive, prices increase faster than unit labour costs, real wages rise less than productivity and the wage share declines; s is thus the inverse of change in *real* unit labour costs. This leads (for any given productivity growth) to a change in the mark-up of prices over wages and causes the wage share to shift. We can rewrite equation 12 as:

$$p = w - \pi + s \qquad (13)$$

To see what effect a gap between inflation and unit labour costs has on employment, we substitute the new expression for inflation (equation 13) into equation (5), which states that employment growth equals demand growth minus the sum of inflation and productivity growth. The two productivity terms cancel out, giving:

$$e = d - w - s \qquad (14)$$

It is evident that price inflation in excess of the rate of increase of unit labour costs, while shifting national income from wages to profits, has, in purely mathematical terms, a negative effect on employment creation for given nominal demand and wage growth. The reverse is also

true: faster unit labour cost than price inflation, implying a rising labour share, is associated with faster employment growth, holding all other factors constant. Intuitively the fact that firms achieve higher mark ups by raising prices faster than nominal unit labour costs ("profit inflation") – in the simplest case, either prices or productivity has gone up, but wages have remained constant – reduces the real value of any given demand/output, and thus employment (for any given productivity growth).

At this point we need merely note that a sustained – rather than temporary or cyclical – shift in the wage share in one direction or the other must at some point be bounded: at the limit either wages or profits account for 0% of national income. Indeed constancy of the wage share over the long run is a feature shared by many, otherwise very different, economic theories (Krämer 2010). But the extent and duration of wage-share shifts is an empirical matter, which we consider briefly in section 3 of this chapter and in 4.1.

2.2 The relationship between employment growth and changes in unemployment

In this section we consider the relationship between the rate of employment growth and changes in *unemployment* levels and rates, which was the key focus in the previous chapter and will be in the subsequent analysis.

There are both normative and methodological reasons for the shift in focus from employment growth to changes in unemployment. The main goal of policymakers has tended to be to reduce unemployment, rather than raise employment, even if the latter – specifically a rise in the share of the working age population in work, the employment rate – has increasingly become a policy goal in its own right, not least in the EU's Lisbon Strategy (Watt/Janssen 2006). Above a minimum level (frictional unemployment) unemployment is viewed as unequivocally bad, both for the individual and society at large. Whereas those not working while also not reporting that they are unemployed may have good reasons (such as training, family care) for staying out of the labour force, governments are expected to 'do something' about unemployment, which regularly ranks among voters' most pressing concerns in opinion polls (see footnote 5). The rate of employment growth is, to a considerable extent, driven by demographic factors that are outside of the immediate control of policymakers, rendering cross-country comparisons of employment-growth figures hard to interpret.[39] Unemployment levels and changes are less equivocal.

Linked to these points, most of the comparative studies, especially those in the labour market institutions (LMI) framework, focus on the issue of unemployment. It is the dependent vari-

[39] This is not to suggest that labour supply in general is immune to policy influence: immigration policy will obviously affect overall labour supply, while tax and welfare policies are important determinants of participation (especially of women).

able in the vast majority of the regression analyses discussed in the previous chapter (1.2.3). In order to explore the potential for alternative frameworks and research methods these studies need to be engaged on their 'home ground'.

The first step in making the change of focus is to divide the working age population (N) into three groups: the employed (E), the unemployed (U) and those not on the labour market, the 'economically inactive' or simply 'inactives'[40] (I).

$$N = E + U + I \qquad (15)$$

The change in the working age population is the weighted average of the changes in these three groups[41]:

$$n = e(E/N) + u(U/N) + i(I/N) \qquad (16)$$

If we rearrange this equation and then divide both sides by the employment share (E/N) we obtain the following expression for e, the rate of change of employment:

$$e = [n - u(U/N) - i(I/N)]/ (E/N) \qquad (17)$$

This expression tells us that the rate of employment growth varies in the following ways:

- positively and proportionally with the change in the working age population (whereby the proportion is given by the employment rate),
- negatively and proportionally with the change in unemployment (whereby the proportion is given by the share of the unemployed in the working age population divided by the employment rate), and
- negatively and proportionally with the change in inactivity (whereby the proportion given by the share of the inactives in the working age population divided by the employment rate).

[40] This is an unfortunate term with negative moral overtones, but is used here in view of its currency in international comparative settings.

[41] The rates of change (variables in small letters) are equivalent (e.g. for n) to $(N_t-N_{t-1})/ N_{t-1}$ and the weighting quotients refer to the levels at time t-1.

Alternatively we can express the relationship in terms of changes in unemployment, writing:

$$-u = [e(E/N) + i(I/N) - n]/(U/N) \qquad (18)$$

indicating that the size of a percentage fall in unemployment is equal to the size of the increase in employment or inactivity, with their respective weightings, while varying positively with the working age population, in each case divided by the unemployment ratio[42]. Of course this is similar to the family relationship expressed by Okun's law. That relates changes in unemployment to those in output; the similarity arises because of the close link between the growth of the working age population and the output trend.

To put things much more simply, employment growth reduces unemployment in a proportionate way, to the extent that it is not offset by increases in the working age population or declines in inactivity; the inactives are an alternative source of people to fill the new jobs to the ranks of the unemployed. This means that drivers of employment also have a significant influence (with opposite sign) on unemployment, albeit one that can be offset by changes in other labour market variables.

Interrelationship between employment growth and changes in unemployment. Illustration for a medium-sized European economy

Some policy-relevant implications of these interrelationships between employment and unemployment can be drawn out with reference to a fictitious country with labour market characteristics typical of a medium-sized west European country, but with conveniently round numbers. Let this country begin with a working age population of 12 million of which 8 million are employed, 1 million unemployed and 3 million economically inactive. This means that the employment rate is 8/12 (66.7%), the unemployment ratio 1/12 (8.3%) and the inactivity ratio 3/12 (25%). Note that the unemployment *rate*, i.e. unemployment measured as a share of the labour force, is 1/9 = 11.1 %. Suppose that the working age population is growing at 1% a year (n = 0.01) over a period of years. There are, of course, an infinite number of combinations of changes in the other three variables consistent with this, but some important or obvious permutations stand out.

1) Employment is also growing at 1%. The population not in work (U+I) will obviously also have to increase at the same rate. Unless there is a shift between unemployed and inactive groups, all categories grow at the same pace, all ratios stay the same – and the unem-

[42] That is the share of the unemployed in the working age population, not the unemployment rate. See the numerical example below.

ployment rate will not budge from 11.1%.

2) Employment expands faster, say at 2%. This implies a reduction in non-employment by 40,000 (120-160,000) persons or 1%.

   a) If this were drawn in a balanced way from the inactive and unemployed populations (i.e. in a ratio of 3:1), then both are reduced by 1%, and the unemployment rate falls in the first year to 10.8%.

   b) If there were a law requiring employers to recruit solely from among the ranks of the unemployed, unemployment would fall by 4% and the unemployment rate after one year would be 0.6 p.p. lower at 10.5%.

   c) Alternatively the rise in employment could have resulted solely from the entry of persons previously out of the labour market taking jobs (for instance married women as a result of a change in tax legislation or attitudes or simply because of a perception of greater labour market opportunities). Unemployment would remain constant in absolute terms. Note, however, that the unemployment rate would still fall slightly (to 10.9%) because of higher employment, which increases the denominator.

   d) Indeed, the increase in labour supply from the previously inactive or new entrants could theoretically be so strong as to displace existing workers into unemployment despite the overall rise in employment. Even so it is important to recognise that unemployment could rise in absolute terms by as much as 2%, without the unemployment *rate* increasing.

3) If economic growth is so weak that employment stays constant, the continued growth of labour supply, conversely, puts upward pressure on unemployment and inactivity. 120,000 people will (in net terms) withdraw from the labour market or become unemployed. Without going through all the other permutations, if the net inflows into the two categories are balanced, unemployment will rise absolutely by 30,000 and the unemployment rate will rise to 11.4%, merely because labour demand has remained constant in the face of increasing supply.

What emerges from the equations and the illustrative numerical example in the box is nothing more or less than the crucial importance for reducing unemployment and the unemployment rate of *employment growing faster than the underlying increase in the population of working age*[43]. And this one factor is all the more important from a policy point of view the less we are concerned about differences between those classified as unemployed and those as inactive. As

[43] This formulation applies to most societies in most times. Strictly speaking, and in view of demographic ageing, we should write that the rate of change in employment be higher than that of the working age population: employment may also contract if WAP growth is negative, but would – more positive or less negative – have to do so at a slower pace if unemployment is to fall.

we have seen, the unemployment rate can fall thanks to rising employment even if all the additional jobs are taken by previous inactives. In practice, it is difficult under normal conditions to reduce unemployment and the unemployment rate without *raising the current rate* of employment growth. [44]

We have now made the transition, as it were, from employment growth to unemployment trends, and are in a position to examine an actual case of changes in unemployment through the lens of our framework. By way of introduction and illustration, we do this for the EU15 as a whole.

2.3 A statistical-descriptive analysis of the relationship between employment growth, unemployment and changes in nominal GDP, nominal wages and the wage share in the EU15

In this section we illustrate the way that changes in the two real variables, employment growth and unemployment, are reflected in changes in two nominal variables – wages and output – along with shifts in the wage share, based on the equations introduced in the previous sections. This enables us to check that our identities hold, not just at the conceptual level, but also when using real-world data and to consider the empirical relevance of assuming a constant wage share.

Before looking at the data, a preliminary remark is in order, namely that one advantage of this approach is that all the relevant data are in principle observable, 'countable' and uncontroversial. The three key variables are the number of people in employment, the current value of output or demand, and the pace of nominal wage growth. The former is an inherently 'physical' measure. The latter are measured in current prices and so there is not even an issue about which price deflator to use (which can cause some problems, especially over longer periods). The wage-share-shift factor is obtained by simple subtraction. None of the variables involved rely on the judgement of the researcher to construct a quantitative indicator to represent a complex institutional set-up. This is in contrast to models that make use of unobservable variables, notably concepts such as the non-accelerating inflation rate of unemployment (NAIRU) and that of 'po-

[44] Mathematically, it is possible of course. For constant rates of employment growth, unemployment rates would fall if the rate of growth of the working age population fell or could be reduced, or inactivity rates were to rise. Yet these are economically implausible constellations or undesirable from a policy point of view or both. Any slowdown in working age population growth for natural demographic reasons is likely to be slow, and under normal circumstances would be expected to be matched by a parallel change in the growth of employment. The notion that a sudden policy-induced reduction in the working age population – notably by repatriating foreign-born workers – would be offset, at unchanged overall employment, by an equivalent fall in (native) unemployment has been long since discredited politically and economically: this is the 'lump of labour fallacy' (LNJ 1991: 502ff.). And, lastly, a rise in inactivity rates merely implies a substitution of fewer unemployed people by more people categorised as inactive. Efforts by governments to reduce reported unemployment figures by 'hiding' people in early retirement, disability and other schemes fall under this category, but have been roundly criticised by policy watchdogs such as the OECD and European Commission, and this has been one of the reasons for the increased emphasis on employment rates as a policy target, notably in the EU Lisbon Strategy.

tential output', or that construct synthetic indicators that are open to challenge and may lack robustness in econometric work (see 1.2.3).

The data are taken from the Annual Macroeconomic (AMECO) database collated by the DG Economic and Financial Affairs (DG ECFIN) of the European Commission.[45] This database provides annual data for a wide range of economic variables, over long time periods (in some cases going back to 1960), for a large sample of countries (EU member states plus selected others, including the USA and Japan), and based on standardised definitions.

Here we consider the EU15 as an economic area. This is a large economy with a relatively small external trade sector. We start by considering the annual rate of growth of nominal GDP (ngdp). Illustrating a discussion that will become more relevant when we consider individual countries, we then compare these results with those using domestic demand (AMECO series 'domestic demand including stocks at current prices')

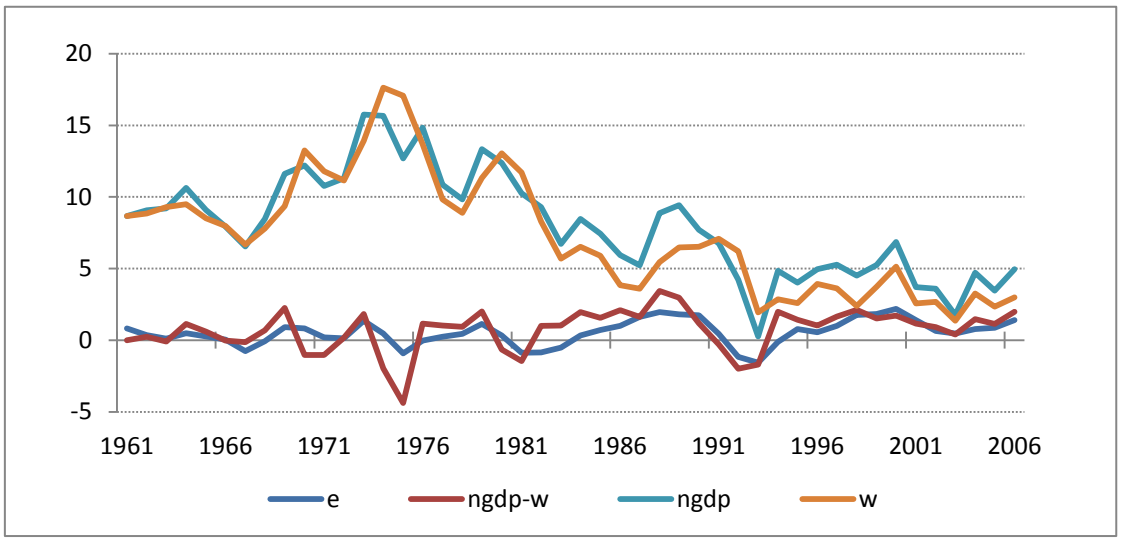
Nominal compensation per employee is used for w. This is the broadest measure of 'wages' (including all labour costs) and is the relevant measure at the macroeconomic level. It is noteworthy that this is 'headcount' data. It would also be possible to analyse the data on an hourly basis. This might seem advantageous given, for example, the increase in part-time work. However, then we would also have to look at total working hours and also hourly productivity. Hourly data are known to be unreliable and coverage is weaker both across countries and over time. Accordingly we use the change in the 'headcount' of employment for e.

For the EU15[46] annual growth rates of all the variables were calculated for the period 1961 to 2006.

[45] For details of and access to the database see http://ec.europa.eu/economy_finance/db_indicators/ameco/index_en.htm

[46] Data is not available over long time periods for the 12 countries that have joined the EU since 2004.

Figure 2.1
Employment, nominal output, wages
EU15, 1961 – 2006, in %



Source: AMECO data, own calculation.

Figure 2.1 shows the results for our most basic identity, ignoring shifts in the wage share and using nominal GDP. Four findings are immediately apparent.

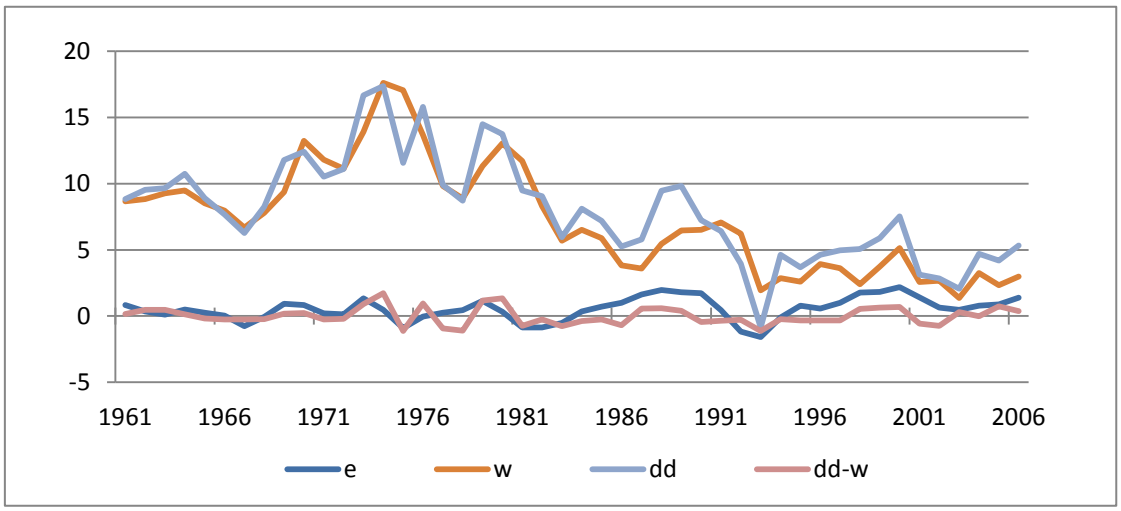
Firstly, there is a close correlation between changes in employment and the difference between the rate of change of nominal GDP and nominal compensation per employee across the entire period since 1961. The correlation has become notably stronger since the start of the 1990s.

Secondly, the amplitude of the fluctuations in ngdp-w is greater than that for employment, and the changes more abrupt; the employment adjustment is somewhat 'sluggish', at least until the mid-1990s.

Thirdly, the turning points of ngdp-w usually pre-date those in employment, with a lag of between one and two years between the two series. This does not indicate causality – as we will see it is linked to a pro-cyclical shift in the profit share – but it does appear that the difference between the two nominal variables, output and wages, serves as a leading indicator of changes in employment.

Fourthly, a similar lag is also apparent between changes in the rates of nominal output and wage growth: wage growth initially continues when the economy experiences a downturn of nominal output growth and picks up more sluggishly after an upturn. It seems, though, that this effect has become less pronounced over time.

Figure 2.2
Employment, nominal domestic demand, wages
EU15, 1961 – 2006, in %

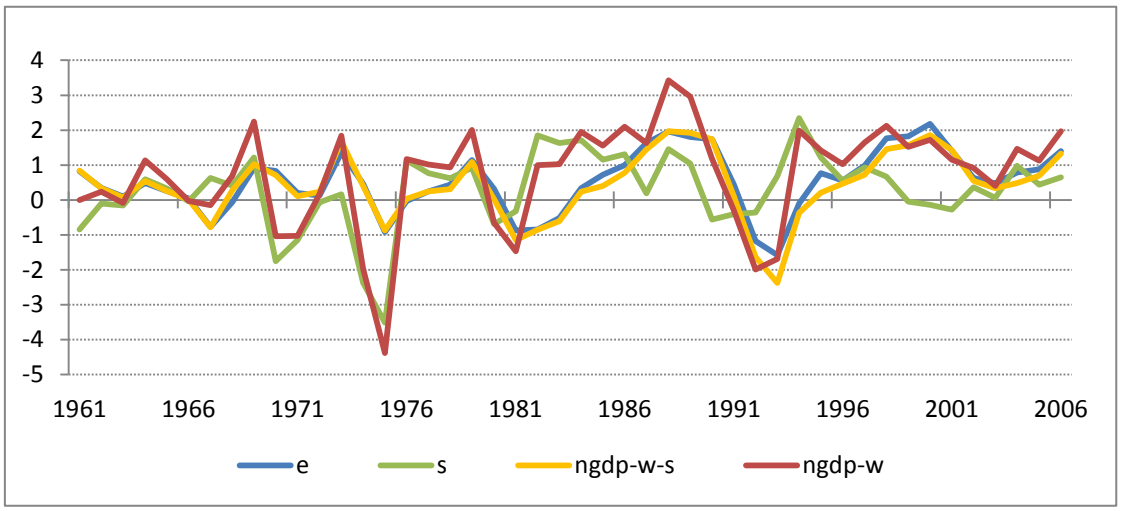


Source: AMECO data, own calculation.

Figure 2.2 is identical to Figure 2.1 except that nominal GDP is replaced by (nominal) domestic demand in order to allow for the open nature of the European economy. Nonetheless it can be quickly discussed: at the level of the EU15 – a large continental economy with a small import or export share of some 10% of GDP – changes in nominal GDP and domestic demand are extremely highly correlated (correlation coefficient: 0.988). Consequently the same findings apply when domestic demand is used in the place of nominal GDP for (western) Europe as a whole.

Figure 2.3 allows us to analyse the impact that shifts in the wage share, namely the addition of a factor (s) between unit labour costs and prices, have on the interaction between the real employment growth variable and the nominal output/demand and wage variables. To this end we use the GDP deflator and nominal unit labour cost series in AMECO, expressed as annual rates of change: subtracting the latter from the former gives us the annual value for s. The first and most obvious point to note is that, when we allow for changes in the wage share, changes in employment are tracked extremely closely by the calculated line ngdp-w-s. In other words, statistical irregularities or conceptual problems do not upset our analysis at the level of the EU as a whole. Our identity holds also in terms of real-world statistics. As part of this it can be noted that the lags between the two series e and ngdp-w disappear when changes in the wage share are allowed for.

Figure 2.3
Employment, nominal output, wages, functional income distribution
EU15, 1961 – 2006, in %



Source: AMECO data, own calculation.

Next we also see the tendency for the wage share to move counter-cyclically. It fell, for instance, during the expansions of the mid-to-late 1980s and again in the mid-to-late 1990s, while it had risen abruptly in both prior recessions. (Conversely, profits, as "residual income" are highly pro-cyclical.) Movements of s 'dampen' the fluctuations of the series ngdp-w. This is most apparent in the boom and bust of the mid-1970s. We can also interpret the 'disappearance' of the lags by comparing the series. Consider the recovery in the early 1980s. In phases in which nominal output growth is faster than that of wages, the wage share initially falls (s is positive). This 'reduces', in a statistical sense, the beneficial impact on employment because the wage moderation is not fully passed on in the form of lower price inflation. The reverse happens when demand growth falls relative to wage rises. This explains the lag between the output-wage gap and e identified earlier: the initial effect is concentrated on the wage share, only after a while does a change in the rate of employment growth materialise. This, in turn, explains the finding that it is *sustained* periods in which demand growth is greater (even marginally so) than the change in wages, that have a positive impact on employment, rather than short spikes in the output-wage gap, even if they are substantial: their effect largely manifests itself in a shift in the labour share. It also suggests that while shifts in functional income distribution do offset the impact of gaps between demand and wage growth, the effect is for a limited period only. There is no systematic and long-run distributional offset, although extended periods in which the wage share trends upwards and downwards – discussed for instance in Krämer (2010) – do occur and accentuate or attenuate, respectively, the impact on employment.

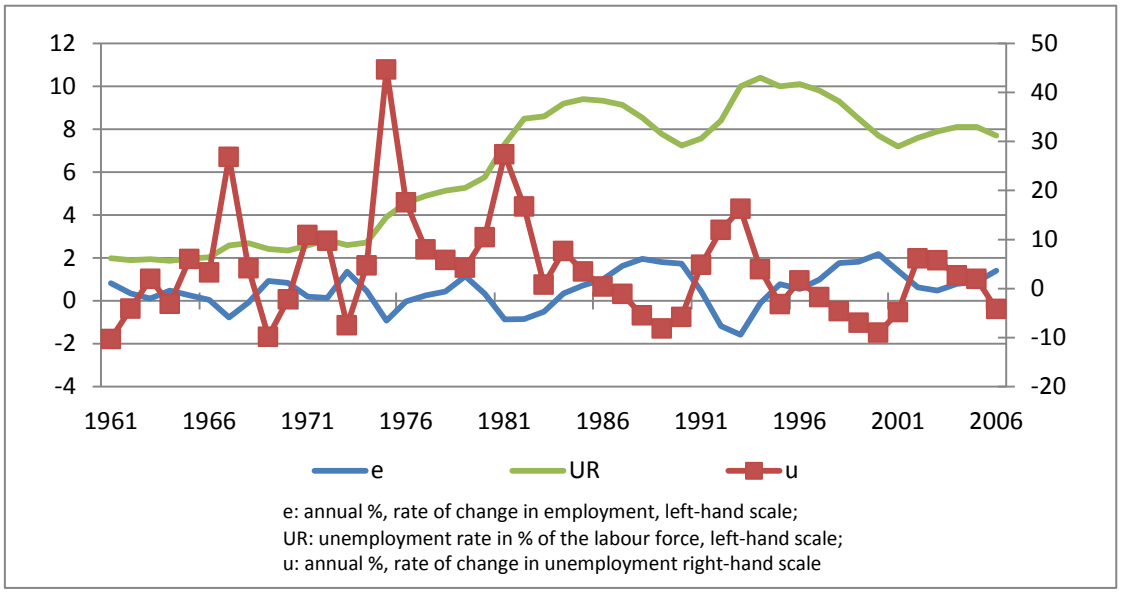
Overall this empirical overview suggests that the difference between nominal output growth (and in a large economy nominal demand growth) and nominal wage growth is a good

predictor of the direction of change in employment shortly afterwards. After a short period in which the wage share adjusts, a (muted) employment effect comes through. We have confirmed that the data are such that our identities are accurately congruent with measured employment growth even in the fairly short run. This is a solid basis from which, in Chapter 3, we can proceed to consider the validity of looking at what drives these three variables and to what extent they can therefore be themselves interpreted as drivers of employment growth.

2.3.1 The employment-unemployment link in the EU15

Before so doing, for the sake of completeness we briefly examine the link, discussed above, between the rate of employment growth and the rate of change in the number of people unemployed and also changes in the rate of unemployment (Figure 2.4).

Figure 2.4 Employment, unemployment rate and unemployment change, EU-15, 1961-2006



Source: AMECO data, own calculation.

The empirical findings are in line with previous discussion as well as with basic intuition. Periods of accelerating (decelerating) job creation equate very closely with periods of rising (falling) unemployment levels (a negative correlation coefficient of 0.76). *Indeed, there is no single case during the period considered in which unemployment has been brought down in absolute terms in western Europe as a whole without an increase in the rate of employment growth.*

Particularly in times of negative employment growth – and thus negative values for d-w-s – the rise in unemployment has been pronounced: because the stock of unemployed is smaller

than the stock of employed persons, the percentage changes of u in any given year tends to be very substantially greater than for e; note that the right-hand scale against which u is plotted is some four times larger. The relationship between changes in the number of unemployed and the unemployment rate is straightforward, with increases (decreases) in the stock of unemployed pushing up (down) the unemployment rate because the size of the labour force is relatively constant in the short run.

2.3.2 Telling the story of European employment and unemployment

It is possible to describe the history – to 'tell the story' – of European employment and unemployment with reference to shifts in the three variables nominal output or demand growth, nominal wage growth, and shifts in the wage share, and to draw from it an important conclusion.

Throughout the 1960s, nominal output rises faster than, or as fast as, nominal wages (except in 1967), with a steadily rising overall trend, reflecting both rising real growth and inflation. Employment expanded steadily. In 1967 wages come down in line with nominal output, but the share of national income also shifted towards profits, and employment declined briefly in that mini-recession. In the following years of social conflict and the first oil shock, the nominal output-nominal wage gap gyrates sharply; however employment growth remains positive throughout, until 1975, as a rising wage share compensates for any tendency for output to lag behind wages. The drastic fall in output in the wake of the second oil shock is followed only after a lag by wages. However, given the growth of wages as a share of national income, the employment downturn is limited to just a single year of contracting jobs. Nevertheless the rise in unemployment is steep, coming from a low base, in the context of steady labour supply growth.

For ten years, from 1982 to 1991, nominal output expands faster than wages. As before, this positive employment potential is initially 'lost' as profits are rebuilt through faster price than unit-labour-cost rises; subsequently, though, the wage/profit shares stabilise, and the EU15 enjoys rising employment for the last six years of that period, growing at rapid rates of close to 2% p.a. To a considerable extent this reflects a demographically-induced labour supply boost and rising female employment, in some countries much of it part time, however, and only towards the end of the decade does unemployment (and the unemployment rate) fall.

The crisis of the early 1990s largely replicated that of the early 1980s, except that it was more dramatic. Employment contracted for three years, with a cumulative jobs loss of 2 ¾%. There was a drastic fall in demand and output growth from around 10% to virtually zero. Wages decelerated but were somewhat sticky in the face of that precipitous fall; the negative employment impact was exacerbated by a sharp rise in the gap between price increases and ULC growth.

After the recovery, the western European economy entered a relatively benign phase in terms of employment growth. Particularly noticeable about this period is the stable pace of nominal GDP growth, which from 1994 to 1999 varied little from an annual rate of 5%, before peaking at just under 7% in 2000. Meanwhile nominal wages stabilised, then shadowed, NGDP, with a rate-gap of just under 2 percentage points. This, supported by a slight rise in the wage share, was reflected in sustained rates of employment growth, which peaked at above 2% in 2000. A rather substantial reduction in the unemployment rate, more than 3 percentage points, was also achieved.

The economic slowdown that followed the collapse of the internet-driven bubble economy of the late 1990s was the first major downturn in which employment growth did not turn negative, bottoming out in 2005 at 0.4%. Figure 2.4 suggests a proximate reason for this. On the one hand the fall-off in nominal demand/output was substantial (although less pronounced than in previous downturns) and rather persistent: demand in Europe did not recover as quickly as after previous downturns (or as in the US). On the other hand, the demand decline was accompanied by a significant fall in the pace of wage growth: the gap between the series narrowed, but wages growth never exceeded that of demand: the result was that there was no loss of jobs overall (productivity growth, however, was extremely sluggish and there was an increase in part-time work and other forms of implicit "job-sharing"). Demand subsequently picked up slowly, followed more sluggishly by nominal wages: employment growth then accelerated slightly although not particularly strongly and not to the full extent of the nominal gap.

Some important initial conclusions emerge: European employment has grown strongly whenever, over a run of several years, nominal output/demand expanded, provided the growth rate of nominal wages has lagged somewhat behind it. Conversely, the number of jobs has declined whenever demand has fallen sharply and nominal wage growth adjustment has lagged behind.

In the short run these effects have been partially masked or muted by changes in the wage share. Particularly beneficial employment effects result from extended periods of stable buoyant nominal output/demand growth accompanied by equally stable but slightly slower nominal wage growth. These have been translated into opposing shifts in the stock of unemployed and in the unemployment rate, with demographic and other labour supply effects playing a subordinate role.

Having presented the framework and presented some data for the EU15 as a whole, we look more closely in the next chapter at what factors lie behind the changes in nominal output and wages.

3 EXPLORING THE SCOPE FOR AND THE CONSTRAINTS ON STEERING NOMINAL VARIABLES WITH A VIEW TO EMPLOYMENT PROMOTION

The identity linking employment growth and the rate of growth of nominal output, wages and changes in the wage share can be used to describe employment and unemployment trends, as at the end of the last chapter, but is only of genuine analytical and policy interest if some degree of causality can be brought in. To the extent that this can be done, a promising avenue of research opens up: to investigate the drivers behind the nominal variables. If they can be identified then it will be possible to move from a descriptive to an analytical approach.

We start with some fundamental reflections on the issue of policy influence (3), before turning to nominal output in the simple case of a closed economy (3.2.1), and then the more complex issues in open economies of various types (3.2.2). Implications are drawn in 3.2.3. We then turn to nominal wages. After a short review of wage-setting in the standard New Keynesian framework (3.3.1.) we look in some detail at the empirics of wage setting (3.3.2) and the role of corporatist social pacts and incomes policies in Europe (3.2.1)[47]. In 3.3.3 the complications that arise because in an open economy wage-setting in turn influences the level of output by affecting external competitiveness are discussed. Overall conclusions regarding wage-setting are drawn in 3.3.4. The implications of this analysis and a number of hypotheses for the case studies are drawn out in the concluding section (3.4).

3.1 To what extent can nominal demand, GDP and nominal wages be considered policy variables? Initial considerations on scope, conditions, constraints

This chapter seeks to explore to what extent and under what conditions both nominal output/demand and nominal wages can be determined or at least influenced, independently from one another, by policymakers. If they can the identities of the previous chapter becomes equations with a direction of causation: the rate of employment growth becomes a dependent variable, whose course can be, in part, 'explained' by the other variables that are under partial discretionary policy influence. We seek here to examine at a theoretical level – pure empirics is useless at unravelling identities (Moore 2006: 159) – the scope for such policy determination, the conditions required and, conversely, the constraints on such determination. This will guide the subsequent empirical work.

[47] This is in effect the fifth block of the literature review, as discussed in section 1.2.

Let us consider the first sentence of he last paragraph more carefully. The verb 'determined' signifies that nominal demand/output and nominal wages are not an entirely endogenous variable determined exclusively by the atomistic decisions of autonomous individuals blind to overall outcomes and devoid of policy influence. Conversely, 'or at least influenced' implies that total control over the variables in the sense of being able precisely to pre-determine the outcome in the next period, is not required, but rather that parameters can be set in such a way that actual values approximate to targets over a medium-term horizon. Actors may be constrained to varying extents in achieving their targets. Identifying the nature and importance of any such constraints is a key empirical and theoretical challenge. 'Independently' is an important condition: if control over one variable is given, but this is mechanistically offset by change in another variable, then employment growth becomes indeterminate. Lastly, 'policymakers' means that we can identify specific actors which have the potential to influence the variables and that either will of their own accord, or can under certain conditions be induced to, steer them in a certain way.

By specifying the conditions necessary for or conducive to the control of nominal output and nominal wages we can begin to develop hypotheses concerning the employment policies and strategies of countries possessing and lacking such conditions and the choices made by policymakers in different countries in different periods.

3.2 Nominal demand and output

3.2.1 Closed economy

We start with a closed economy. Although this is seldom made explicit – because the focus of debate and controversy is normally on *real* output – all standard economic theories agree that the path of *nominal* demand and output growth can be steered by the public authorities with a reasonable degree of accuracy over a medium-term horizon, at least in normal times (on which more later). This is true for monetarists, who hold that inflation, and thus the price component of nominal output, is set by policymakers (especially the central bank), while real output follows a fairly stable medium-run trend determined exclusively by technical supply-side factors. But it is also the view of traditional Keynesians who believe that real output, as well as inflation, can be lastingly affected by the stance of macroeconomic policy. The theoretical dispute is precisely about the extent of policy effects on real, not nominal, output. In theory, at least, any value for the nominal growth rate can be chosen by the public authorities. As explained in any standard macroeconomics textbook (for instance Blanchard 2009, Carlin/Soskice 2006) the two primary tools for so doing are monetary policy and fiscal policy.

A closed economy can be thought of as having endogenous, supply-side forces driving the quantity and indirectly also the price component of nominal GDP. As emphasized in both old and new growth theories (for an overview see e.g. ch. 13 of Carlin/Soskice 2006) these are, on the real side, changes in the size and composition of the labour force, changes in the size of the capital stock, and 'technical progress', i.e. changes in the efficiency with which labour and capital inputs are converted into final output. At the same time there are, in addition to perpetual changes in relative prices, shifts in the level of aggregate prices, i.e. a rate of inflation or deflation. In a closed economy changes in this rate will be determined essentially by the degree to which ex ante aggregate (nominal) demand exceeds (or falls below) ex ante aggregate supply.

While the underlying supply-side changes in the economy are typically slow-moving in terms of overall levels, aggregate demand may not be stable in the short run. Even in a closed economy there may be significant and abrupt changes in the spending decisions of private sector consumers and especially investors (Keynes' 'animal spirits'). Even if there are some market-based offsetting mechanisms to such shifts in aggregate demand, left to themselves, there would be a risk of nominal output spiralling in one direction or the other on the basis of negative and positive feedback mechanisms.[48] However, a government with the power to tax and spend and a central bank with a monopoly on issuing legal tender, standard institutional features of modern capitalist economies, can offset deviations from a path of nominal output growth that they want to achieve and, within a certain time frame – which for the moment we will merely refer to as 'the medium run' – bring it back to target.

How this is achieved is standard economic analysis, and just the main points need to be made here. Let us start with fiscal policy. We will then turn to monetary policy and there discuss the problems associated with some long-neglected, but recently highly salient issues of targeting nominal GDP growth when monetary policy is constrained.

3.2.1.1 Fiscal policy

Government fiscal policy has a direct effect on real GDP as government consumption spending and investment, net of taxes, constitute a direct component of real output. A government that increases (cuts) spending or reduces (increases) revenues directly increases (reduces), *ceteris paribus*, the level of overall spending in the economy, with both real output and prices increasing (decreasing) with the fiscal expansion (retrenchment). On top of this there is a multiplier effect that occurs because the additional (reduced) private income resulting from the looser (tighter) fiscal policy stance induces further rounds of spending (saving) by the private sector.[49]

[48] A major underlying difference between different economic schools of thought is the differing degrees of faith in the strength of the autonomous self-correction properties that bring the economy back towards equilibrium. A core tenet of Keynesian economics is that, on its own, a capitalist economy is inherently instable and requires constant efforts by policymakers to keep it on an even keel.

[49] So at least the standard (New) Keynesian conception. See below for arguments that, in contrast, the private sector might entirely offset the fiscal stance. Since the crisis there has been a renewed interest in measuring the multi-

Changes in the impact of the government budget on nominal demand and output can occur as a result of actual decisions (for example to cut the top rate of income tax, to expand the road-building programme), i.e. discretionary fiscal policy[50], or by way of the so-called automatic stabilisers. A government with a working majority and a monopoly on the legal use of force (and some sway over the actions of the central bank[51]) could in theory set the level of taxation and spending – in response to or in anticipation of the level of private-sector spending – to achieve a desired path of nominal demand and output growth.

However, there are constraints on such activity. Three main types can be considered. The first is the problem of policy lags. It takes time to recognise departures from a given nominal output trajectory, for policy to be changed accordingly, and for it to have direct and also indirect effects on the level of spending. Thus the best that can be achieved is an oscillation around a medium-run target. In the worst case, the combination of these lags is such that the desired stimulus (contraction) actually hits the economy when it is already recovering (has started a downturn); in this pathological case fiscal policy actually pushes nominal demand/output away from a stable trajectory, exacerbating booms and busts.

Secondly, spending and taxation decisions have to be, or often are, taken also with a view to other issues (notably, distributive concerns, electoral cycles etc.). These can compete with the stabilisation goal.

Third there may be limits to government taxation and borrowing capacity. These might be political: tax hikes, for example, are unpopular and governments facing imminent re-election or with a small majority or requiring support from a shaky coalition are likely to be loath to implement them. In spite of the government's coercive powers, the citizenry could conceivably collectively refuse to pay (all) their taxes. More relevantly, expansionary policies require the issuing of government securities. If investors have doubts about longer-term fiscal sustainability, these may be impossible to place with the public. At such a point fiscal policy, considered in isolation, can no longer stimulate aggregate demand (but see 3.2.1.2).

Even before that point a fourth constraint, which also emanates from the reaction of the private sector to changes in the policies of the public sector, can emerge. This is discussed in the literature as Ricardian equivalence' (Barro 1996). Proponents of Ricardian equivalence claim that private-sector actors will precisely offset the impact of any change in fiscal policy because

plier under various conditions and at different points in the business cycle. A recent overview based on a meta study is provided in Horn et al 2014. The precise size of the multiplier is not an issue here. It is worth noting that there is general agreement that the larger the positive or negative output gap, i.e. the greater the discrepancy between actual nominal demand/output and potential, the more effective fiscal policy is likely to be. (e.g. Auerbach/Gorodnichenko 2012).

[50] This can result even from changes in the *structure* of spending and taxation, keeping the overall budget position constant; this is known as the Havemo effect and arises, to the extent that the multipliers on different tax and spending items vary in size (e.g. Horn et al. 2014: 5ff.).

[51] Monetary policy can frustrate fiscal policy intentions if a central bank is independent and is pursuing aims contrary to those of the government; see e.g. Heise 2001: 56ff and also the next sub-section

they understand that the policy change is temporary.[52] A tax cut, on this view, will not lead to additional aggregate spending, but will be saved by taxpayers who recognise that the boost to their current incomes is temporary and, with prefect foresight, save the full value of the tax cut in order to pay for the future tax hikes that they rationally expect. However, both theoretical considerations and the empirical evidence indicate that full Ricardian equivalence is not encountered in the real world: the demands made of private-sector actors in terms of information and foresightedness and of markets (the ability to shift spending backwards and forwards in time) are too high (Akerlof 2007).

While the private sector may under some conditions offset to a certain extent, reducing the size of the multiplier, this merely reduces the efficacy of counter-cyclical fiscal policy but does not negate it wholly.

3.2.1.2 Monetary policy

The central bank's influence on nominal demand and output is more indirect but in some respects more powerful.[53] For modern central banks the standard policy instrument is the interest rate or rates that banks have to pay to obtain central bank money. The central bank can achieve its target for the short-run interest rate because it has monopolistic control over the creation of central bank money. Whatever the demand from the banking system the central bank can vary the supply such as to achieve its target rate.[54] In so doing the central bank sets the 'base rate' on which the whole structure of national interest rates is built. By lowering (raising) this policy rate it increases (decreases) *ceteris paribus* the rate of growth of nominal demand, working through all the demand components.[55] The main transmission channels of monetary policy are the fol-

[52] Indeed, some authors went so far as to claim that, in particular, fiscal contraction could be expansionary due to non-Keynesian effects: the private sector adjusts to such an extent that it overcompensates the negative (Keynesian) impact on demand (Alesina/Ardagna 1998). This view gained some currency in the immediate wake of the recent economic crisis. However, work by the IMF (Guajardo/Leigh/Pescatori 2011) and others showed that alleged examples of 'expansionary contraction' were extremely rare and depended on specific favourable accompanying circumstances. The subsequent development of the crisis was generally supportive of the predominance of Keynesian effects: in a (deep) recession expansionary fiscal policy is stabilising, contractionary policy deepens the recessions; for a recent overview see Horn et al. 2014.

[53] See also the discussion in Chapter 1 Section 2; the following is treated in most standard textbooks. Apart from those just cited see also Bofinger (2001: 40ff.).

[54] The – rather minor – differences in the way different central banks do this are described in Bofinger 2001:348ff.)

[55] Thus central bank interest-rate movements are counter-cyclical. An implication of this is that central banks impose high base rates when demand is booming (or shortly before a boom is expected), and lower rates in times of stagnation. This in turn means that, although the theoretical grounds for expecting a strongly counter-cyclical effect of interest-rate changes are strong, the observed empirical relationships are likely (depending among other things on lag lengths) to be positive. '(T)he true explanation for the failure to find significant negative coefficients on interest rates in investment and AD (aggregate demand – AW) regressions and for the positive coefficients frequently found, is because changes in interest rates are a proxy for unobservable shifts in „animal spirits" which cause investment spending [aggregate demand and the bank rate] to shift (sic) procyclical over the cycle.' (Moore: 2006:327).

lowing. The examples are given for expansionary policy.[56] The likely lag lengths of these causal chains vary considerably.

- Consumption: Consumers are able to borrow more cheaply. New mortgages and existing mortgages at variable rates become cheaper, freeing up spending power for consumption and raising the value of home equity which can facilitate consumer borrowing and consumption through wealth effects (Lindner 2013).
- Investment: Investors borrowing short-term benefit from a direct cut in debt servicing costs. Lower short-term rates encourage financial investors to shift into assets with longer maturity periods, so that a cut in short-term rates normally depresses the long-term rates that are usually used to finance capital investment. Other things equal, lower interest rates make it attractive to shift out of low-risk securities and into higher-risk bonds and equities, reducing the cost of bond financing and pushing up share prices, both of which stimulate corporate investment. Investment is further stimulated by entrepreneurs' expectations that lower interest rates will stimulate the other components of demand and thus final product demand, so pulling up investment from the demand side in addition to the upward push it receives from the cost side.
- Banks: Lower interest rates (or relaxation of capital requirements and other financial regulations) increase the value of banks' assets and/or otherwise increase their capacity or willingness to lend (Stiglitz/Greenwald 2003).
- Government: Lower interest rates reduce the burden of servicing the national debt, which can lead to increased spending by government on goods and services and/or lower taxes.[57]
- Exchange-rate: lower interest rates make it less attractive (c.p.) to hold domestic assets and encourages an outflow of financial capital, putting downward pressure on the exchange rate. This tends to boost net exports.
- On top of these real effects, come effects on prices (including wages). As noted above for fiscal policy the extent of inflationary/deflationary pressure depends primarily on the level of aggregate nominal demand compared with the (short-run) supply. Thus policy-induced changes in the base interest rate impact on real output (in the opposite direction) and this effect is heightened for nominal output because prices are pushed in the same direction as real variables. A falling exchange rate exerts upward pressure on prices due to higher import costs in domestic currency.

[56] There is a large literature on the transmission channels. Examples include: Mishkin (1996), Blinder 1998, Dullien (2004: 76 ff.), Moore (2006: 316ff.), ECB (2011: 58ff.). For a critical view see Stiglitz/Greenwald 2003.

[57] While this is offset to some extent by reduced revenues to government bondholders, these are partly held by foreigners (in an open economy), and bondholders' propensity to consume additional income is likely to be lower than that of the average taxpayer, as they tend to be relatively wealthy.

From a technical point of view, monetary policy is a lot easier to implement than fiscal policy. The central bank can re-set its base rate(s) at any time at will. It might appear then that it has complete control over the path of nominal aggregate demand and thus, in a closed economy, of nominal GDP. This is not the case, however.

Similar issues of uncertainties and lags apply as is the case with fiscal policy. They apply less to the issue of policy formation, which is more flexible in the case of monetary policy. However, the lags before changes in short-run interest rates affect macroeconomic variables are long, uncertain and varying. (For a fuller discussion of the following see Bofinger 2001: Ch. 4, ECB 2011.) Real variables tend to be affected first and they then feed into changes in the rate of inflation (as described above for fiscal policy; cf. Blanchard 2009: 213)). In particular changes in the short-run interest rate need not always lead to commensurate changes in the longer-term rates that are more important for investors and consumers.[58]

A particular case of this constraint – long considered of primarily academic interest, but currently a major topic of debate in the context of the economic crisis – is the so-called zero bound and, related to that the 'liquidity trap' (Blanchard 2009: 495ff.; the term goes back to Keynes' General Theory). The zero bound refers to the fact that the central bank is generally considered to be unable to charge negative nominal interest rates (because then private sector agents will simply hold cash[59]). Particularly if the economy is experiencing deflation, the real rate of interest may not be low enough to stimulate the economy and bring nominal output back on track. More generally the liquidity trap refers to a situation in which lower interest rates implies a higher supply of liquidity to the banking system but this extra money is willingly held by the private sector, rather than being spent on additional goods and services, and/or builds up within the banking sector without increasing lending. In this situation, popularly characterised, following Keynes, as 'pushing on a string', interest-rate policy will not be sufficient to arrest a decline in (nominal or real) output.

A central bank faced with a liquidity trap does have, however, a number of additional options. Stiglitz/Greenwald, who are at pains to note the limitations of and constraints on standard monetary policy, emphasise at numerous points in their important book (2003) that an alternatives exist in the form of changes to financial market regulations.[60] Unconventional measures (Buiter 2005a) became the focus of increased attention during the economic crisis, and ultimately all the major central banks resorted to some form of quantitative easing: the purchase of financial assets, and their retention on central bank balance sheets, using central bank money. The key point to note is that the central bank can create ('print') money at will. Such money can be

[58] The importance of this issue is disputed. See for example Moore (2006: 241), Palley (2013: 22).

[59] This has been questioned by some authors who in the current crisis have recommended charging banks holding reserves at the central bank (e.g. Buiter (2005a).

[60] 'Regulatory policy (e.g. capital adequacy standards, including the risk adjustments and the vigorousness with which they are enforced) can have as much an impact on credit availability (and thus on the economy) as traditional monetary instruments.' (Stigltz/Greenwald 2003: 299)

used to buy, in principle, any assets or goods on the market, raising their price and putting money into the pockets of their owners. A case in point is the acquisition of government securities on either the primary or secondary markets. This option breaks one of the possible constraints on the use of fiscal policy identified above. Even when the banking system is hobbled by losses and uncertainty the central bank can, ultimately, bypass it and lend directly to the public. It can print money and, to use the standard Friedman *bon mot*, drop it from a helicopter, although the latter will require help from the government (see below).[61]

It is therefore generally accepted that in a (largely) closed economy with a functioning central bank and government nominal demand (and thus nominal output) can be kept within a target corridor over a medium-term horizon. Given that both policy levers exert an influence, coordination mechanisms will normally facilitate economic management and are likely to be vital in times of crisis (Buiter 2005b: C26).

There are a number of arguments why the prime role – alongside the play of the automatic fiscal stabilisers – in steering demand in the short and medium run can and should be left to monetary policy, at least in 'normal times'. Bank rates can be adjusted frequently and in small doses, compared with the usually annual budgetary decision-making processes, which are highly politicised and have major distributional impacts. Certain restrictions on the scope of the government of the day to change the fiscal stance at its discretion may be appropriate to the extent that this facilitates the demand-management of the central bank. By facilitating policy cooperation this can permit lower interest rates which by promoting capital formation, raising not only current growth but also growth potential (Tobin/Buiter 1980: 114, Heise 2001: 56ff.). However, particularly in times of crisis monetary policy may well be inadequate to arrest a downturn and – as at the time of writing – substantial reflation efforts by means of fiscal policy are required. In principle fiscal policy, especially on the spending side, also permits greater targeting of demand, whereas the demand effects of interest rate changes are more indiscriminate and in some cases this may have undesirable consequences.[62]

Even severe depressions with both output and prices falling *can* be reversed if appropriate, coordinated action by the two policymakers occurs. The two notable cases in living memory where nominal (and real) output did not swiftly recover, the Great Depression in the 1930s and the 'Lesser Depression' in the years since 2008 are widely ascribed, by economists of very different theoretical backgrounds, to various sorts of policy failure (Galbraith 1961[1954]). At the height of the recent crisis the world's leading central banks slashed interest rates to close to zero and embarked on the use of 'quantitative easing', albeit to markedly different extents (Pisani-Ferry/Wolff 2012), in combination with expansionary fiscal policy. These policies successfully

[61] A review of quantitative easing policies adopted in the crisis suggests that they were ‚effective in late 2008 and 2009, preventing even larger declines in output and inflation than were experienced' (Martin/Milas 2013: 1). The present author has recently proposed a form of monetary financing of public investment for the euro area (Watt 2015).

[62] For instance, demand stimulation via low interest rates may blow up real-estate bubbles or, in an open economy context, come into conflict with financial stability considerations (Dullien 2004: 149ff.).

turned round the trajectory of nominal GDP. In countries with a single monetary and fiscal policy, such as the US, UK and Sweden, nominal output has at least returned to around its previous growth rate, although there still appears to be a level effect: the output loss in the Lesser Depression has not been recuperated. Arguably, more vigorous use of, in particular, fiscal policy, would have been effective in foreshortening the recession, had they been able to overcome political obstacles (Krugman 2012). The complex and inadequate economic governance of the euro area, a topic going beyond the bounds of this study, prevented the consistent and adequate deployment of counter-cyclical fiscal and monetary policies in the euro area (Watt 2011). Consequently nominal GDP has failed to recover even its growth trend at the time of writing.

These failings are an important reminder, though, that institutional and other restrictions can limit policymakers' options, and even where these constraints are not actually binding, policymakers can, of course, fail to make full use of available policy space to stabilise output and employment growth. And if this failure is maintained for more than a brief period, longer-term damage to employment prospects may ensue.

3.2.1.3 Nominal GDP as a monetary policy target variable

In line with the above considerations, nominal GDP has frequently been proposed as an explicit (medium-run) target variable for monetary policy. The idea has been propounded by economists from otherwise rather different 'stables': on the Keynesian side Tobin (1980) argued for nominal GDP targeting against the idea of a monetary rule (see also Bean 1997: 97, Bean 2013). In a series of contributions McCallum (for instance McCallum 1985 and McCallum and Nelson 1998, the latter paper considers an open-economy setting) proposed the use of nominal GDP targeting in the light of its anti-inflationary power coupled with its automatic stabilisation properties. Initially this was formulated in terms of a feedback rule between the growth of nominal GDP and changes in the money supply 'set' by the central bank (a position close to the then prevailing monetarist orthodoxy). Later it was shown that the same basic approach can be formulated in terms of changes in the short-run interest rate, where it works in a similar fashion to the Taylor rule. A number of authors have compared a nominal output rule with the Taylor rule (e.g. Razzak 2001) and price-level targeting (Malik 2005), while others have tested various specifications of a policy rule centred on nominal output (e.g. Clark 1994, Hall/Mankiw 1993).

There has recently been a renaissance of interest in NGDP targeting in the wake of the Lesser Depression, particularly a level or trajectory (rather than a current growth-rate target). An NGDP level target does not "forget" a one-off fall in the level of nominal output and requires policy makers to make up ground lost in a deep recession, rather than merely returning to trend growth; a succinct summary of the arguments is Wren-Lewis 2013.

Overall one can conclude from such studies that the differences between such an approach and, say, inflation targeting or a Taylor rule are rather small; more precisely, they can be small,

depending on how they are operationalised. Which rule performs better in simulations depends on the 'fine print' of how the models are specified and the precise targets. We can summarise in the words of Hall/Mankiw (1993: 10): 'We find a reasonable professional consensus on the proposition that a good, if not precisely optimal, rule for monetary policy is to target nominal income. The exact form of a nominal income target depends on one's view of the relative importance of stabilizing the level of growth of output and of stabilizing the price level or inflation rate.'

The point for present purposes is, however, not to make a recommendation for a specific monetary target, but to underline the proposition that central banks have the tools at their disposal to ensure a trajectory of nominal demand and output growth. A balanced mandate encompassing both inflation and real measures (output or unemployment gap) is, under normal conditions, very close to NDGP targeting. Pure inflation (forecast) targeting is so only under more restrictive assumptions, however.

3.2.2 Open economy

No economy in the world is, of course, completely closed. What are the implications for policymakers' influence over nominal output if the economy is open?[63]

As noted in chapter 2 section 1.1, the most fundamental implication is that aggregate demand no longer necessarily equals aggregate domestic supply (including inventory changes). Thus measures by the authorities to steer the path of nominal demand will influence domestic nominal output but to an extent that depends on the importance of changes in the net export position. The relevance of this constraint depends primarily on the size of the traded goods sector as a share of total output. In other words, smaller, open economies have (c.p.) less control than larger, closed ones over the path of nominal output via domestic-demand-management policies; changes in the policy stance partly affect foreign rather than domestic supply and are reflected in changes in net exports.

The second factor, discussed in the following, is that in an open economy policymakers may be constrained in their ability to affect the path of nominal demand. A number of different cases need to be distinguished. We start with an economy constituted as above (3.2.1), with independent fiscal and monetary policy institutions, but open to goods trade, mediated via an exchange rate. As was originally identified by Robert Mundell and Marcus Fleming in two seminal papers (Fleming 1962, Mundell 1963; cf. Carlin/Soskice 2006: 319ff., de Grauwe 2003: 5-9, 55f.; for a critique Buiter 1999), the exchange rate regime of the country in question is decisive for the effectiveness of monetary and fiscal policy. Specifically, given free capital mobility (and thus a tendency to equalisation of the domestic to the global interest rate) the Mundell-Fleming model predicts that in a small open economy with a floating exchange rate monetary

[63] For a textbook analysis of open economy macroeconomics see Part 3 of Carlin/Soskice 2006.

policy is effective, while fiscal policy is ineffective, in affecting aggregate demand. The effectiveness of monetary policy is actually enhanced vis-à-vis a closed economy, because lower interest rates lead to currency depreciation which stimulates net exports (adding an 'exchange rate channel' to those listed above in a closed economy). By contrast an expansionary fiscal policy raises domestic interest rates (given the assumptions of the model), such that the expansionary effect is offset by reduced net exports – because higher interest rates lead the domestic currency to appreciate – and is zero assuming perfect capital mobility.

This is a simple economic model, however. In the presence of capital market imperfections and, particularly, exchange controls, the above effects are mitigated, and the economy lies somewhere between the closed and open economy cases, depending on the importance of the imperfections (e.g. Carlin/Soskice (2006: 330ff.). Similar considerations apply if the economy is 'large' enough that its behaviour influences world prices. The model also assumes that the exchange rate is always at the 'right' level, adjusting to reflect interest-rate differentials and other 'fundamentals'. It is well known, however, that exchange-rate markets are subject to substantial overshooting and can often remain persistently far away from an 'equilibrium' value, causing rather than mitigating shocks (Bofinger 2000: 422ff., Buiter 1999: 15 ff., De Grauwe 2003: 55, 58, Carlin/Soskice 2006: 323).

The situation is very different in a fixed exchange rate regime. Here the hands of monetary policy are tied: irrespective of domestic demand and output conditions, the monetary authority must set interest rates or manage the money supply so as to ensure that the announced exchange-rate is achieved (e.g. Carlin/Soskice 2006: 313; 320, Bofinger: 2000: 419). In practice the exchange-rate target is normally within a certain band, giving a limited room for manoeuvre in the short run. Similar considerations apply in the case of a so-called crawling peg, where a pre-announced corridor is set for the path of the nominal exchange rate over time (e.g. Bofinger 2000: 412ff.). Precisely because monetary policy must offset shocks to domestic interest rates in order to maintain the peg, fiscal policy, by contrast, is effective in changing demand and output: the interest-rate-raising effect of an expansionary fiscal policy, for instance, is offset by central bank intervention, at home or on the foreign-exchange market, to maintain the peg (e.g. Carlin/Soskice 2006: 326).

At the same time the inability for (nominal) exchange rate adjustment constrains fiscal policy in the longer term in the sense that inflationary or deflationary policies will have a direct effect on external competitiveness: in the absence of nominal exchange rate adjustment, such policies affect the *real* exchange rate. There is a possibility of explosive cumulative causation mechanisms, for instance sparked off by a negative demand shock. If government responds with expansionary policies, a vicious circle of rising trade deficits and government budget deficits can occur if the fiscal response prevents a necessary adjustment of prices and wages[64] (e.g. All-

[64] More precisely, if it leads to a higher rate of inflation than that experienced by the country or countries to whose currency the domestic currency is pegged.

sopp/Watt 2003, De Grauwe 2003: 203)[65]. At some point this is no longer sustainable. Speculation begins against the currency, accelerating the inevitable currency re-alignment. History is replete with such examples. It is important to note that this constraint is one sided: there are no domestic limitations to a situation of rising trade and budget surpluses. However, the resultant pressure on trade partners may in time lead either to restrictions on trade (protectionism) or pressure for realignment (see also below on currency unions). This is likely to depend critically on the size of the country running the export surpluses. Small countries are more likely to 'get away' with such a strategy because their quantitative importance for the trade position of (larger) trading partners is much less.

In most fixed-exchange-rate regimes – including the most important in modern times, the Bretton Woods system and the European Monetary System – there have been provisions for periodic currency revaluations. These can temporarily re-establish a degree of domestic policy autonomy (although credibility losses mean that this can be costly in the longer run). Lastly it is important to note that the country issuing the one currency formally or de facto underpinning the whole system – the US dollar under Bretton Woods, the deutsche Mark in pre-EMU Europe – retains full policy autonomy. Moreover, it sets policy for all the other members based on its own domestic considerations (cf. the articles in Giavazzi/Micossi/Miller 1989 and Ungerer 1997, especially ch. 14).

The rules of the game for domestic policymakers seeking to steer nominal aggregate demand change fundamentally when a country joins a currency union.[66] De Grauwe (2003: 5) opens his textbook on the economics of monetary union with the words: 'The costs of a monetary union derive from the fact that when a country relinquishes its national currency, it also relinquishes an instrument of economic policy, i.e. it loses the ability to conduct a national monetary policy.'

Monetary policy responsibility is delegated to a union-level central bank which sets rates for the entire currency union. This 'one-size fits all' problem is worse than it might at first appear, for while nominal short-term rates are the same for all countries, their real rates will vary depending on their prevailing rates of inflation. Unfortunately they will vary in precisely the 'wrong' way: high inflation countries, which (c.p.) need tighter macroeconomic policies experience lower real interest rates, while low-inflation countries, which require monetary policy stimulus, face higher real rates.

Within the monetary union member state economies are no longer separated by an exchange rate. The exchange rate with other currencies is determined by exogenous factors and also the policies of the common central bank and some aggregate variables for the monetary union as a whole, not least the aggregate fiscal stance. The likelihood that the interest rate set by

[65] This is linked to an important strand in the post-Keynesian literature known as balance-of-payments constrained growth; e.g. McCombie/Thirlwall (2004).

[66] From among a huge literature: Buiter (1999), De Grauwe (2003), Carlin/Soskice (2007: 401-3 and 438-458). See also the contributions to Hein et al. (2005) and Watt/Janssen (2006).

the joint central bank and the common external exchange rate will be appropriate for a given member country depends on a number of factors, notably[67]:

- the degree of trade integration with the other members – this will tend to synchronise business cycles[68],
- the similarity to the average level of economic development - This is because of the so-called Balassa-Samuelson effect (for instance the discussion in De Grauwe 2003: 44ff.), and, not least,
- the weight of the country in the currency union – which increases the likelihood that the country's economic conditions are close to the union-wide average.

The impact of monetary union on fiscal policy is rather ambiguous and depends on the precise form that institutionalisation takes (Allsopp 2006: 46ff., De Grauwe 2003: 201ff.). The immediate effect is to remove constraints coming from the money and foreign exchange markets (respectively, the threat of rising interest rates on government debt and a possibly self-reinforcing currency depreciation). However, because of the strong interdependencies between the economies in a currency union, and precisely out of concern that the lifting of such constraints could lead to fiscal slippage and ultimately a crisis if one member is forced to call upon the others for some kind of bail-out, member countries are likely to be subject to fiscal policy constraints. This is likely to include agreement on (more or less binding) rules on the conduct of national fiscal policy, designed to reduce negative fiscal spillovers (and possibly maximize positive ones) between member countries (De Grauwe 2003: 210 ff.). Depending on the rules, this is likely to constrain the ability of a government to steer demand. Also possible is some degree of centralization of fiscal policy which may both constrain and empower national fiscal policy's ability to maintain steady demand growth.

An important conclusion deserves underlining at this point: depending on the precise institutionalisation and the structural characterises of participating countries, there is a serious risk of countries that are members of monetary unions facing, for extended periods, a situation in which aggregate demand is too high or too low and the country lacks the macroeconomic policy tools to remedy the situation. Other things equal this is likely to affect to a greater extent countries that are: small, deviate from the union-wide averages in terms of inflation, growth rates etc., and have production and other structural features that make them prone to asymmetric shocks (i.e. those not felt by other members). Countries facing such constraints are forced to seek adjustment though wage and price adjustment (conceivably also migration).

[67] For an overview and critique of optimal currency theory see Priewe (2007).

[68] Conceivably greater trade could lead to more specialisation actually increasing the risk of asymmetric shocks, but empirically the effect of aligning business cycles seems to predominate (De Grauwe 2003: 57).

3.2.3 Conclusions: the scope for; and constraints; on steering nominal demand and output with monetary and fiscal policy

We can conclude that in a closed economy the monetary and fiscal authorities have the capacity, provided they are reasonably well institutionalised, to steer the path of nominal demand (which is equal to nominal output allowing for inventory changes) quite effectively over the medium term. In an open economy this is true only to a more limited extent. Firstly, steering nominal demand is not sufficient to determine nominal output because part of the former is met from net imports. Even more pertinently, depending on the exchange rate regime in which the country operates, the instruments of monetary and/or fiscal policy can be constrained to differing degrees in achieving such a target.

In particular, we can make the following (stylised) distinctions between small open and large closed economies in terms of their ability to steer nominal output using the instruments of monetary and fiscal policy given different exchange-rate arrangements:

- For small open economies the problems may be more serious because the macroeconomic policy levers affect a smaller proportion of total output. However, this is mitigated if the country has a flexible exchange rate (which constitutes an additional transmission channel for monetary policy). Conversely the impact of a 'wrong' exchange rate is greater than for large economies. Within a monetary union being small somewhat increases the likelihood that the common interest-rate policy will be inappropriate. A higher degree of sectoral specialisation is also more likely[69], increasing the risk of asymmetric shocks. While constraining fiscal rules in a monetary union apply equally to all, in practice larger countries may for political reasons have more lee-way.
- Conversely, large closed economies have greater leeway for macroeconomic policy under floating and fixed exchange rates, as their policy-settings affect also external (global) interest rates etc. The consequences of a misaligned exchange rate are less severe, but conscious currency depreciation/appreciation is a less effective policy tool. Fixed exchange-rate regimes tend to be built around a large country, which then retains policy autonomy. Large countries are more likely to have their domestic situation taken into account by the central bank of a monetary union and may have greater political clout, increasing their degree of freedom in fiscal policy.
- As we will see in the next section, however, small countries potentially have another option: to use wage-setting in a strategic way to help manage aggregate demand via the real exchange rate.

[69] This problem was illustrated in extreme form in the crisis when some small economies, such as Ireland, Iceland and Cyprus, were completely overwhelmed by their hypertrophic financial sectors.

3.3 Nominal wages

The question addressed in this section is to what extent and under what conditions can nominal wages, specifically the aggregate rate of growth of nominal wages in an economy, be considered a variable that is under policy influence. It is argued that aggregate nominal wages are not entirely endogenous: 'wage setters' – especially trade unions, but also governments – have a constrained scope to determine the pace of nominal wage growth independently of the current rate of unemployment. The extent of this scope depends on the institutional framework in, and other structural features of, the country in question.

In the most basic neo-classical conception the wage is simply a price like any other. It is the price of the good 'labour'. The price of a unit of labour of a given type in a specific location depends on the supply of and demand for labour of that type, and is determined – and permanently re-determined – by atomistic buyers and sellers of labour (i.e. individual employers and workers). By extension the aggregate nominal wage depends on the aggregate supply of and demand for labour, and the path of nominal wage growth depends on changes over time in the factors underpinning the labour supply and demand of these individuals.

In such a view the nominal wage is clearly determined entirely endogenously by the economic system: it is a function of shifting technologies, demographic trends, preferences, etc. It is a generally uninteresting variable: part of the 'veil of money', it conceals what workers and employers are really interested in, i.e. the real or product wage. The real wage is decisive also from the theoretical point of view, for it is what clears, or fails to clear, the market for labour. To the extent that labour market 'imperfections' are incorporated into the analysis, these have the effect of raising the real wage above the market-clearing equilibrium and are the ultimate causes of unemployment.

This naïve view has been challenged on a whole range of both theoretical and empirical grounds.[70] Wage outcomes do not behave as if they were set in spot markets, and even a cursory look at wage-setting practices shows that indeed they are not. In different ways the various critiques make the point that 'labour' is a special commodity, even a 'fictitious' one (Polanyi 1978 [1944]), and the labour market is different from (spot) goods markets.[71] The many specificities include: the prevalence of collective rather than individual wage setting; the usually open-ended and often longer-term relationships involved in the employment contract; persistent wage differentials (sectoral, gender, age-related) inexplicable in terms of productivity strongly suggesting that the 'law of one price' does not work in labour markets; the indeterminateness of 'effort'

[70] For summaries of the relevant literature see Bryson/Forth (2006) for an economics' perspective, and Streeck (200)5 for a sociological perspective. Cf. also Schulten (2004) and for a Post-Keynesian approach the contributions to Hein/Heise/Truger (2005).

[71] Indeed, the very idea of perfect spot markets as a sort of Platonic benchmark is almost certainly misleading. Financial markets, not least foreign exchange markets, are supposedly the closest approximation in reality to theoreticians' 'perfect' markets, yet they have noticeably lacked a tendency towards equilibrium, being characterised by massive and persistent under- and overshooting, destabilising speculation (despite or because of the existence of futures' markets, etc.) See for instance Greenwald and Stiglitz (1993).

and its likely backward link to price (Marx's distinction between labour and labour power, modern efficiency wage theory); the fact that labour supply often responds 'perversely' to changes in wages; and the usually very strong involvement of the state in regulating employment contracts, setting minimum wages, regulating the collective bargaining system, etc.

The naïve neoclassical view, while it at times informs political discourse, has been superseded by more adequate theoretical conceptions. We briefly review the standard New Keynesian approach, before looking at the empirics of wage setting in Europe and what can be learnt from the sociological and industrial relations literatures.

3.3.1 Nominal wage-setting in the standard New Keynesian framework

Wage setting is described in a much more sophisticated way in the now standard New Keynesian analysis which dominates modern economics textbooks and the thinking of central bank and other policymakers. The key points regarding wage-setting in this framework are as follows.[72] Nominal wages are set by collective actors (unions, employers and/or their representative organisations), rather than atomistically. Wage agreements are renewed only periodically. Wages are set with respect to an expectations-augmented Phillips curve. In other words actors target a real wage (increase) by setting, i.e. bargaining over, a nominal wage while making an assumption, which is revised periodically in the light of experience, about price inflation. Depending on how centralised the bargaining process is, the impact of the current-period nominal wage outcome on the next-period rate of price inflation may be taken into account. Wage-setters' ability to raise nominal wages is constrained by the level of economic activity, and specifically the rate of unemployment. The institutional features of the economy, particularly labour market institutions, determine the rate of unemployment, the NAIRU, at which workers' nominal wage-setting (and firms' nominal price setting) is consistent with a constant rate of inflation. In these models the level of unemployment with respect to the institutionally determined NAIRU determines whether nominal wage growth is faster, slower than or equal to the rate at which price inflation is constant.

Linking back to the demand-management discussion in Section 3.2, it is the job of macroeconomic policymakers (especially the central bank) to set policy in such a way that the rate of economic growth is such that unemployment remains close to the institutionally determined NAIRU rate. This keeps inflation constant and ensures steady growth in line with potential, both over a medium-term horizon. The crucial role of wage-setting behaviour for unemployment (and economic performance more generally) is evident from this description. Layard/Nickell/Jackman conclude succinctly: different countries' unemployment experience 'depends on the way they treat unemployed people (benefits and active manpower policy) and their

[72] The seminal work is Layard/Nickell/Jackman 1991. See also for more recent discussions Carlin/Soskice 2006, especially ch. 4; Bofinger 2000: 97ff., Blanchard 2009. The reader is also referred back to the discussion in section 1.2.1 covering employment determination in a New Keynesian framework.

wage-bargaining systems – together with the shocks they have been subjected to.' (Layard/Nickell/Jackman 1991: 76).

This much more sophisticated framework than the basic neo-classical view described earlier permits many types of real-world 'imperfections, institutions and policies' – so the sub-title of Carlin/Soskice's book – to be incorporated and analysed. This framework has provided the backdrop for innumerable analyses of the institutional determinants of (equilibrium) unemployment. What is not usually recognised – because they are not so framed – is that these analyses are, equivalently, discussions of the impact that *institutions have on the pace of nominal wage growth for a given rate of unemployment*.

It is recalled from the review in section 1.2.3 that the only consistent finding from all the empirical, econometric studies conducted within this framework is that the coordination of collective bargaining is beneficial in terms of ensuring that the pace of nominal wage growth is non-inflationary and thus permitting a lower equilibrium rate of unemployment. However, the issue of 'agency' on the part of wage setters is denied or at least downplayed in such studies. As the above citation from Layard/Nickell/Jackman suggests, while policymakers in different countries can make choices about the prevailing institutional framework (although these tend to be seen as path-dependent and usually only capable of incremental change), once that framework is given, the nominal wage and thus also unemployment outcomes of the system are 'ground out'[73] deterministically by markets, operating within the given institutional context. A given rise in the generosity of unemployment benefit, say, will therefore have an effect on the equilibrium rate of unemployment that is certainly predictable in terms of direction (upward) and whose size can, in principle, be estimated *ex ante* on the basis of econometric regression analyses.[74]

In short, wage setters in most analyses in this, the predominant, economics literature are conceived as passively but rationally adapting to external circumstances in targeting, exclusively but subject to constraints, the highest possible real wage for their members.[75] They face a set of constraints on maximising their utility by pushing for higher nominal wages as a path to higher real wages. A finite and well-known set of institutions effectively determines the pace of nominal wage growth for any given rate of unemployment; equivalently, for a given inflation target, the necessary rate of unemployment.

[73] The phrase is due to Milton Friedman in his famous 1968 Presidential address to the American Economic Association (1968: 8).

[74] I write 'In principle' because, as we have seen, the size of the estimated coefficients (indeed in some cases the sign) varies greatly from study to study. If the data and methodological (missing variables etc.) problems could be overcome satisfactorily then, on the standard view, 'precise' estimates could be made.

[75] Carlin/Soskice (2006:111f.) do discuss the idea of 'bargaining discretion', but the formulation here is entirely real-wage oriented, which is unrealistic. See also op. cit. 448 for discussion of a wage accord within a monetary union.

3.3.2 The empirics of wage setting in Europe and its consequences

Even this much more sophisticated analysis fails to do justice to the way that wages are actually set in European countries. This has been intensively studied in a literature (political economy, industrial relations, economic sociology) that is largely divorced from the mainstream economics literature; on this point see Streeck (2005: 254ff.). If the evidence from this literature is taken into account a rather different picture of wage-setting emerges, one which opens up the scope for the 'two sides of industry' (especially unions, but also employers) and, importantly, also governments to exert some control over the path of nominal wages *independently of the current state of the labour market*. This is presented in the remainder of this section.

Broadly in parallel to the discussion above of nominal output, in this sub-section the focus is initially on wage setting in a 'closed' economy. In the course of 3.3.3 the role of economic integration and especially EMU is brought in as part of a discussion of corporatist institutions and social pacts. In section 3.3.4 we explicitly consider wage-setting an open economy context.

We can usefully start with two well-known empirical regularities: downward nominal and real wage rigidity (DNWR and DRWR). The former means reluctance on the part of wage-setters to accept a cut in nominal wages and manifests itself statistically in a bunching of wage outcomes around the zero growth line. It is a form of 'money illusion[76]. The latter is, similarly, a reluctance to accept real wage cuts and appears as a bunching of wage settlements around the current rate of inflation.[77] Such well-attested regularities cannot be explained in a standard framework in which actors are only concerned about real variables and have 'rational expectations' and a complete set of information about the future. A key implication in the present context is the crucial importance of social norms and customs in wage setting. Wage developments cannot be explained purely with regard to impersonal economic forces.[78] A second is that actors are also concerned about nominal values. In a complex, uncertain world with an unknowable future, actor behaviour focuses to a considerable extent on nominal variables – the money rates that are actually specified in employment and other contracts – even if they are *ultimately* interested in real values (Kenworthy 1996: 502). Here, as elsewhere, the assumptions of standard economic models make unreasonable demands on the abilities of fallible human beings (Akerlof 2007, Buiter 2003: 48).

Another important implication of such empirical features of real-world labour markets for our discussion is that at low rates of inflation (such as have characterised the recent period) the economy may be in a situation where wage inflation is rather insensitive to changes in the gap

[76] The term goes back to Irving Fischer; cf. Shafir/Diamond/Tversky (1997).

[77] On the empirics of downward wage rigidity in the euro area see Fagan/Messina (2009). For analysis of causes and implications see Akerlof/Dickins/Perry (1996), Akerlof (2007).

[78] Some authors (Schulten 2004, Galbraith 2000) accord such factors as social norms and the mobilisation of not strictly economic power resources great importance in terms of the structure of wages. See also Akerlof (2007).This was also emphasised by Keynes in the General Theory. The issue here, though, is the *aggregate pace* of nominal wage growth, rather than the wage structure.

between potential and actual output. In other words the Phillips curve is flat and even if the macro authorities drive unemployment way above the NAIRU it has only a negligible downward impact on inflation (Tobin 1982, who developed ideas already present in Keynes' General Theory; see also Akerlof/Dickins/Perry 1996, De Grauwe 2003: 188ff.). To the extent that this is the case, inflation targeting through short-run demand management, as in the standard New Keynesian approach becomes difficult and/or inflation reduction by this means is highly costly in terms of output and employment losses.

A second empirical regularity is that wage changes are substantially less frequent than price changes. According to a recent survey by ECB economists (ECB 2009: 73ff., see also Du Caju et al. 2008), 86% of firms in the euro area change wages once a year or less frequently, compared with less than half of firms in the case of goods prices. This, in turn, is linked to the fact that wages are typically set not individually, but collectively, in often complex agreements that typically cover more than one employer (multi-employer bargaining).

Collective wage setting serves a number of purposes. It reduces transaction costs and can aid price determination by increasing transparency, reducing the costs of accessing information (Streeck 2005: 256ff.). It can also contribute to reducing uncertainty by specifying workers' income and employers' labour costs for a pre-determined period into the future, again reflecting agents' preferences in an uncertain world, as emphasised by post-Keynesians (e.g. Davidson 2005: 461). This can also serve to stabilise wage trends over the business cycle, which may in turn help to dampen the cycle itself: Eurofound (2014) reviews the evidence for the EU countries prior to and after the economic crisis and concludes: (We observe a) "'countercyclical' aspect of collectively agreed pay. Collectively agreed pay – to a greater extent than actual compensation – seems to act as a kind of 'insurance' for employees in times of crisis. It doesn't follow entirely the 'ups and downs' of fluctuations in output." (op. cit.: 63); it can be argued that such insurance is to the benefit not just of employees but also employers and, indeed, the economy more generally, by in turn helping to dampen the cycle itself.

Employers may also have a strong interest in multi-employer collective agreements setting a wage floor (for a given type of labour in a given territorial space).[79] By 'taking wages out of competition' they can avoid the potentially conflictual issue of wages being directly discussed at the plant (which may serve to reduce industrial conflict); innovative firms, in particular, can prevent less competitive firms regaining their competitiveness by extracting wage concessions from their workforce (Flassbeck/Spiecker 2006, Hallwirth 1998: 164ff.). Given that, at the macro level, this serves as an incentive to invest in the most efficient technology (so-called productivity whip – Hancké/Soskice 2003: 66) collective agreements can be an important part of a national economic development strategy and thus receive institutional or other support from

[79] This only applies in sectors sheltered from international competition or in large closed economies, however. See below.

government. This was an important element in the famous Rehn-Meidner model in Sweden until at least the mid-1980s (e.g. Svensson/Pontusson 2000: 80).

Empirically, collective wage-setting is absolutely pre-dominant in western Europe (from a vast literature: ECB 2009, EIRO 2009, Freeman 2007, Hassel 2006, Schulten 2004; Traxler et al. 2001, Visser 2006, Waddington/Hoffmann 2000; for a recent overview incorporating also the impacts of the economic crisis see Visser 2013). In most European countries collective labour agreements cover anything between two thirds and over 90% of all workers. In the euro area close to 90% of firms apply a collective agreement negotiated outside the firm and more than 80% of workers are covered by a collective bargaining agreement, according to a recent survey (ECB 2009). Visser's (2006:138ff.) survey of 13 European countries – which notes that it is often only possible to estimate *lower* boundaries for bargaining coverage – gives rates above 90% for five countries and above 70% in a further five. The UK and Switzerland are the only countries in which less than half of the labour force is covered by collective agreements. Freeman (2007: 27) has similar figures. Such agreements set out, in nominal terms, rates of pay (along with other terms and conditions) for a given period, typically one or two years. Such agreements bind employers belonging to the relevant employer federation that signed the wage deal. In a number of countries governments can declare important wage agreements binding for all firms in the sector concerned.

Importantly, despite much talk in some quarters of a supposed need for, and/or an actual trend towards, decentralisation and flexibilisation of collective wage setting (e.g. Lindbeck 1990: 332), national institutional wage-setting regimes have remained quite stable over many decades (e.g. Visser 2006: Table 6.4 and 147ff.; see also subsection 3.3.3 below). There has been some decentralisation of bargaining but it has primarily been 'organised decentralisation' (Traxler 1995, 2003) which has not challenged the fundamentally collective nature of wage setting.[80] In some countries, though, with Germany a prominent example, there has been sustained combination of both "disorganised" and "organised" decentralisation, which in some has served to weaken the purchase of collective agreements on wage setting considerably, as evidenced notably by an increase wage drift between collectively agreed and effective wages (Bispinck/Schulten 2010). On the other hand, in some countries there has been a resurgence in attempts at coordinating wage-setting at the macroeconomic (national) level. Because of its importance we will discuss this issue separately (in section 3.3.3 below).

The fact that nominal wages in western Europe, with the partial exception of the UK, are set in collective agreements that are long-lasting and, over time, develop into a complex wage-

[80] In the aftermath of the economic crisis, a number of European countries have recently been subject to major attacks on their collective bargaining systems – partly at the insistence of the Troika of organisations, the IMF, European Commission and ECB, providing financial support – with the avowed aim of bringing about 'internal devaluation' of nominal wages in order to regain lost international competitiveness. See Schulten/Müller (2013) for an overview; cf. Visser 2013. There are signs that in countries such as Greece, Portugal and Spain collective bargaining coverage has been substantially reduced. The longer-term impact of these changes on wage-setting remains to be seen.

setting infrastructure involving a limited number of key actors who are engaged in an ongoing 'game' has a crucial implication. Wages are not set mechanically in response to specific economic variables like the rate of unemployment. Rather nominal wages form part of a much broader and highly complex process of economic *and political* exchange between unions, employer organisations and the state. Consequently, under certain conditions, the pace of nominal wage growth can be seen, in part at least, as a political bargaining chip that can be traded against a whole range of other outcomes in which organised labour might have an interest and which other actors may be prepared to offer in return for *unions agreeing to a different pace of nominal wage growth than they would otherwise have sought*.

Related to this is the fact, not adequately reflected on in most of the economics literature[81], but a key concern of sociologists, political economists, and industrial relations scholars, is that unions have a wide range of interests. They may therefore be willing to bargain over wages, not with a view to maximising nominal (with a view to real) wage growth, subject to some kind of employment constraint, as in the models discussed in sub-section 1.2.4, but as part of a wider bargain in which they are striving to attain much broader goals, up to and including social and political legitimacy for their own organisations.[82] In the words of Hassel (2009: 9f.) 'immediate policy interests (such as higher wages) are translated into long-term policy interests (such as employment protection) and into the pursuit of power interests in the form of trade unions' institutional participation in political decisions'. Unions are confronted with a tension between a logic of membership (oriented to shorter-run goals, notably higher wages) and a logic of influence (Streeck 1987; on this tension with specific regard to social pacts cf. Molina 2008).

Yet even these significant extensions of unions' 'utility function' are clearly 'materialistic', and to this extent the analysis is still too deterministic (Donaghey and Teague 2005: 486, Visser 2006: 150, Streeck 2005: especially 263ff.). They would need to be expanded further with reference to normative factors. Union leaders and representatives – indeed, socio-economic actors generally – also have non-economic norms (such as fairness and social justice) which they seek to realise in wage negotiations and as part of broader union activities, especially within corporatist bargaining frameworks.[83] A related point is that trade unions (and/or their leadership) tend to be affiliated, formally or informally, to political parties. Depending on who is in power, they

[81] There are some references to this issue in Carlin/Soskice (2006), but they sit somewhat ill alongside other passages in which wage setting is conceived much more narrowly and deterministically. As noted in Chapter 1 section 2.4 there is also a strand of political-economy literature inspired by game theory in which unions 'bargain' with other actors, but while it has generated some important insights it has a number of important limitations. It tends to be highly abstract, lacking empirical foundations, or relies on unrealistic assumptions (monopoly unions etc.).

[82] For a conceptualisation of trade union power resources see for example Schmalz/Dörre (2013).

[83] Schulten 2004 describes in detail trade union's wage policies in different European countries and at different periods, emphasising – using E.P. Thompson's concept of a 'moral economy' – their attempts to achieve, within the prevailing economic constraints, certain normative aims in their wage setting behaviour (for a discussion see Watt 2004). This argument is more related, it is true, to the wage structure. Visser (2013: 4) notes for instance the consistent finding in the literature that 'Collective bargaining (…) compresses the distribution of earnings relative to market pay-setting.' But normative considerations and unions' 'ideology' also influence their conceptions about justified (nominal) wage claims and outcomes over time.

may be willing to support the government of the day and adjust their wage setting accordingly, or may, conversely, seek to destabilise a government seen as antithetic to their interests or values; see the discussion in Kenworthy (1996: 496f).

The prevalence of collective bargaining with a small number of actors implies not just the possibility, but also a *need* for such bargaining to be coordinated. Otherwise there is the risk that actors reach settlements that impose costs on others. This implies a need to force actors to 'internalise' the costs (see the discussion in 1.2.4). And this in turn is a lever with which wage-setters can hope to reach political bargains with government.[84]

None of this is to deny the salience of economic constraints and pressures, certainly including the rate of unemployment. Moreover, and importantly, a number of institutional prerequisites need to be established and sustained in order to overcome collective action problems arising from coordinated collective bargaining at the macro (national) level; the following discussion draws on Traxler (2003: 197ff.), Hassel (2009: 13), Streeck (2005: 271 ff.)

There are two fundamental collective action problems, a horizontal coordination problem (how to ensure that all bargaining units deliver and do not defect) and a vertical one (how to ensure that agreements signed by leaders are accepted and respected by the rank and file). Resolving one problem tends to make the other harder to achieve, however, as the two requirements are in tension. For example, the apparently easiest solution to lacking coordination is centralised bargaining – this was very much the focus of the early corporatism literature (see below) – but this can lead to problems with unions' rank-and-file, who are far away from negotiations, leading to conflict and non-adherence to agreements (wage drift and ultimately the breakdown of corporatist arrangements). Given the voluntary nature of collective organisations, they are normally only able to overcome both these problems simultaneously with the support of the state, which has coercive powers and its own interests in structuring the labour market and wage setting.

Traxler (2003) categorises five basic 'solutions' to the horizontal coordination problem: state-imposed coordination, state sponsored coordination (both requiring state involvement), inter-associational coordination (essentially centralised national collective bargaining), intra-associational coordination (essentially coordination by the peak organisations of lower level affiliates) and finally pattern bargaining (the widely accepted leading role of a bargaining unit below peak level[85]).

This categorisation also speaks to another significant finding from our analysis of the way wages are actually set in European countries: the important role played by the state (and the government of the day) in influencing the pace of nominal wage growth. It does this not only

[84] 'Since this inclusive bargaining structure [predominance of multi-employer collective bargaining – AW] matters in macroeconomic terms it empowers the bargaining parties to impose so noticeable externalities on governments that they find corporatist cooperation preferable even under the premises of orthodox economics.' (Traxler 2008: 11)

[85] On pattern bargaining see especially Traxler/Brandl/Glassner 2008.

indirectly via the use of macroeconomic levers, a 'game' actually or supposedly being played out between the central bank and trade unions, but also more directly.

The state has a number of options. With its monopoly of coercive force it can ultimately impose coordination on the voluntary organisations of workers and employers; in democratic societies this is only a last resort and usually limited to particularly sensitive segments of the labour market. However, 'the state can address the problem of vertical coordination without challenging free collective bargaining by means of strengthening the ability of the bargainers themselves to bind lower levels. The primary place for enacting this support is thus the legal framework for collective bargaining.' (Traxler 2003: 200). In particular collective agreements may be rendered legally enforceable and, as part of that, a peace obligation be imposed while they are in application (Traxler/Kittel 2000). If an effective framework is in place, the state may well not apparently be closely involved in actual wage setting, with social partners following a socially legitimate and economically functional system such as pattern bargaining.

A number of other channels of state influence on wage setting are conceivable in theory and relevant in practice. Most European countries (currently 21 of the EU28) have a statutory minimum wage (Schulten and Watt 2007, Schulten 2014), so that the government itself is the primary 'wage-setter' at the bottom of the labour market, with knock-on effects for the pace of nominal wage growth also higher up the wage structure[86]. In some countries (most notably France) this has implications for a large part of the labour force, as many wage contracts stipulate wages as multiples of the current national minimum. As direct employer of a substantial proportion of the workforce government can also influence the overall pace of wage growth by setting public sector wages.[87] It can also resort (Traxler's state-imposed coordination) to direct forms of wage setting (e.g. wage freezes[88]) and operate statutory wage indexation schemes (still operational in a number of European countries, cf. ECB 2009: 72ff.). More indirectly but also more pervasively it can influence matters by changing the framework in which wages are set, for instance via schemes that declare collective agreements binding on all firms in a sector. Indeed such involvement tends to be a necessary requirement (except in some Nordic countries) for high levels of collective bargaining coverage (Schulten 2012). Lastly government policy can exert influence on wage developments by changing social contribution rates. These can have significant direct short-run effects on wages[89], although by their nature such changes will be of marginal direct relevance importance for the medium-term trajectory of nominal wage growth. More important-

[86] As the cited articles show, the extent to which the government acts autonomously in setting the minimum wage or, conversely, relies on corporatist institutions that involve employer and union organisations varies between countries.

[87] Lamo/Perez/Schuhknecht (2008) examine the empirical links between private and public-sector wage-setting in European countries. They find close correlation between annual wage changes in the two sectors. The evidence from Granger and other causality tests was mixed, but the private sector appears to lead the public sector more often than the other way around.

[88] These were a feature of the Keynesian period (Hassel 2006: 19).

[89] It is recalled that the wage variable used in the empirical analysis is 'nominal compensation' which includes social security contributions.

ly, however, such changes can play an important role as part of tripartite or bipartite package deals that can exert a more profound indirect influence over the course of wage growth.

Summing up, given the existence of multi-employer collective bargaining, governments, unions and employers can have a joint interest in bargaining coordination to avoid collective action problems and promote mutually beneficial compromises. There are a number of different possible ways to achieve this, all requiring some form of state involvement. As part of this, nominal wages are set within a much broader and more complex structure of political-economic interest aggregation and accommodation between actors than is posited in economic and even most political-economy theories. Such wage-setting has, though, demanding institutional pre-requisites.

It is widely held that discussions of corporatism and incomes policies and the like belong to a long-gone era. Such policies were tried, under the special circumstances of the time in the good (or, more typically, bad) old days of the 1970s. They may have worked for a time, but ultimately they failed. We briefly examine such views, taking a broadly chronological perspective, in the next sub-section.

3.3.2.1 Corporatism, incomes policies, social pacts: reports of death are greatly exaggerated

Corporatism was a pervasive phenomenon in western Europe in the 1960s and 1970s (Hassel 2006: 18ff.) and formed an important subject for social science research in the 1970s and into the 1980s.[90] While the concept is broader, key elements were the interaction between the state and organised interests, especially the 'two sides of industry', and here, in particular, trade unions (Streeck 2006: 12f.). Characteristic were the combination of different policy areas into packages which could be agreed more or less consensually by the three (occasionally only two) sides, within a negotiation or bargaining structure involving dedicated institutions. The 'constituent element' (Traxler 2008: 7) of such corporatist pacts was incomes policies (cf. Hassel 2006: 18). Incomes policies meant that, in various ways, trade unions offered to demand lower nominal wage increases than they could otherwise have obtained in return for various direct benefits for organised workers (e.g. more generous welfare benefits) or indirect pay-offs (such as institutional reforms that strengthened the power of unions).

As many authors (e.g. Hassel 2009: 23, Streeck 2006: 11-13) have noted, the attempt to make incomes policies work was virtually inevitable given the political-economy constellation

[90] The seminal article was Schmitter 1974; among a very substantial literature see also Lehmbruch/Schmitter 1982; for a more recent treatment see the contributions to Crouch/Streeck 2006 and especially Streeck 2006. I use here the simple term 'corporatism'. The 1970s literature tended to speak of 'neo-corporatism' to distinguish the voluntaristic association of government, employers and unions from the centrally organised and coercive forms under fascism. This once important distinction seems less salient now given the extended period during which corporatism in democratic capitalist societies has ebbed and flowed.

of the time, in which governments had accepted responsibility for full employment, while trade unions, in economies that were much more domestically oriented than today, had substantial control over the pace of nominal wage growth.

As is well known, incomes policies eventually broke down in a number of countries, unable to cope with the simultaneous problems of the inflationary and recessionary impact of the two oil shocks, rising worker aspirations, and militancy at rank-and-file level (in addition to the publications just cited see also Eichengreen 1996). The widely held perception of what followed can be summarised as follows. Keynesian policies were replaced by monetarism and fiscal austerity. Reducing and then stabilising inflation became the number one policy priority: never again were inflationary wage settlements to be accommodated by macroeconomic policy. The commitment to full employment was abandoned. In this new context there appeared to be no need for incomes policies: trade unions would be disciplined by high unemployment while increasing international competition and internal deregulation would reduce both the wage-setting power of workers and the price-setting power of firms. Consequently there would be no need for governments to offer unions anything to reward their cooperation, rendering, in turn, the institutional apparatus of corporatism superfluous.

In the United Kingdom, where corporatist institutions had in any case shallow roots, this was more or less what happened. However, it was not a pattern followed in the rest of Europe: 'despite the turn in theoretical thinking, previous experiences [with incomes policies – AW] and the US role model (…) (t)he majority of Western European governments did not leave wages to the market. Quite the opposite; incomes policies – as an active intervention of governments in wage formation – were practiced by a number of European governments in one form or another throughout the 1980s and 1990s.' (Hassel: 2006:19). Indeed, 'the United Kingdom is the *only* example where the government broke drastically and ultimately with all traditions of coming to negotiated solutions with organized labour.' (Hassel: 2006: 20, emphasis added)

In fact the 1990s and 2000s have seen a renaissance of corporatism, albeit one often discussed under the somewhat different title of 'social pacts' (for the following see, in addition to the works already cited in this sub-section, Avdagic/Rhodes/Visser 2005, Donaghey/Teague 2005, Fajertag/Pochet 1997 and 2000, Hancké/Rhodes 2005, Molina 2008, Natali/Pochet 2009, Pochet 1999, Traxler 2008). Social pacts have been defined as 'informal agreements between representatives of government and organized interests, who negotiate and implement policy change across a number of interconnected policy areas' (Natali/Pochet 2009: 144f., cf. Avdagic/Rhodes/Visser 2005: 6), and the close links to earlier corporatist forms, under changed conditions are emphasised by many authors (e.g. Traxler 2008: 7; for a more sceptical view see Streeck 2006: 24ff.).

The main reasons for the establishment of social pacts and the main differences to earlier forms of corporatism can be stated briefly. The monetarist counter-revolution notwithstanding, many governments were uneasy about the costs of imposing 'shock therapy' on their econo-

mies. Social pacts were seen as a way to reduce the (output and employment) costs of needed disinflation. A prominent example of this approach is the work, both analytical and political, of Ezio Tarantelli in Italy, who sought to break the 'inflation mentality' in that country via agreed changes in wage setting rather than by driving up unemployment (see the contributions in Acocella/Leoni 2006).[91] For many policymakers, mostly of the left, but encompassing many Christian Democrats, maintaining cooperative industrial relations was simply an ingrained matter of fundamental belief and also of economic and political pragmatism. With trade unions weakened by higher unemployment, the established corporatist machinery, which was only seldom actually dismantled (in the UK and to some extent in Sweden – Hassel 2006: 20), could be used to discuss welfare reforms and other matters.

Clearly, though, with inflation falling and unemployment high, and national economies increasingly open to trade, the need to accommodate the demands of trade unions, membership in which was declining, in return for wage concessions was substantially weakened. Consequently the substance of discussion shifted (Pochet/Fajertag 2000: 13, Donaghey/Teague 2005: 483). In most countries welfare reform, often in the direction of a reversal of previous expansions of welfare policy were negotiated. Increasingly there was also emphasis on a corporatist supply side agenda to boost productivity (Streeck 2006: 22). The basic idea of a grand bargain in which an agreed course for nominal wage growth played a central role remained valid, however.

In the run-up to EMU some economists predicted the macroeconomic orthodoxy enshrined in the Maastricht Treaty would destroy corporatism for good (Pissarides 1997). In the event, preparations for monetary union during the 1990s gave a big push to the establishment of social pacts conducted at national level (Hancké/Rhodes 2005). The requirement of low inflation and low budget deficits gave unions a lever once again with governments who had publicly staked their reputation on meeting the criteria and entering monetary union in the first wave. The form taken by the pacts (and their success) depended on the different pressures prospective EMU membership implied and the existing institutional endowment in different countries (Hancké/Rhodes 2005: 201f.). Countties like the Netherlands and Austria that had previously been members of the D-Mark block had long had to cope with strict monetary and fiscal policy requirements and had already developed appropriate instruments: 'these countries relied on existing incomes polices and on-going consultation and negotiation rounds to control inflation.' Hancké/Rhodes 2005: 215). Social pacts were more frequent in those countries with a need to reduce deficits and nominal wage and price inflation from high levels quickly.

There is a debate in the literature as to whether, once countries entered EMU, the pressure to sign social pacts eases off to such an extent that pacts, at least encompassing ones focusing on macro-level issues such as wage moderation, have no functional justification. Hancké/Rhodes argue that this is indeed the case. Donaghey and Teague (2005) see continued justification and enthusiasm for social pacts, identifying nine pacts in Europe in 2003 and 2004,

[91] For his efforts in this regard Tarantelli was murdered by the Red Brigades in 1985.

most of them centred on wages; Hassel (2006: 251) takes a similar view. More normatively they consider that social pacts are very much in organised labour's longer-term interest; it should 'make a conscious strategic decision to do its utmost to preserve them' (487). Traxler (2008: 24) concludes that 'corporatism still prevails in Europe [but it is] characterized by manifold variations in structure' and will continue to be necessary under EMU. Streeck notes the plethora of new corporatist arrangements but argues that these conceal a fundamental shift in terms of content, with the existence of such structures not reliably indicating a strong position of labour (2006: 25f.).

Hassel's (2006) analysis of wage setting emphasises the continued involvement of government and the negotiated, corporatist nature of wage setting across (western) Europe, concluding: 'Negotiation and coordination have for decades been the instruments for economic adjustment in Europe's political economy.' While the forms have changed this remains the case such that ''it is of crucial importance to understand the process of negotiated adjustment in general and the interplay between economic and political opportunities and constraints in particular' (op. cit.: 253). Visser (2006) ends his survey of wage bargaining institutions in Europe emphasising the 'considerable stability' of institutions (op. cit.: 147). He notes in particular the important point that centralised structures may not, as the older corporatist literature emphasised, be necessary for cooperative solutions and emphasises the value of norms of cooperation and social dialogue that can exist without or alongside different bargaining structures. He concludes that both institutions that have a binding character and legitimacy and democratic mechanisms within organisations promoting cooperation-conducive norms are both important, especially in a more highly diverse environment (op. cit.: 151).

Our conclusion, then, is rather nuanced. The major shift in economic policymaking that started in the early 1980s certainly changed the rules of the game. Organised labour has since been much weaker, for a whole variety of economic and political reasons, that it was in the 1970s (Glyn 2006), and the nature of corporatist interrelations and the subject of corporatist bargaining changed to some extent. But in Europe these shifts unequivocally did *not* lead to a radical decentralisation and marketisation of wage setting at national level (except perhaps in the UK). New corporatist forms emerged to deal with the exigencies of managing and coordinating the wage-setting process under changed conditions.

3.3.3 Wage setting in an open economy, or can wage-setters also manage demand?

This sub-section addresses two related issues. The first is the extent to which nominal wage-setting in a small open economy is externally constrained. The second is the degree to which, in addition to the macroeconomic policy levers discussed above, wage-setting can also be used to manage the level of demand and output in a small open economy. This second question belongs, formally, in the previous discussion (section 3.2) of the ability of policymakers to influence

nominal demand. However, it makes sense to postpone it until we have examined, in this section, the ability of the social partners (and government) to influence the path of nominal wages, for that is the channel by which the influence is exerted.

Much of the discussion in 3.2 assumed implicitly that bargaining over nominal wages was taking place in a closed economy setting. The larger the traded sector as a share of output and employment, the more external constraints on wage setting need to be considered. In a flexible exchange rate context any rate of price, and thus wage, inflation can be compatible with the maintenance of external competitiveness (and thus employment) provided the exchange rate adjusts accordingly. If it fails to do so, losses of (gains in) external competitiveness will tend to exert downward (upward) pressure on the nominal wage growth path in the traded goods sector.

In a fixed exchange rate regime, nominal wage growth will have to be such that, allowing for differences in the rate of productivity growth, price developments in the traded sector are in line with those in the other members of the fixed-rate system over the medium term; at least this applies assuming that the starting position is in some sense one of equilibrium. Part of the impact of the macro authorities' actions to stabilise the value of the currency goes through the wage setting mechanism. For example if the currency is under depreciation pressure, the authorities will tighten policy, which will also dampen wage setting outcomes and domestic price inflation. This reduces expectations of a need for future depreciations.

The direct economic pressure on wage-setting in the non-traded sector, however, is very limited. As a result of this constellation, unions in the exposed sector have an interest in inducing those in the sheltered sector to orient their wage demands and outcomes to the requirements of the external sector, whose wage-setting is constrained by the external environment. This is to avoid tensions on the domestic labour market and also because the non-exposed sector provides inputs to the tradable sector which are also important for the latter's external competitiveness.[92] As seen in the Traxler typology above, this can occur in a number of functionally equivalent ways: coordination in the peak federation, social pacts, or pattern bargaining in which the lead sector is one exposed to international competition.

In a monetary union the rules of the game change again. Wage setters – except perhaps a union conducting centralised bargaining in a large member state of the monetary union – no longer need to be concerned directly about a possible impact of their wage setting on interest rate setting by the central bank: their impact on aggregate price trends is too small. Unions and indeed entire member states exercising nominal wage restraint within a monetary union context cannot benefit from a relaxation of monetary policy in the wake of the associated disinflationary pressure, nor, conversely, will excessive nominal wage growth be punished via higher interest rates because that pressure only enters into the aggregate inflation rate of the currency area to an extent corresponding to the weight of the country in the area economy. The effective 'decentralisation' of wage bargaining implied by the replacement of national monetary authorities by a

[92] Input-output analysis shows that these effects can be substantial. For the German case see Ludwig (2013).

single central bank, the ECB, when EMU was established led to concern by some economists and political scientists that this deterrent effect might be substantially weaker than beforet (e.g. Calmfors 2004: 87ff., Franzese 2004, Hancké and Soskice 2003, Soskice and Iversen 1998 and 2000). At the same time, the increase in price transparency within a monetary union and, over time, the expected increase in intra-union trade, was expected to raise the importance of the constraint on wage setting via the trade channel, thus ensuring 'wage discipline'.

This view ignored the so-called real-interest channel, however. Faster wage and price inflation means, for a common single nominal interest rate, that real interest rates are lower than in other member countries; and the reverse is obviously true for a low-inflation country. This raises the prospect of, respectively, virtuous and vicious circles (for an early statement of the problem see Allsopp/Watt 2003). Unless international coordination enforces effective counteraction by national fiscal policy or some form of nominal incomes policy, this could explode the monetary union (Collignon 2013). This was indeed one of the crucial, if not the decisive, mechanisms underlying the euro area crisis of 2010ff. Widening current account imbalances and diverging inflation and unit labour cost trends clearly suggested that the trade channel is not strong enough to offset the real interest rate channel (cf. Flassbeck/Spiecker 2006, European Commission 2008, Horn et al. 2012). This recognition led to the introduction of the so-called excessive imbalance procedure in an attempt to induce member countries to take the required counteraction.[93]

We turn now to the second of our two issues of wage-setting in an open-economy context. In a closed economy, nominal wage-setting does not affect real output and demand directly. Rather, wages, as the most important domestic cost input, affect product prices[94], and, in a second round, these impinge on the pace of demand and output growth via the reaction function of macroeconomic policymakers, notably the central bank. However, in a small open economy, operating within a fixed-exchange rate regime or a monetary union, wage setting can influence real demand and output more directly: wage-induced shifts in the rate of inflation vis-à-vis that in other members of the monetary union or exchange-rate regime lead to corresponding changes in the country's real exchange rate with those trading partners (which are almost always the country in question's main trading partners). That in turn is an important determinant – alongside exogenous factors such as the pace of foreign demand growth – of net exports and thus of total aggregate demand, output and employment. The smaller and more open the economy is, the greater the importance for aggregate demand of the fact that unit labour costs, measured in a common currency, are increasing faster or slower than those of trading partners. This is linked to the literature derived from the Badhuri-Marglin model in which countries are classified as profit-led or wage-led (e.g. Hein/Vogel 2007, Lavoie/Stockhammer 2014). Small open economies tend to be 'profit-led' in this literature, benefiting from the output-boosting effect of higher

[93] The procedure is welcome in principle but flawed in practice: e.g. Koll 2013: 24ff.

[94] As discussed in chapter 2 this is the case unless there is a full offset via a shift in the functional distribution of income. Chapter 4 presents some empirical evidence.

international competitiveness when wage growth lags productivity increases and the functional income distribution shifts in favour of profits. Larger, closed economies are more likely to be 'wage led': here the predominant effect of sluggish wage growth is to depress the rate of domestic demand expansion and the overall impact on output is negative, because the boost to net exports carries relatively little weight.

Within a monetary union the exchange rate is permanently fixed. There is a direct translation from unit labour costs, when fully reflected in price changes, to the real exchange rate, competitiveness and thus the level of demand and output. In small open member states, the offsetting effect of sluggish wage growth on the pace of domestic demand growth is comparatively weak. In the extreme case where all a country's prices, and thus the price level and rate of inflation, are all determined by world market prices, nominal wage policy effectively becomes real wage policy, as the wage outcome cannot have a feedback effect on domestic prices. Demand-management policies are likely to be tightly constrained in such circumstances. On the other hand, strategic wage-setting offers what is tantamount to – even though it is seldom seen as such – as a demand-management policy. What is noteworthy about such a strategy, however, is that it has negative external effects on employment in trading partners; this is in stark contrast to standard expansionary demand-side policies, which have positive externalities through the trade channel[95].

In a large economy with a smaller traded sector a policy of wage moderation (defined as: keeping unit labour cost growth below that of trading partners) will have a smaller and slower effect. Moreover, the smaller boost to net exports is likely to be offset, maybe even overcompensated, by sluggish domestic demand growth as workers' incomes grow sluggishly or not at all (Herzog-Stein et al. 2013).

3.3.4 Conclusions on nominal wage setting

Four key findings from the analysis of nominal wage setting in Section 3.3 can be summarised as follows.

As a first conclusion we note the fundamental disjuncture between the economics literature and the industrial relations or economic-sociological literature on this issue. Real-world imperfections and especially issues of coordination, interlinkages to other policy areas, the breadth of actors' 'utility functions' and the relevance of norm-guided strategic action by collective actors are all not adequately taken into account in mainstream economic theories. They tend to tack on a (simplified) institutional context within which wage outcomes can then be 'ground out' from the atomistic decisions of rational, all-knowing individuals or organisational entities that are modelled as if they were utility-maximising individuals. On the other hand, much of the indus-

[95] Depending on circumstances there may, though, be an offset in the form of upward pressure on interest rates, a sort of international crowding out.

trial relations literature tends to neglect the link between the behaviour of wage-setting actors and macroeconomic policymaking, and specifically demand management, focussing on more 'political' exchanges such as pension reform, or using inappropriate conceptions of macroeconomic policy-setting. Bridging the gap between these literatures is one contribution of this study.

Secondly, and crucially for the approach under consideration here, overall our findings suggest that in the real world of modern European political economies the path of nominal wage increases is determined by factors that are partially independent of the current rate of unemployment with respect to a supposedly institutionally-determined NAIRU. A range of empirical and theoretical reasons why this should be so were identified. Wage setting is highly complex and institutionally rich. In the multi-employer-bargaining systems that predominate in western Europe, nominal wages trends emerge from the workings of a complex political process of interest accommodation, negotiation and conflict – which require context-specific analysis. These interact in a complex way and situation-specific way with the management of demand. A simple approach based on 'walrasian equations' grinding out unemployment on the basis of a few stylised facts about labour market institutions and some ascribed utility functions of ideal-typical trade unions cannot do justice to this complexity.

At the same time, thirdly, the substantial institutional prerequisites for organised labour market actors (and particularly trade unions) to exert a degree of control over the path of nominal wages over an extended period need to be emphasised. A number of authors who argue for the active use of macroeconomic policy as a means to reduce unemployment, while relying on 'wages policy' to control inflation, have not taken this sufficiently on board. In many cases (e.g. Flassbeck/Spiecker 2007: 234, Dullien 2004: 194ff, Hein/Truger 2005: 51f.) adherence to a simple wage policy rule (typically medium-run productivity growth plus the target rate of the central bank) is simply set out as a necessary and sufficient condition for price stability.[96] This is true in a mathematical sense, as we saw in the previous chapter. The analysis here has shown that following such a rule by 'wage policy' has important prerequisites and constraints, however.

Wage setting in a small open economy is on the one hand more constrained: workers in the traded goods sector face direct international competition such that 'national' competitiveness – relative unit labour cost trends – becomes a key driver of nominal wage outcomes (unless there is full offsetting exchange-rate adjustment). At the same time wage policy adds a policy instrument which can, potentially, be employed to steer the path of output via targeting of the real exchange rate, possibly compensating for greater difficulty in using macroeconomic policy to steer demand in such countries. A full analysis requires the incorporation of the externalities of strategic wage-setting on competitiveness and thus output and employment in other in trading partners.

[96] This normative rule also played an important part in earlier work by the present author (Watt 2005, 2006a). Hallwirth (1998) is a notable exception. See especially pp. 164ff.

3.4 Conclusions and hypotheses for the empirical study

In the light of the information and arguments from this and the previous two chapters we can draw up hypotheses on interactions between wage-setting and macroeconomic policy that serve to inform the subsequent empirical analysis in chapters 4 and 5.

We have seen that the scope for and the constraints on policymakers' ability to steer the course of nominal output and nominal wages, and thus influence the pace of employment growth, vary substantially between countries. They depend, notably, on the size/openness of the country, on the exchange-rate regime and the country's role in it, on legal/political constraints on the setting of fiscal policy (in a monetary union), and on the existence or absence of institutional wage-setting structures that ensure bargaining coordination (vertical and horizontal) and thus facilitate strategic wage-setting. On this basis we can, moving from the general to the specific, hypothesise the following:

Successful countries (or extended periods during which countries are successful) in terms of reducing unemployment or maintaining low unemployment are those in which a sustained positive gap is maintained between nominal demand/output and nominal wage growth such as to ensure that employment growth is faster than or at least as fast as labour supply growth; this positive gap must not be offset by a distributional shift to profits, which again places a premium of the maintenance of a demand-wage growth gap, even if small, over an extended period of time.

It follows that successful countries or country-periods are characterised by one of two constellations: either by successful coordination of a favourable combination of nominal output and nominal wage growth involving sustained policy influence on both variables, or by taking one variable, nominal output, as 'given' and successfully steering nominal wage trends so as to ensure compatibility.

In the former case we expect to find evidence of: a) demand management policies actively used to sustain nominal output growth[97], b) policies to ensure a compatible pace of wage growth and c) some coordination or signalling mechanism between the relevant policymakers.

In the second case we expect to see a) an absence of macroeconomic policy demand-management instruments under national control (or enforced or voluntary restraint in their use) and b) highly effective and responsive wage-setting instruments that ensure a compatible path of wage growth. In this case coordination mechanisms with macroeconomic policy are not a necessary condition (but may be present).

Conversely, it can be hypothesised that unsuccessful countries (or those experiencing extended periods of deteriorating labour market outcomes) fail for some reason to pursue either the coordinated 'two-handed' or the 'wage-adjustment' strategy successfully. The country's

[97] Possibly also longer-term positive shocks.

capacity to influence nominal output, to offset negative external shocks, may have been compromised without a corresponding adjustment capacity from wage setting. Restrictive policies may have been deployed over an extended period to which wage policy was unable or unwilling to fully adjust (Phillips curve flat, too low inflation target) such that nominal wage growth was 'excessive' given the pace of output growth. Unsuccessful countries lack effective coordination mechanisms or may experience a breakdown in such institutions. An additional element could be that a country is "wage-led" in the Bhaduri-Marglin sense, such that the nominal wage adjustment to subdued or declining demand tends to weaken demand further without this triggering an effective counteraction from macroeconomic policies, either because a country lacks the institutional means (for example as a member of a monetary union) or the political will.

Countries likely to encounter problems in setting the trajectory of nominal demand and output could exhibit sets of characteristics such as: a country with a floating exchange rate experiences a currency misalignment that lastingly damages growth; a country in a fixed-exchange rate regime that has limited fiscal scope for manoeuvre or fails to use fiscal policy scope effectively; a country in a monetary union that faces inappropriately high real interest rates but is prevented from using fiscal policy or fails to use its fiscal policy scope effectively; a country that experiences a change of regime that curtails policy autonomy.

It will take time for a country to develop the necessary collective bargaining and coordination institutions to match its needs as determined by its mode of integration with other countries. This suggests that serious labour market problems may occur when a country experiences a shift in that mode of integration, during the period in which collective bargaining institutions, policies and attitudes adjust. Another likely combination leading to poor labour market performance is where external shocks or the macroeconomic policy settings are such as to depress output growth to such an extent that, because of downward nominal wage rigidity, output losses and unemployment hikes are not reflected in falling wage and price inflation.

A number of hypotheses can be developed regarding the choices available to countries of different size (degree of openness).

Small countries tend to be more constrained in their use of macroeconomic demand-management policies, whatever the exchange rate regime. They therefore have greater need of coordinated bargaining systems that permit a high level of responsiveness of aggregate wages to external shocks over which domestic policymakers have little or no control. Given the significant risks to a small country in having a misaligned exchange rate and being exposed to economic instability, small countries have incentives to peg their currencies to a larger trading partner. If their collective bargaining systems are so responsive that they can effectively target the real exchange rate, they have a sufficient tool to maintain employment growth at a rate that keeps unemployment low.

Large countries tend to have greater scope for influencing the level of nominal output using monetary and fiscal policy tools (unless they are in a monetary union or a fixed-exchange-rate

system in which another country serves as anchor). Exchange rate misalignments are less serious. The constraints on nominal wage setting are correspondingly reduced, especially if they maintain a floating exchange rate. One (large) country can maintain autonomy also in a fixed-exchange rate regime, namely the one that issues the anchor currency. Effective signalling mechanisms between wage setters and the macroeconomic authorities is likely to be key for good performance. Conversely, conflicts between the main actors (wage setters, the central bank and government) are a potential source of bad employment performance. Within a monetary union, however, policy autonomy is largely lost (although it may remain slightly larger for fiscal policy for political reasons than for small members). A large country finds it harder to use wage policy as an adjustment mechanism because of the limited size of the traded sector and the likelihood that smaller trading partners will respond in kind to a strategic use of wage moderation.

4 NOMINAL WAGES, DEMAND, OUTPUT AND EMPLOYMENT: THE TIME SERIES CHARACTERISTICS IN OECD COUNTRIES 1970-2005

This chapter seeks to subject the theoretical considerations in previous chapters, especially Chapter 2, to empirical analysis. It looks at the variables, to whose interrelations we have been introduced previously, for a set of OECD countries over a period of some 35 years. It examines the panel data set and performs some statistical analyses and tests. The aim is to gain insights into the co-movement of the variables in question: employment, nominal wage growth, nominal demand and output, and shifts in the wage share.

Section 4.1 describes the data and looks at the basic identities discussed in Chapter 2 for this set of countries and the changes over time. Section 4.2 looks in some detail at the relationships between nominal demand and output with a focus on the role of the degree of openness of different economies. Section 4.3 presents evidence regarding the stability/volatility over time of variables of interest, with a view to hypothesising structural features that might explain differences in outcomes. Before concluding (4.5), section 4.4 reports on Granger causality tests conducted with a view to identifying countries in which wage developments appear to lead (Granger cause) demand and output changes and those in which (Granger) causality appears to run the other way around.

The aim of these statistical investigations is to test and enrich the ideas and hypotheses set out in section 3.4 Preliminary judgments are arrived at that are useful in performing the subsequent empirical analyses that bring in the institutional variables that are thought to have a causal influence on nominal wage and output/demand developments. These are presented in Chapter 5.

4.1 Data and approach

The following analyses are conducted for the whole period for which data is available for all or most of the OECD countries, in some cases that is from 1960 to 2005, but data is often only available starting in 1970 or later for some more complex concepts and countries. To facilitate comparison period-averages were formed for all the variables for three twelve-year periods. These are 1970-1981 1982-1993 and 1994-2005. The justification for the cut-off points is as follows: 1970, the start date, is when more or less full data availability is ensured. 1981 marks the end of the Keynesian period and the onset of neoliberal ideas in both labour market and macroeconomic polies. 1993/1994 marks, as we have seen, a significant bifurcation, especially in Europe between countries that substantially reduced unemployment and those that did not. OECD institutional data end in 2003 but are slow-moving and were extrapolated to 2005, which marks the end-point. Although some countries had to be dropped for specific variables or cer-

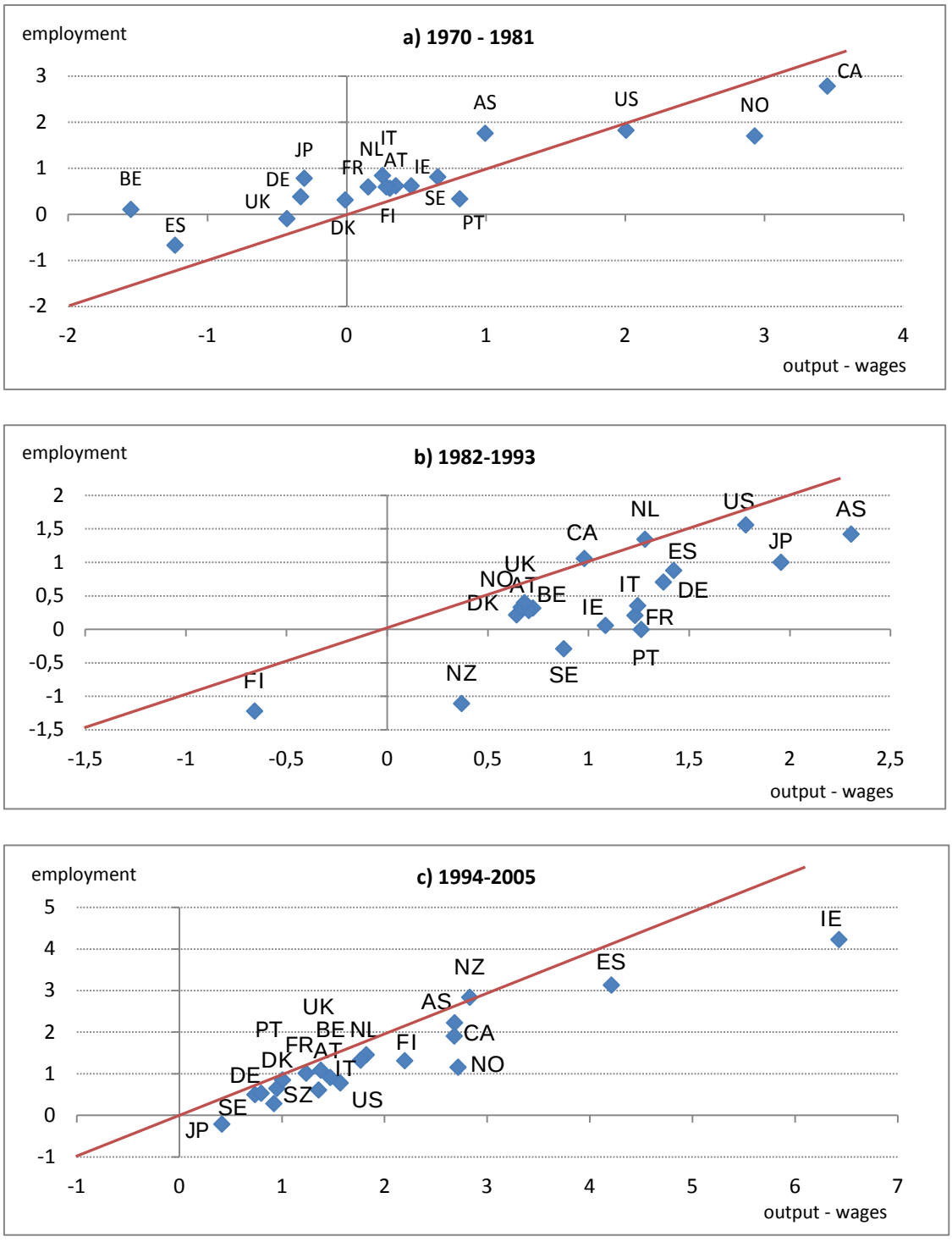
tain periods, most analyses cover twenty countries: Australia (AS), Austria (AT), Belgium (BE), Canada (CA), Germany, (DE), Denmark (DK), Greece (EL), Spain (ES), Finland (FI), France (FR), Ireland (IE, Italy (IT), Japan (JP), Netherlands (NL), Norway (NO), New Zealand (NZ), Portugal (PT), Sweden (SE), Switzerland (SZ), United Kingdom (UK), United States (US). These are broadly the same countries covered in empirical studies discussed in the literature review.

Comparison of the period averages for nominal GDP growth minus wage growth and for employment growth reveals, as expected, a strong association between the output-wage gap and employment (see Fig. 4.1 a-c, in which the red line is a 45 degree line). However, the impact of changes in the wage share is also readily seen to be considerable. In the first period the shift in national income was to the benefit of labour in all but four countries (Norway, Canada, Portugal and, just, the US). As discussed in Chapter 2 this was associated with higher employment growth than suggested by the output-wage gap. This was brutally reversed during the second period, the 1980s and early 1990s. Only Canada and the Netherlands saw – very minor – income shifts in favour of labour. All the others experienced, in some cases very substantial, negative differentials between the output-wage gap and employment, and thus corresponding shifts in national income to profits: this phenomenon was particularly pronounced in Australia, Japan, Portugal and New Zealand (for the latter country data are limited to the period 1987-1993). This pattern was repeated in period three, overall somewhat less dramatically, with Ireland, Spain and Norway experiencing the most pronounced distributional shift in favour of capital owners.

This is confirmed when account is taken of the difference between the annual rate of change of the GDP deflator and that of nominal unit labour costs (s). When it is positive prices rises faster than labour costs: there is a shift in income from labour to capital. And as was shown in Chapter 2, the mathematical effect of the gap between nominal output growth and nominal wage growth on employment is reduced. Put bluntly: rather than employment being higher, profits are higher. Fig 4.2 shows the scatterplot of employment growth against that of nominal GDP minus nominal wages minus s for the third period only; all three graphs look substantially the same. As expected, allowing for the functional income-distribution factor produces an almost perfect correspondence, reflecting the underlying identities. Slight discrepancies could be data errors or the effect of period averaging coupled with slight delays in transmission or reporting.[98]

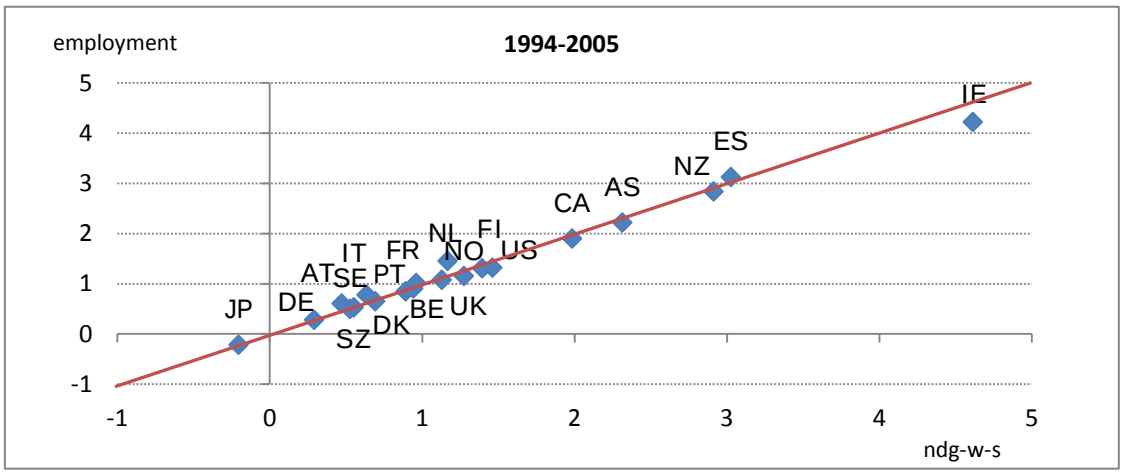
[98] In the case of the Netherlands there is a persistent positive gap. A supposition, given that the Netherlands is also the country with the greatest expansion of part-time work is that there is a working-time effect lurking in the statistics.

Figure 4.1
Employment growth against growth of nominal output minus wages



Source: AMECO database, own calculations.

Figure 4.2
Employment growth against growth of nominal output minus wages minus functional income distribution shift

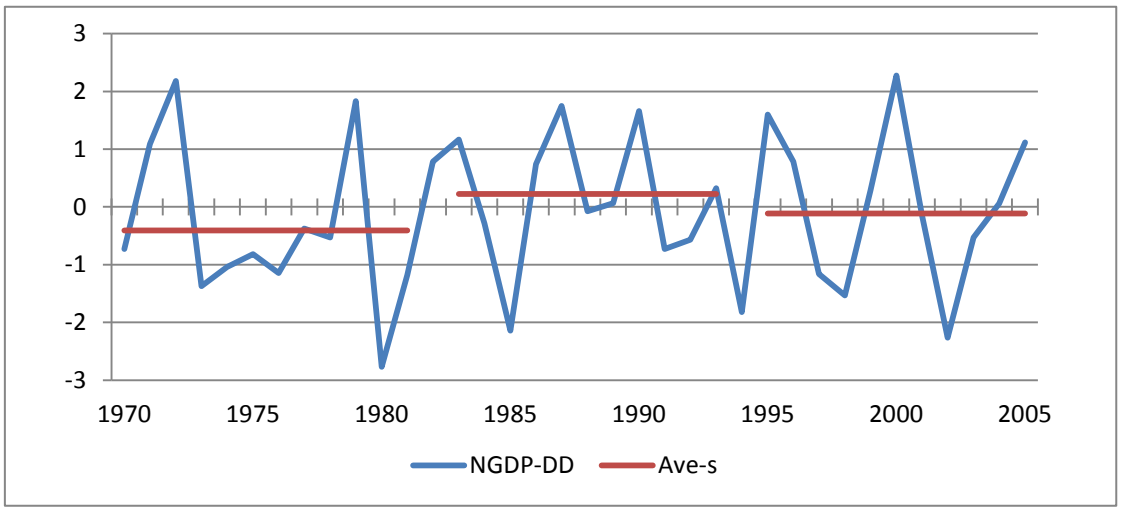


Source: AMECO database, own calculations.

4.2 Relationship between NGDP, domestic demand and country size

We next examine the empirics of the difference between the growth path of domestic demand and that of nominal GDP, because while nominal domestic demand is under policy control by the macroeconomic authorities, at least in the medium run, it is output growth that is decisive for employment. It is hypothesised that in an open economy nominal domestic demand and NGDP do not necessarily move together in the short run (one or two years), but are constrained to do so in the medium run (because of limitations on maintaining persistent current account imbalances, specifically deficits). Indeed, this can be simply illustrated graphically, using the first country, Australia (Fig. 4.3). The figure shows quite substantial differences between annual growth rates of domestic demand and nominal GDP; very frequently between 1 and 2 percentage points, occasionally higher. Yet the differences average out over fairly short periods. The differences over our three 12-year periods were much smaller, at 0.4, -0.1 and 0.2 pp. a year respectively. (A minus sign indicates faster domestic demand growth than nominal GDP and thus rising net imports.)

Figure 4.3
Gap between nominal GDP and nominal demand growth, annual and period averages, Australia, in %



Source: AMECO database, own calculations.

As a summary indicator we can look at the number of years for which the OECD countries consecutively maintained either positive or negative output-demand differentials, before shifting to the respective opposite sign. These figures are brought together in Table 4.1. Summarising the findings, the twenty countries considered over the 36-year period had a total of 356 "switches" between negative and positive differentials. Of these 43.1% were after one year, 28.9% after two years and 14.2% after three years of consistently positive or negative differentials. Four-year periods accounted for only 8.4% of cases. Longer periods were very rare: there were just 9 occasions of a five-year uninterrupted phase of a positive or negative differential (2.6%), 8 of a six-year period (2.3%) and just 2 (0.6%) of a period lasting seven years. Around 85% of country cases thus switched from a situation of either faster or slower domestic demand than output growth to the opposite case within three years at most.

In keeping with the idea of a one-sided balance of payments constraint[99], it is worth noting that the two seven-year periods (Denmark 1987-1993 and Ireland 1982-1988) both involved faster NGDP than domestic demand growth (implying rising net exports). The eight six-year periods, though, are evenly split (faster domestic demand than output growth in Australia 1973-78, Netherlands 1975-80, New Zealand 1994-99 and the US 1982-87; slower domestic demand growth in Austria 1997-2002, Belgium 1981-86, Germany 1993-98 and Ireland 1997-2002).

[99] For international empirical evidence on current account persistence see Edwards 2004: 11ff., who concludes 'during the past three decades … high current account surpluses have tended to be more persistent than current account deficits.' (op. cit.: 13).

Table 4.1
Annual gaps between nominal output and domestic demand: colour changes indicate sign changes

	AS	AT	BE	CA	DE	DK	ES	FI	FR	IE	IT	JP	NL	NO	NZ	PT	SE	SZ	UK	US
1970	-0,72737212	-0,25065513	1,51324447	2,62740702	-0,89533838	-0,89513966	1,01895489	-4,1458138	1,10016961	1,01677773	-1,32270147	-0,37247338	-1,63571478	-4,07313077	-2,71137749	-2,12495439	-0,14353185	-3,33673481	0,32987958	0,23895351
1971	1,08815013	-0,30341148	-0,12110036	-1,11327792	-0,51787925	0,98420732	2,01585741	-0,70625232	0,50007099	0,77118485	0,61058256	1,60608026	1,89905348	-2,16038726	2,56359923	-0,51267826	1,77444123	0,15712462	-0,23665571	-0,36595517
1972	2,17865422	-0,16205564	1,63700965	-0,11902591	0,12260864	1,91260467	-0,75793266	2,14560016	-0,18755149	2,15274248	0,04630015	-0,48668655	3,10041592	3,5992928	1,75507393	1,04201721	0,399963	0,75586558	-0,53383246	-0,35504809
1973	-1,37380801	-0,22724388	-1,1789876	0,87751845	1,06411005	-1,93024521	-1,21109608	-1,01543936	-0,12089384	-1,69073149	-3,37365127	-2,84571939	0,71488488	-1,31464917	-2,33969631	-0,64954483	1,50667794	-0,19380035	-3,39474201	0,63501352
1974	-1,03974537	-0,80666687	-1,8148262	-1,01449923	1,47390034	-0,87423705	-4,87480509	-3,24496944	-2,02114316	-8,0075009	-2,45603267	-0,92053822	0,05590648	-2,67269457	-12,7105916	-6,71952709	-3,87302076	-0,87422118	-3,45545819	-0,38384326
1975	-0,81925649	1,03381598	-0,79506456	-2,48815986	-1,83941414	2,01542822	1,10214564	2,77036084	2,28585676	9,46971498	4,38159048	0,86256734	-0,26925223	-3,483637	5,27449717	4,06382916	0,59206861	5,13483971	3,96252804	1,14227084
1976	-1,14564591	-2,40689249	0,30002901	1,28954191	-0,42746212	-4,1059446	-0,72020093	5,50777035	-2,25158087	-2,16653782	-1,52783319	0,85326247	-0,28157927	-2,80734675	6,10380233	-1,90371819	-1,6101288	0,62363425	-0,56497457	-1,20879886
1977	-0,37272296	-1,9826414	-1,75086061	-0,13901668	0,07906642	1,01077288	2,92281268	0,28967161	0,86125782	-1,32195684	2,56789546	0,93952895	-2,4498826	-0,78329796	0,9663861	-2,20300529	0,00726595	-0,7585228	3,3365742	-1,17187478
1978	-0,53171382	4,29924073	-0,22310578	0,90021111	0,20489663	1,55760197	3,39545068	4,20054514	1,25741471	-0,8495862	1,41170343	0,11315452	-1,00035356	9,66299411	2,31827637	1,86385008	2,99158085	-0,21900525	0,84296859	0,03423446
1979	1,83030703	-2,37633814	-1,07628953	0,23573128	-2,09773004	-0,74875082	-0,57732029	-2,09451272	-0,7735292	-6,87405542	-1,34085156	-2,91462482	-0,23560279	2,20310349	-1,34389021	0,572569	-2,25447495	-3,27641013	-0,53040286	0,25088116
1980	-2,7713488	-0,18246858	-1,18422881	1,6289741	-1,07429014	2,03137958	-3,04788647	-3,036147	-2,25496034	2,96223159	-4,81885076	0,00888014	-0,24970294	4,52682871	0,1716628	-4,4427787	-1,00849892	-3,41603237	1,98595184	0,44355111
1981	-1,17645635	0,31068643	0,83901392	-1,09701296	1,24114939	2,21792454	0,27513663	2,47590781	0,06023127	-0,77387716	0,79082783	1,75671475	4,25246409	1,45751564	-1,64688659	-4,37952227	1,80699922	2,50385935	0,28917033	0,07523127
1982	0,78394251	1,72592412	0,44644042	3,12658498	1,73281789	-0,55615687	0,30000612	-1,32033338	-1,15030369	7,04421039	0,82202201	-0,06395667	0,44106015	-2,58270469	-2,01152625	0,1359806	-0,36625771	1,33355608	-0,53336873	-0,22131379
1983	1,16715993	0,23140082	2,52023045	-1,17500796	-0,58352278	1,5707114	1,15964939	0,04473826	2,39842328	4,64734903	2,08595452	1,08134373	-1,06461555	3,24532544	1,86050106	6,92609295	2,86613462	-0,56615894	-0,97604564	-0,91972705
1984	-0,28649555	0,39181505	0,23735521	0,34748963	0,63564016	-0,76447523	3,08674364	2,04003651	0,44094377	2,69255349	-1,07883463	1,0218305	2,08849832	1,2054833	-2,29425112	2,92821104	1,78824353	-0,10199271	-0,80542464	-1,27610229
1985	-2,14008817	-0,78591195	0,54377829	-1,12484894	1,26352936	-1,02739253	-0,24597415	-0,80908713	-0,56711498	2,35339135	0,01696997	0,81659588	-1,11331308	-1,86194915	0,35647316	3,55725551	-2,31591213	0,80402548	1,04485578	-0,1225089
1986	0,7410429	1,33227577	1,48305957	1,60707349	1,65463266	-1,10407848	0,08171038	0,78579599	0,26737952	0,4697767	1,89596421	0,54944925	-0,78153786	-12,0463042	4,33107043	2,19022143	1,69038021	0,59677658	-1,81646704	-0,24855179
1987	1,7503063	-0,16644723	-0,51543544	0,09604907	-0,10617037	2,30864466	-2,19133285	-1,17641893	-1,04693802	3,602759	-0,96928561	-0,99316412	-1,31158787	1,26368265	2,03789213	-4,64418509	-1,41464315	-0,28025133	-0,38752396	-0,0942508
1988	-0,07379472	-0,74066472	0,71584927	0,12919047	0,08456337	1,38992945	-1,38630718	-0,44032022	0,46462817	2,24826578	-0,41948258	-0,90638553	0,23669148	1,69661958	1,17921958	-3,69491207	-0,23617705	-0,37382449	-2,59454812	0,95089192
1989	0,06513684	-0,16790913	-0,26277895	-1,05456999	-0,0086458	0,3917425	-2,30797285	-2,68073303	-0,0288128	-0,63248648	-0,0725253	-0,70815338	0,53497447	4,38827358	-3,51174449	2,35442333	-1,3010928	-0,81020106	-0,35168322	0,58875424
1990	1,65835281	0,08029796	-0,54170672	0,04425137	0,71931263	2,0980271	-0,02057312	0,77666712	-0,10376158	-1,30673507	0,21348049	-0,63399251	0,90859152	3,09639998	0,75592035	-0,28094693	-0,26139493	0,37789138	1,62242433	0,27848763
1991	-0,73133122	0,12504522	0,13818342	-0,71240214	NA	0,91064397	0,21638525	-0,02986039	0,49434164	0,38653594	-0,00568792	0,71194576	0,34617216	1,71198467	2,78968455	-0,94694711	1,2259864	0,74593375	1,57802562	0,91283966
1992	-0,56870723	-0,40787294	0,841834	-0,01981181	-0,02855716	0,88253692	0,38625096	1,68886564	1,03044387	2,96060437	-0,16292409	0,57766462	-0,36654885	-1,28324097	-0,5839043	0,43536786	0,08235556	1,88089403	-0,36093127	-0,07241974
1993	0,32519546	0,14870934	0,80472248	0,33023918	0,59249747	0,48582739	2,13232817	0,40075603	1,04290785	3,49295054	3,21642243	0,06470659	1,75559862	-0,38444892	0,65402526	1,48491148	1,96486052	1,7217253	0,40248549	-0,4730503
1994	-1,82146732	-0,63164959	0,51612754	1,376464	0,16955605	-1,65958348	0,65125981	0,98158442	-0,23519069	-0,87012382	0,28415432	-0,2088613	0,22452592	-0,36328365	-0,95585105	-0,15705581	0,80309188	-0,45044138	0,38454123	-0,36455713
1995	1,59972459	-0,02491428	0,28491191	2,18662529	0,27069995	-1,27662725	-0,0367476	1,92904596	0,08202787	1,2526401	0,43831447	0,65448658	0,0564043	0,10859618	-1,48834857	1,16092242	2,64032764	-0,34876214	0,37582702	0,09040807
1996	0,78293846	-0,25054209	-0,83871301	0,9190738	0,37346452	0,89645514	0,56355898	-0,80146648	0,15252527	-1,43208748	0,97007315	-0,92460523	-0,44507722	3,24663429	-0,21890478	-0,43086763	-0,18655448	-0,06253875	-0,12308016	-0,00492617
1997	-1,16102923	0,94144103	0,67533716	-2,19204287	0,3391962	-1,36795715	0,3545115	0,95063785	1,31399956	1,86986647	-0,87556288	0,63013881	0,44072185	-0,87672727	-0,17755332	-0,9971353	0,97893127	0,57329963	0,26586229	0,01299443
1998	-1,53527455	1,02562493	0,03757631	0,00607081	0,08752827	-1,67153046	-1,17412346	0,52523192	-0,36564463	0,49255631	-0,75793567	0,78294377	-1,11203999	-7,08462547	-0,13328462	-1,11698925	-0,91008404	-0,55853873	-1,40418589	-0,65320093
1999	0,28349658	0,38986385	0,39058687	1,87037384	-0,51255695	3,12593617	-1,74795735	1,64663877	-0,42582085	1,71080721	-1,39199578	-0,27682414	-0,52490942	6,11411516	-1,09647889	-1,05463134	-0,21056384	0,72863502	-0,87359273	-1,01017812
2000	2,27494183	0,69455769	-1,36232829	2,44962486	-0,58991261	1,10824396	-1,36243552	0,22857327	-1,22400941	0,27896322	-1,03974625	-0,14537552	1,50985105	12,5807824	2,52955585	-0,64440957	-0,16624236	0,282916	-0,40299434	-1,0776227
2001	-0,14869003	0,72436642	0,75809469	-0,13072162	1,72509384	0,66358577	0,63162514	0,26536114	0,14825887	1,52061167	0,45458224	-0,81390585	0,27246332	-0,20859444	0,71875786	0,70802218	0,39226067	-0,43866148	-0,44370573	0,23278041
2002	-2,26504468	2,82807495	2,25247278	-1,47848939	2,60259393	-0,88361259	0,42339152	-0,15310093	0,40583747	1,2760846	-0,4691723	0,69758247	0,80964091	-4,27346613	-0,48180944	1,84243713	0,04572225	1,66172175	-0,46209737	-0,40720223
2003	-0,53077993	-1,83884632	-0,36760851	-0,65658282	-0,61082102	0,44773248	-0,26627978	-2,69290035	-0,65908767	-1,38647017	-0,41285579	0,31753915	-0,26283669	-0,53953855	-1,66191543	1,41640003	0,08767994	0,26395051	0,47208762	-0,51620113
2004	0,05574471	0,77760597	-0,54808229	0,63868344	1,19859831	-1,53900412	-1,69887873	-0,33510047	-0,51608311	-1,3842822	0,16988248	0,3101692	1,19971729	0,59145684	-1,09182641	-1,47830166	1,51934869	0,36709825	-0,4973233	-0,71068747
2005	1,11511582	-0,10167922	-1,07369829	-0,64232869	0,18092334	0,03724625	-1,3244025	-2,68788339	-1,0810749	-3,16931003	-0,78912861	-0,56073483	1,29886509	3,6717097	-1,63200034	-1,04497174	-0,40563591	-0,14633199	-0,05818905	-0,51385835

Source: AMECO database, own calculations.

We can examine this issue more formally and also consider possible changes over time and differences between countries by looking at the absolute difference between the two growth rates (i.e. ignoring the sign). Over all countries for the entire period the average annual deviation between the two annual nominal growth rates was considerable, at 1.30pp. This average conceals a marked reduction over time: the (simple) country averages for the three periods are 1.75, 1.20 and 0.96 respectively. This narrowing absolute differential primarily reflects the appreciable secular decline in nominal growth rates over the period considered, however. The simple country average of NGDP growth rates during the three periods was 13.7%, 8.4% and 5.3% respectively. If we set the size of the gap in relation to the growth rate, it is evident that the *relative* size of the deviation between domestic demand and output has *increased*.

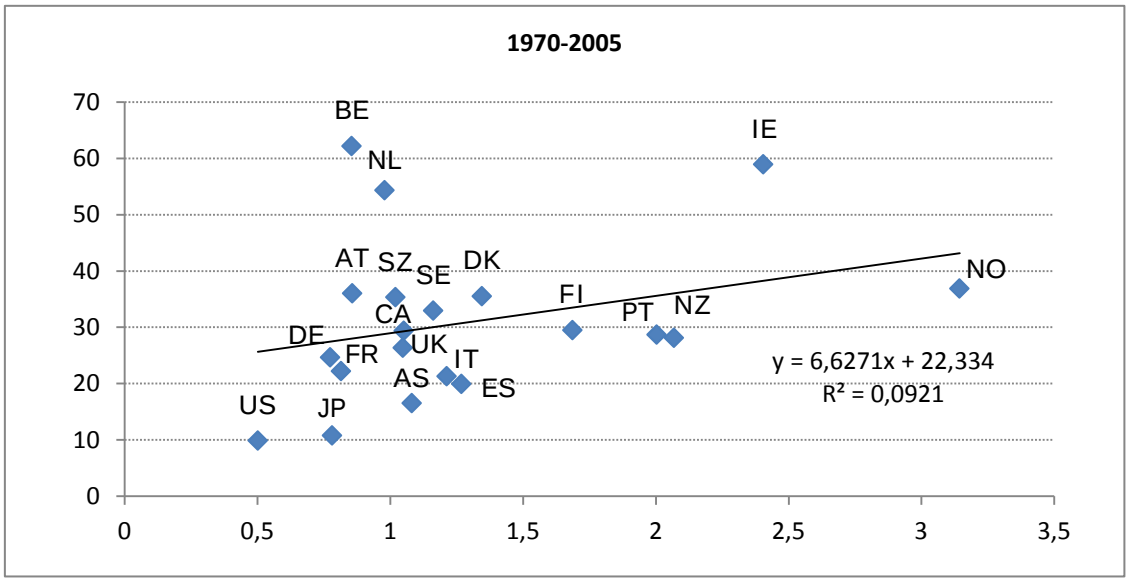
In line with the discussion in the previous chapter, we hypothesise that gaps between growth rates of NGDP and DD are linked to countries' openness to trade; where the relative importance of imports and exports is greater, demand-output discrepancies can be expected to be larger.[100]

We do just about see a positive correlation between the domestic demand/output gap and the size of the tradable sector, as expected (Fig. 4.4 illustrates the relationship across the period as a whole): countries that are relatively open and thus whose traded sector, where demand is subject to influences outside or partly outside its control, is larger are likely to experience a

[100] It may also be linked to exchange-rate regimes.

larger gap between domestic demand and total output. The degree of cross-sectional correlation is very weak, however, with R^2 only around 0.1[101], and it is interesting to look at the results for specific countries more closely.

Figure 4.4
Trade openness versus average annual absolute gap between nominal domestic demand and nominal output growth



Source: AMECO database, own calculations.

The three most closed economies (US, JP, AS) consistently exhibit – the graphs for the sub-periods resemble each other closely and are not shown – the smallest gaps between domestic demand and output growth. Most medium-sized European economies are bunched in the middle of both the openness and demand-output gap indicators and broadly fit the positive correlation for most periods. Belgium and the Netherlands are notable and consistent exceptions, though. Despite being, along with Ireland, the most open economies in the sample, they managed to maintain gaps between domestic demand and total output close to the sample average. A tentative explanation is that their trade is heavily concentrated on the BENELUX countries, Germany and France which have a highly synchronized business cycle, but issues of macroeconomic management and wage policy may play a role (see 4.4. below). Norway, by contrast consistently has the highest gaps with only a somewhat above average degree of openness.[102] In the first two periods NZ and PT have rather high demand-output gap values given moderate degrees of openness.

[101] A somewhat higher figure of 0.15 is obtained for the third period, but only when outlier Norway is excluded.

[102] This is likely to reflect Norway's focus on energy exports which are subject to sustained price shocks.

If we look longitudinally, on the other hand, the rising relative importance of the demand-output gap over time, goes hand in hand with increasing internationalisation and thus higher tradable goods shares; this is at least suggestive of the relevance of the hypothesised relationship.

Overall, we can conclude from this analysis that, at least over a medium term of normally no more than three years, countries experience overall nominal GDP growth at a quite similar rate to that of domestic demand. This is particularly true of larger, closed economies, but some rather open economies are also successful in this regard. Once account is taken of the marked decline in the absolute values, the average differential between domestic demand and output has tended to increase; this presumably reflects increased openness. There is some cross-sectional evidence for openness being associated with a looser output-demand link, but it is very weak.

4.3 Stability of the growth path of domestic demand, nominal output and nominal compensation

In this section we examine the trajectories of nominal demand, output and wages with a view to their stability or, conversely, their volatility over time. This enables us to consider a number of questions and hypotheses.

In the light of the previous chapters it seems appropriate to hypothesise that the stability of domestic demand and output growth can be considered a reflection of stability-enhancing macroeconomic policy institutions and as desirable in employment policy terms, particularly if hysteresis is held to be important. We can examine whether openness increases the likelihood of shocks to demand and output.

The employment-policy desirability of low volatility in nominal compensation would seem more ambiguous in the light of the considerations developed in the previous chapter. On the one hand shocks originating from the wage-setting process itself are to be avoided. However, in the presence of shocks to demand, a certain 'volatility' in wage outcomes might be an important adjustment mechanism, namely if it helped stabilise employment without in turn destabilising demand. Once again, openness may be expected to play a role here. If small open economies are subject to foreign demand shocks, it might be argued that it is important for wage-setting to react swiftly to restore competitive balance which would be demand stabilising (given the relative weight of foreign to domestic demand). In other words, if foreign demand is volatile, wage growth might need to react more sensitively, and thus also be statistically more 'volatile', albeit in a systematic and responsive way. Because the competitiveness channel is less important for larger, closed economies, while maintaining a stable path of domestic demand growth is at a premium, stable wage developments can be hypothesised to be more favourable in such countries.

What does the data tell us? As measures of volatility the standard deviation (SD) and the coefficient of variation (CoV, i.e. the standard deviation divided by the mean) of the three time

series, in annual % changes, were calculated for the different periods. Normally the CoV would be the preferred measure, because it is sensitive to different levels of the mean. However, when the period mean is very close to zero the reported CoV can become extremely large and at the same time uninformative. The pragmatic solution adopted here is to discuss both variables and to exclude Japan, where thanks to deflation the problem is especially virulent.[103]

Table 4.2
Average volatility of nominal output, domestic demand and labour compensation

	Output		Domestic demand		Wages	
	SD	CoV	SD	CoV	SD	CoV
1970-1981	3.550	0.274	4.415	0.339	3.936	0.302
1982-1993	3.162	0.412	3.468	0.479	2.328	0.371
1994-2005	1.604	0.312	1.638	0.353	1.168	0,356

Source: AMECO database, own calculations.

Table 4.2 provides a summary of the data reporting the simple averages of the countries. The CoV measure suggests a tendency for the volatility of all three variables – output, domestic demand and nominal compensation – to be higher in the 1980s and early 1990s than in the 1970s (and, not shown, also compared with the period 1960-1969), but subsequently to decline in the post-1994 period, although remaining at a higher-than-initial level. The standard deviation declines monotonically for all variables: of course this primarily reflects the secular decline in the rate of inflation (and thus the price component of the three variables) during the three 12-year periods considered here. The CoV measure suggests that the "neo-liberal" period was associated with a substantial increase in overall volatility, and that only from the mid-1990s can one speak of a "Great Moderation", at least in a sense of declining nominal volatility going beyond a mere blanket lowering of inflation rates.

Of greater interest is the cross-country comparison for the three periods separately. Starting with wages, we see that wage data show very different country volatility rankings in the three periods (Table 4.3). Given a considerable stability in wage-setting systems over time[104], this simple fact would suggest that stable national nominal wage developments (as indicated by a low CoV over a period of just over a decade) are not *consistently* produced by one or other type of wage set-

[103] In the case of nominal compensation, Japan's mean for the 1994-2005 period is actually negative, so the CoV is negative. In the case of NGDP and domestic demand it is very small, so that the CoV is a very large positive number. Note also that NZ and SZ had to be excluded from the simple averages for 1980s and 1990s to avoid distorting the comparison with the 1970s; their national figures, not available in the first period, are substantially above the averages for the second two periods.

[104] Here and in the rest of this paragraph we are anticipating empirical findings presented in Chapter 5.

ting architecture across the entire thirty-five year period. For instance, Austria, the coordinated, corporatist wage-bargaining country par excellence, is in seventh place in the 1970s, first in the 1980s, and 12th in the third period. The correlation coefficient between the country values for the 1970-1981 and the 1982-1993 periods is positive but weak at just 0.19. It is rather stronger (0.39) between the second and third period, however.

The same conclusion appears to be suggested by the fact that countries with rather similar wage-setting institutions show only a limited tendency to bunch in the rankings. For instance, take the group dominated by decentralized bargaining (at least from the mid-1990s), US, UK, Canada, Australia and New Zealand. The UK, US and Australia do bunch (with CoV values between 0.26 and 0.31, indicating moderately high stability of wage outcomes, but Canada and New Zealand come closer to the lower tail of the distribution (at 0.45 and 0.63 respectively). A similar pattern applied in the 1980s, but not in the first period. Similarly, the centralised/corporatist countries are found across the distribution of countries by wage stability/volatility in all three periods. One notable feature here is the consistently high volatility in German nominal compensation.

Table 4.3
Volatility of growth of nominal wage compensation (coefficient of variation of annual rates of change)

1970-1981		1982-1993		1994-2005	
US	0.113	AT	0.199	NO	0.205
FR	0.183	ES	0.229	ES	0.214
IT	0.199	PT	0.239	DK	0.221
IE	0.200	UK	0.242	FR	0.234
DK	0.230	US	0.251	UK	0.256
ES	0.247	SE	0.263	AS	0.258
AT	0.269	AS	0.338	US	0.301
SE	0.304	IT	0.354	FI	0.306
NO	0.316	BE	0.354	IE	0.321
PT	0.322	JP	0.403	PT	0.360
BE	0.337	FI	0.408	NL	0.371
CA	0.342	CA	0.409	AT	0.405
UK	0.349	IE	0.413	SE	0.445
FI	0.374	NO	0.415	BE	0.449
DE	0.379	DK	0.452	CA	0.452
NL	0.386	FR	0.551	IT	0.551
AS	0.429	DE	0.557	NZ	0.634
JP	0.462	NL	0.606	DE	0.704
		NZ	0.737	SZ	0.774

Note: NZ excluded in period 1, SZ in periods 1 and 2, and JP in period 3.

Source: AMECO database, own calculations.

We can conclude from this that delivering low- or high-volatility nominal wage growth does not appear to be a stable feature of any specific institutionalisation of wage bargaining. We repeated the exercise for NGDP and domestic demand (Tables 4.4 and 4.5). Here too there is very little consistency in country patterns over time. The correlation coefficient for the stability of nominal GDP is actually negative between the first and second periods, while for the second and third periods, and for domestic demand in both cases, the correlation is positive but extremely weak.

Table 4.4
Volatility of growth of nominal GDP
(coefficient of variation of annual rates of change)

1970-1981		1982-1993		1994-2005	
FR	0.114	AT	0.232	UK	0.102
NO	0.165	ES	0.271	ES	0.105
DK	0.190	UK	0.277	AS	0.120
US	0.200	BE	0.280	FR	0.200
SE	0.214	PT	0.306	US	0.202
IE	0.235	US	0.313	AT	0.266
AS	0.240	DE	0.339	NZ	0.275
NZ	0.245	NL	0.356	BE	0.287
CA	0.250	IT	0.373	SE	0.289
PT	0.253	SZ	0.389	IE	0.300
ES	0.259	IE	0.394	IT	0.307
UK	0.284	JP	0.415	NL	0.311
AT	0.290	NO	0.434	DK	0.321
DE	0.299	SE	0.453	CA	0.332
NL	0.300	AS	0.456	PT	0.354
FI	0.313	CA	0.473	FI	0.441
IT	0.313	FR	0.502	DE	0.484
BE	0.316	DK	0.555	SZ	0.566
JP	0.353	NZ	0.605	NO	0.671
SZ	0.644	FI	0.817		

Note: NZ excluded in period 1, SZ in periods 1 and 2, and JP in period 3.

Source: AMECO database, own calculations.

Table 4.5
Volatility of growth of nominal domestic demand
(coefficient of variation of annual rates of change)

1970-1981		1982-1993		1994-2005	
FR	0.198	AT	0.237	UK	0.095
IE	0.213	PT	0.302	AS	0.191
US	0.219	NL	0.318	ES	0.192
UK	0.253	ES	0.331	IE	0.223
ES	0.284	UK	0.350	US	0.230
AS	0.285	BE	0.363	IT	0.236
NZ	0.290	US	0.370	SE	0.269
PT	0.291	DE	0.417	FI	0.308
CA	0.297	IT	0.426	FR	0.320
SE	0.309	IE	0.435	CA	0.334
DE	0.319	AS	0.471	NZ	0.339
DK	0.327	JP	0.479	NO	0.348
BE	0.344	CA	0.511	NL	0.360
NL	0.361	SE	0.511	BE	0.410
IT	0.384	SZ	0.545	PT	0.431
NO	0.390	FR	0.564	AT	0.446
AT	0.390	NO	0.595	DK	0.450
JP	0.419	NZ	0.643	SZ	0.727
FI	0.421	DK	0.719	DE	0.790
SZ	0.789	FI	0.989		

Note: NZ excluded in period 1, SZ in periods 1 and 2, and JP in period 3.

Source: AMECO database, own calculations.

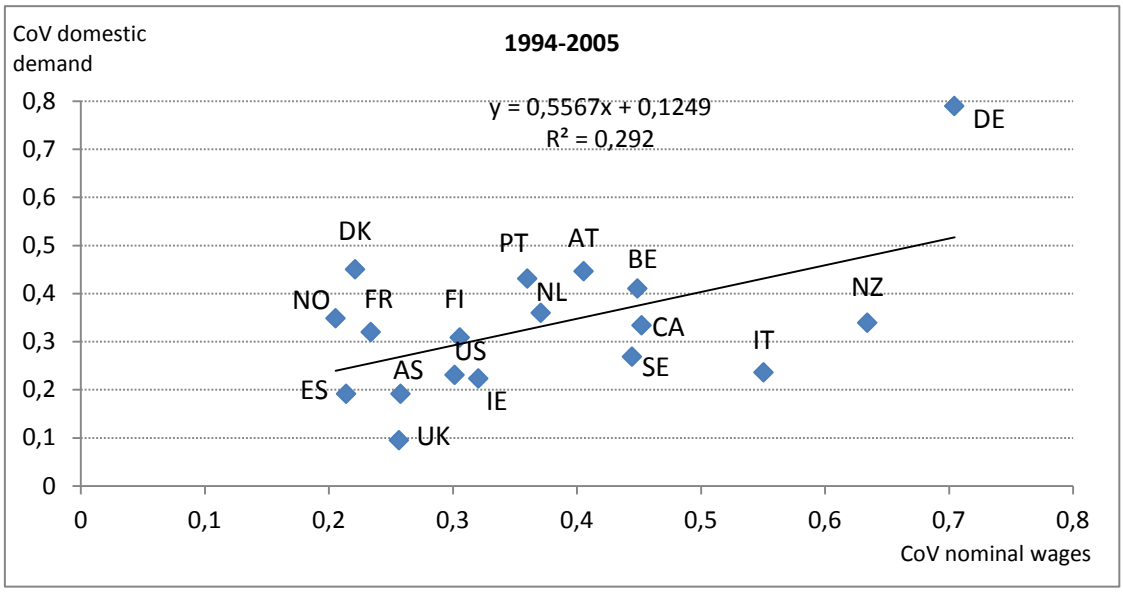
Finally we examined the extent to which the stability of wage outcomes correlates with that of output and demand in the different country-periods. Here the correlations are uniformly positive and, for simple bivariate correlations of this type, fairly strong (with r^2 typically in the range 0.25-0.3)[105]. By way of illustration Fig 4.5 shows the scatter-plot for wage and demand volatility in the third period.

Taken together, these findings would be consistent with a predominance within the country sample of national strategies of tailoring the pace of wage growth to changing macroeconomic circumstances. Alternatively, a common third factor might be driving wage and demand/output trends. We test more formally for a causal influence between output and demand on the one hand and wages on the other in the Granger causality analysis reported below (4.4). Another possibility is that wage stability would indeed be positive for employment and that shifts in the

[105] Unsurprisingly the massive demand shock that affected Finland towards the end of the second period, only partially reflected in wage changes, makes that country an outlier in that case.

degree of volatility delivered by different regimes in different periods are linked with changing fortunes in terms of labour market outcomes; we consider this in the end of this sub-section.

Figure 4.5
Comparison of the volatility of nominal domestic demand and nominal wage growth



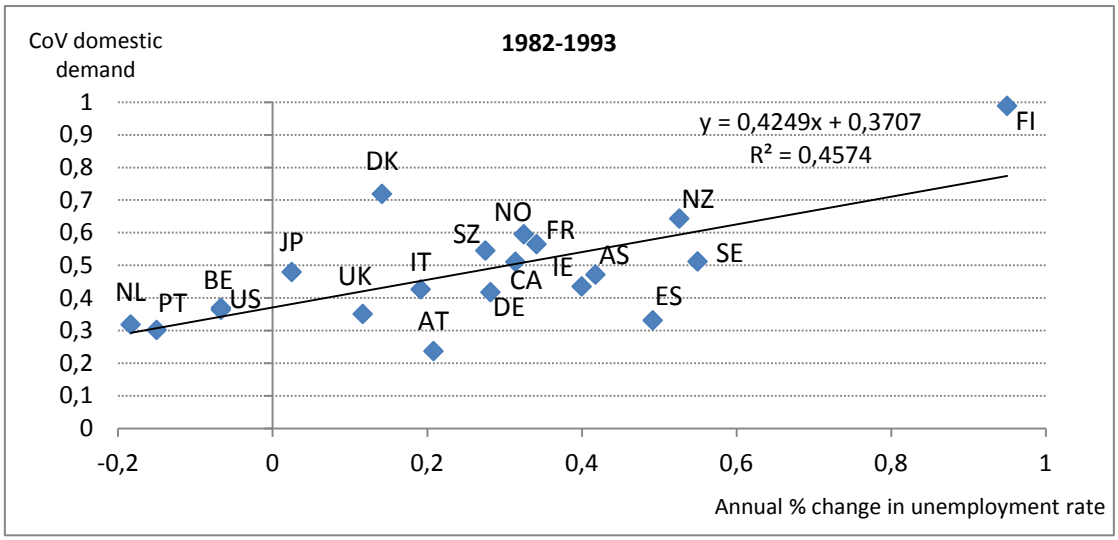
Source: AMECO database, own calculations.

We first turn to the possible influence of openness on the volatility of the variables. The statistical correlation between the stability of nominal output growth (the CoV of the annual growth rates) and the openness of countries to trade is positive in periods one and three, but negative in period two, and in all cases extremely weak (not shown). Thus we do not find convincing evidence for the hypothesis that small open economies experience greater output volatility than large countries. Similarly to the result noted earlier relating to the *gap* between demand and output, a consistent finding across periods is that Belgium, Netherlands and Ireland have the highest degrees of openness, but roughly averagely stable NGDP growth. The US and, to a lesser extent, Australia and Spain, conform to the pattern of relatively closed economies with rather stable NGDP growth in all three periods. Qualitatively similar findings apply to the correlations with domestic demand. In the case of the stability of nominal wage growth and openness, correlations are positive for all three periods, but are so weak as to be essentially meaningless. This seems to confirm the conclusion of the earlier demand/output-gap analysis that small open economies have developed methods to stabilise nominal output and domestic demand in the face of a greater exposure to external shocks.

A final step is to examine whether there are statistical correlations between the stability of the time series of NCOMP, NGDP and NDD, on the one hand, and unemployment performance

(as assessed by changes in unemployment rate) on the other. This is to test for the idea that periods of stable growth in these variables are conducive to and thus correlated with good labour market performance. The findings above have cast doubt on the idea that countries have successfully maintained a stabilisation strategy consistently over long periods, but, as noted, this inconsistency over time could go hand in hand with fluctuations in unemployment outcomes; this would be in accordance with the hypothesis that *when* countries ensure stable wage and price trends they enjoy good labour market performance. The data for the periods 1982-1993 and 1994-2005 clearly suggest that those countries with the more stable growth paths of the three variables enjoyed better employment performance: there is a positive correlation between the countries' CoV and the respective change in the unemployment rate. The correlation is strong and consistent with respect to domestic demand growth and weakest for the stability of wage growth. By way of illustration Fig. 4.6 shows the scatter plot of unemployment changes against demand volytility for the middle period.[106] During the first period, between 1970 and 1981, on the other hand, the correlations are actually negative but very weak for domestic demand[107], and essentially uncorrelated for the other two time series.

Figure 4.6
Comparison of annual changes in unemployment rates against the volatility of domestic demand



Source: AMECO database, own calculations.

Overall, then, there does seem to be some indication in the data that countries that experience or ensure stability in the growth of nominal output/demand and wage variables show better labour

[106] The other R^2s are 0.41 (demand 94-05), 0.46 and 0.15 for wages and 0.16 for output (both periods).

[107] This partly reflects the outlier Switzerland, with highly volatile domestic demand but good unemployment performance in the 1970s and early 1980s.

market performance. This is in line with the view that a conscious policy design that successfully constrains the volatility of demand and output developments can be seen as an employment-friendly policy regime. Regarding the divergent finding for the first period compared with the other two, a likely (partial) explanation is that shocks were overwhelmingly negative in the neoliberal period, (in particular negative demand shocks as part of attempted disinflation processes), in which case there is an employment advantage for countries avoiding them (and thus having a low CoV). By contrast, in the short run at least, inflationary shocks in the 1970s, accommodated by macroeconomic policy, may have been positive for employment outcomes. Stable outcomes for the three variables in themselves are clearly not a sufficient condition for good employment performance. What is key is their positive trajectory and their compatibility; low volatility may help achieve that, but it need not necessarily do so.

4.4 The direction of causation: Granger causality tests

We next consider the question to what extent it the change in nominal wages can be seen as a partial driver of nominal demand and output or, conversely, is driven by these variables, and whether this depends on country characteristics. Both directions are readily conceivable. The product of nominal wages and employment – gross wages and salaries – is the most important component of GDP on the income side. Meanwhile the pace of output and demand growth will feed though (not least via the labour market situation) to decisions by wage (and price) setters.

This can be examined at the statistical level using Granger causality tests. This statistical test determines whether past values of one variable have explanatory power for current values of another variable above and beyond that of past values of that second variable itself. For this test to be valid it is important that both variables are stationary, i.e. vary around a constant mean. This is not true, however, of the annual rates of change of the variables that have been the basis of the analysis so far. This is largely because of a trend increase in inflation (the price component of the nominal variables) during the 1970s and early 1980s, and a trend decline subsequently. However, the first difference of the rates of change is stationary. This was confirmed for all variables and countries using an Augmented Dicky Fuller test for the full period of data availability (max 1961-2010), in almost all cases at the 1% confidence level.

The Granger causality tests were therefore performed on differenced annual growth rates. Lag lengths of 1, 2 and 3 years were examined, whereby three years was considered *ex ante* to be the very longest conceivable period, given the typical length of collective agreements and thus the frequency of wage negotiations, for which lagged interactions with demand and output are plausible.

The results of the Granger causality tests for the countries for the entire period are summarised in Table 4.6. The figures in the table are the p-values, i.e. the probabilities of incorrectly rejecting the null hypothesis that there is *no* Granger causality between the two variables in the

direction indicated: either from wages to demand or output or, vice versa, from demand or output to wages. The red-coloured cells indicate the cases for which we can reject such a null hypothesis at the 5% significance level; the yellow cells indicate significance at the 10% level. The red cells therefore constitute a strong indication (the yellow cells a somewhat weaker one) that there is in fact a Granger causal relationship in the direction indicated. The results presented are those allowing for a maximum lag of two years (i.e. they consider both one and two-year lags). The results using a two-period lag are in most cases unambiguous in the sense that granger causality is found to occur either from wages to demand/output, or the other way around, or there is no such relationship.[108] The results are generally qualitatively similar whether the focus is on domestic demand or on output, although some differences remain.

The quantitatively most common cases are those in which Granger causality runs from both output and demand to wages: This is true (at lag 2) of nine countries: AS, AT, BE, DE, FI, IT, JP, SE and SZ. Except in Italy, which only made the 10% cut-off, in this group of countries Granger causality to wages could not be rejected for at least one of the two macroeconomic variables at the 5% level. In NL Granger causality to wages applies with respect to output only.

Only in three countries does Granger causality appear to run in the other direction: from wages to demand and output in EL and ES (here with a weak indication of two-way causation) or just to demand (DK).

In six countries, CA, FR, IE, NZ, PT and the US, the null of no causality in either direction cannot be rejected at the 5% significance level. (In the case of CA, though, there is strong indication of wage sensitivity to output and demand if only one lag is included).

As discussed above, it seems plausible to hypothesise that there is a link between the direction of causality between growth/demand and wages, on the one hand, and a country's openness to trade on the other. Given the importance of international competitiveness for total aggregate demand a rapid adjustment by wages in the same direction as any external shock is stabilising and desirable. If, for instance, output declines sharply as a result of a collapse in export markets, a downward adjustment of nominal wages is likely to be stabilising. In a large closed economy, by contrast, in which the competitiveness channel is weak, a movement of wages in the same direction as demand might well be destabilising because of the much greater importance of the wage rate for nominal demand developments.

We can illustrate this for two paradigmatic cases, Austria (small open economy) and the US (large closed economy). Figure 4.7 shows the growth rates in differences (the change in the annual rate of growth) over the entire period for nominal demand, output and wages. For Austria the reaction of wages to output and demand trends after one to two years picked up by the

[108] In contrast, when using a lag of one and, in particular, of three years (not shown), numerous cases of Granger causality in both directions were identified. This suggests that the two-year horizon is the most revealing period, with the one year lag yielding qualitatively similar outcomes. This confirms the initial intuition, based on what we know about the typical institutions of wage setting, that a three-year lag is too long for plausible causal effects.

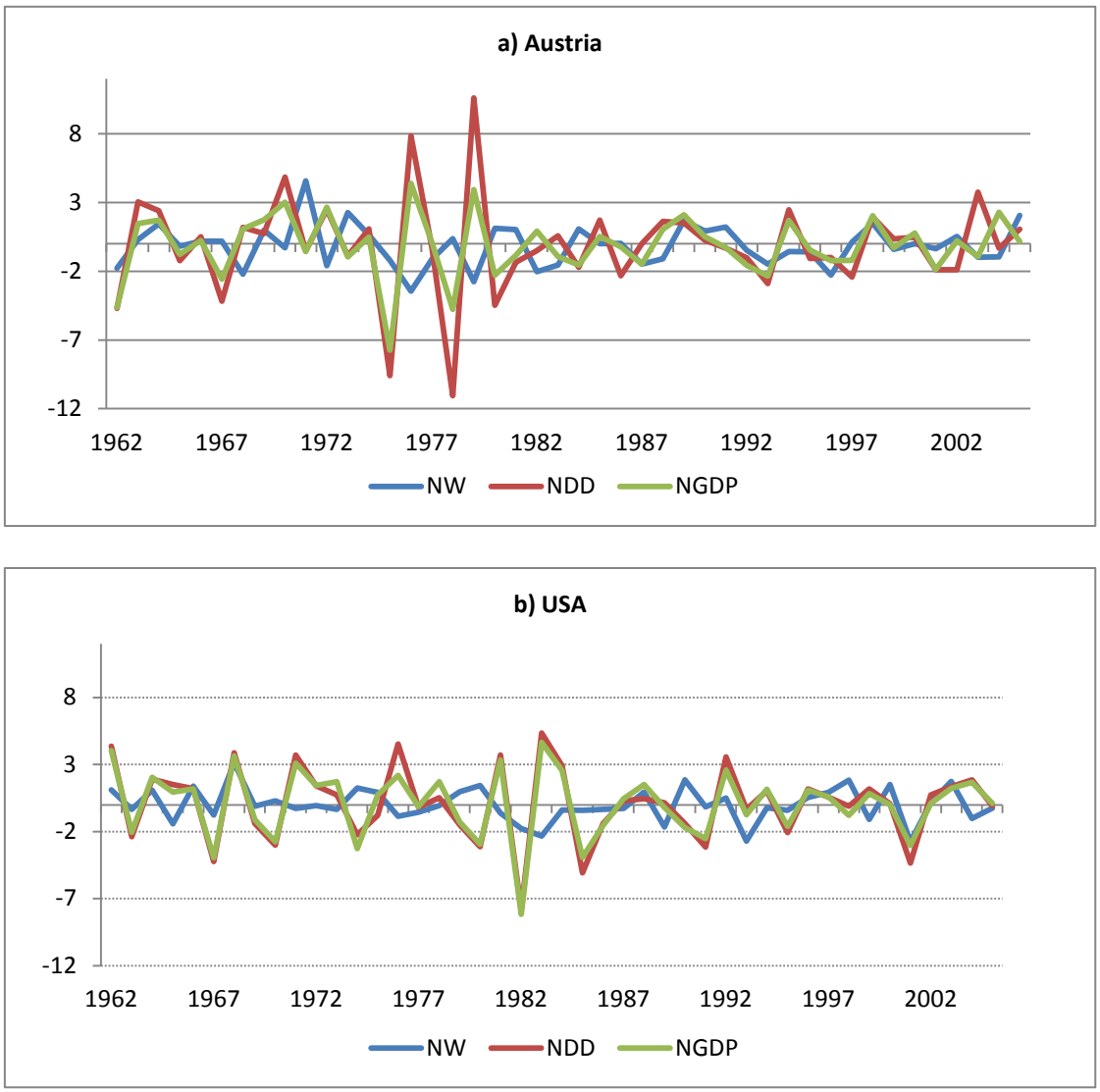
Table 4.6
Summary of Granger causality tests between nominal wage (w), nominal demand (d) and nominal output (y) growth, p-values.

	w->d	d->w	w->y	y->w
AS	0,583	0,040	0,765	0,006
AT	0,311	0,000	0,401	0,000
BE	0,572	0,059	0,527	0,016
CA	0,521	0,099	0,596	0,103
DE	0,404	0,017	0,736	0,059
DK	0,032	0,654	0,265	0,480
EL	0,035	0,849	0,075	0,250
ES	0,022	0,079	0,024	0,079
FI	0,590	0,017	0,374	0,023
FR	0,193	0,199	0,088	0,380
IE	0,898	0,112	0,222	0,452
IT	0,133	0,081	0,519	0,070
JP	0,867	0,014	0,999	0,011
NL	0,704	0,238	0,698	0,006
NO	0,604	0,000	0,578	0,175
NZ	0,820	0,774	0,561	0,453
PT	0,242	0,264	0,151	0,320
SE	0,371	0,002	0,216	0,098
SZ	0,109	0,005	0,124	0,006
UK	0,146	0,015	0,104	0,099
US	0,419	0,804	0,609	0,795

Source: AMECO database, own calculations.

Granger causality test is visually easily evident, at least into the 1990s. In contrast no obvious pattern emerges for the US. This is in line with the hypothesis, not least given that these two countries, have both been characterised, on the whole, by low unemployment.

Figure 4.7
Comparison Austria and US: annual rates of change of nominal wages, output and demand

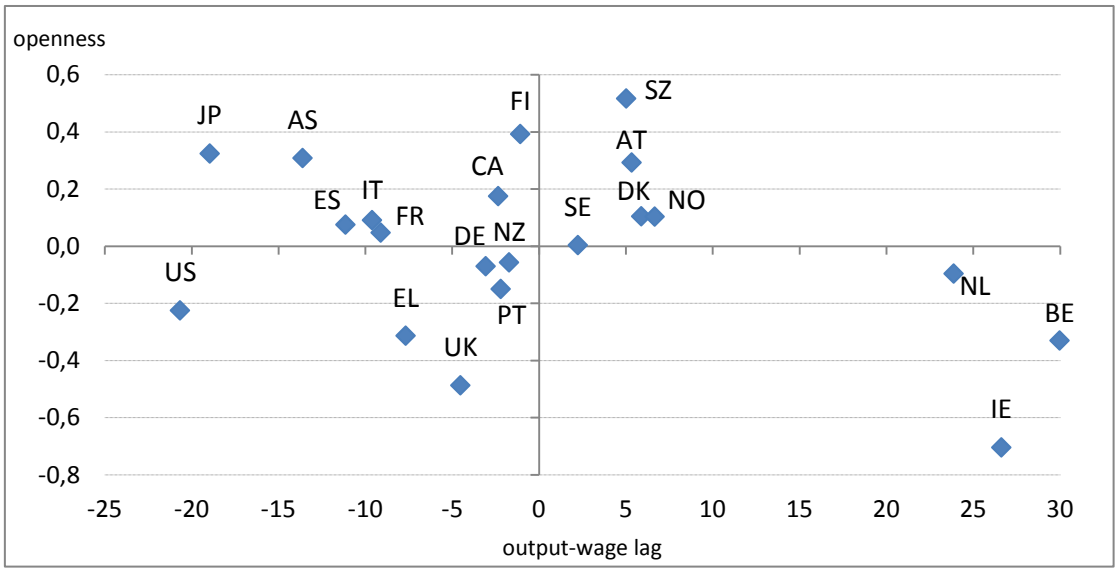


Source: AMECO database, own calculations.

Looking at the country findings more systematically offers only weak support for the idea that wage sensitivity to output/demand is higher in (successful) small open, than large closed economies, however. Figure 4.8 plots, on the vertical axis, the correlation between the change in output and the change in wages the following year against, on the horizontal axis, the openness of the economy (the average of imports and exports as a share of GDP). In both cases the period mean has been subtracted from all country values. The hypothesis would receive empirical support from a concentration of countries, specifically successful countries in employment terms, in the north-east and the south-west quadrants. We do see, among the main group of countries, a

broad south-west-to-north-east orientation. The group of "wage-sensitive" countries (on this, admittedly, imperfect measure[109]) includes a number of paradigmatic small open economies, such as Switzerland, Finland and Austria. This sensitivity is lacking (or causality runs the other way) in larger and/or more closed economies, most prominently the US, but also Greece and Portugal). However, the story does not seem to fit a number of cases. Australia and Japan are wage-sensitive but closed. Most predominantly, three countries, Ireland, Belgium and (to a lesser extent) the Netherlands, which are small and open, but lack wage sensitivity, appear to be outliers. Yet it will be recalled that these countries were also untypical of small open economies in other regards, too: specifically, the gap between demand and output and the extent of volatility in the time series were both unusually low. To that extent the finding here of low wage sensitivity to output/demand is consistent in that these countries, despite their openness, do not seem to suffer from externally induced shocks to demand and output.

Figure 4.8
Comparison between the extent to which wages lag output changes and openness



Source: AMECO database, own calculations.

Of course, we would only expect the hypothesis of a link between direction causality and openness to hold for countries and periods with good employment performance. To analyse this we need to break the data down into the familiar three sub-periods and check for a whether conforming to either of the groups "open-and-wage sensitive" and "closed-and-wage-insensitive" is

[109] It is worth noting that the p values reported above cannot be taken as a – negative – indicator of the strength of the causality. They are a measure of the confidence with which we can reject the null hypothesis of no causality, which is not the same thing. The measure chosen here (correlation with lagged values) is rough and ready and sensitive to the one year lag chosen.

associated with good employment performance. Scatter plots as in Fig. 4.8 for the three periods separately (not shown) do not immediately lend much support to such a hypothesis. The case of Ireland stands out: it transpires that this small open economy was extremely wage-insensitive in the 1970s, gradually become less so in the 1980s and in the last period showed a much more sensitive reaction by wages in year t+1 to changes in output in year t. This perfectly matches the changing labour market performance. However this proves to be an exceptional case. A number of regressions were conducted of the correlation between openness and wage sensitivity using changes in the unemployment rate (as a measure of labour market success) as a control variable. The findings were consistently insignificant.

In a similar vein the Granger causality tests can also be conducted for sub-periods. The difficulty is that the considerably smaller number of observations reduces the statistical reliability of the test of the null hypothesis of no Granger causality. The analysis was performed for the three sub-periods discussed above, 1970-1981, 1982-1993 and 1994-2005, permitting any findings to be incorporated seamlessly into the other analyses. However, this periodisation means that there are only twelve observations in each period.

The results are brought together in Table 4.7. The p values significant at the 5% level are marked in red, those significant at the 10% level are marked yellow, as above. Overall the findings confirm the difficulties in obtaining statistically significant results with such short time series. Particularly at the two-period lag calculations, which are more demanding statistically, significant results, especially at the 5% level, are few and there is a smaller gap in the number of cases where Granger causality runs from wages to demand/output compared with vice versa. Lastly, particularly when only one lag is considered, there are a significant number of countries in which the hypothesis of no Granger causality can be rejected in both directions. All these findings caution against overinterpreting the results.

With this caveat in mind, there is some tentative evidence that the sensitivity of wages to the development of nominal domestic demand and output in the preceding period (one or two years) was higher in the 1970-1981 and 1994-2005 periods than in the intervening “neoliberal” period.

Table 4.7: Summary of Granger causality tests between nominal wage (w), nominal demand (d) and nominal output (y) growth, p-values

	1970-1981		1982-1993		1994-2005			1970-1981		1982-1993		1994-2005	
1 lag	w->d	d -> w	w->d	d -> w	w->d	d -> w		w->y	y -> w	w->y	y -> w	w->y	y -> w
AS	0,677	0,056	0,342	0,126	0,071	0,142	AS	0,921	0,012	0,586	0,265	0,076	0,118
AT	0,967	0,064	0,857	0,010	0,227	0,522	AT	0,799	0,036	0,879	0,166	0,770	0,598
BE	0,596	0,443	0,725	0,650	0,544	0,421	BE	0,916	0,939	0,309	0,849	0,162	0,174
CA	0,383	0,612	0,138	0,049	0,379	0,935	CA	0,408	0,386	0,189	0,057	0,052	0,468
DE	0,207	0,021	0,969	0,510	0,158	0,301	DE	0,235	0,055	0,796	0,493	0,425	0,113
DK	0,057	0,195	0,221	0,717	0,005	0,001	DK	0,151	0,266	0,219	0,611	0,171	0,012
EL	0,507	0,964	0,020	0,180	0,030	0,053	EL	0,562	0,858	0,204	0,521	0,103	0,398
ES	0,663	0,889	0,120	0,363	0,004	0,000	ES	0,717	0,843	0,306	0,797	0,004	0,000
FI	0,369	0,031	0,653	0,003	0,041	0,008	FI	0,849	0,035	0,274	0,008	0,427	0,023
FR	0,778	0,451	0,997	0,280	0,116	0,248	FR	0,695	0,349	0,646	0,422	0,034	0,172
IE	0,805	0,735	0,010	0,190	0,099	0,409	IE	0,758	0,034	0,015	0,286	0,403	0,743
IT	0,272	0,200	0,178	0,033	0,945	0,444	IT	0,365	0,266	0,371	0,051	0,730	0,148
JP	0,148	0,018	0,675	0,137	0,067	0,019	JP	0,163	0,033	0,829	0,243	0,014	0,067
NL	0,574	0,754	0,965	0,137	0,443	0,858	NL	0,412	0,670	0,939	0,509	0,284	0,766
NO	0,327	0,001	0,100	0,161	0,422	0,036	NO	0,142	0,004	0,249	0,716	0,896	0,206
NZ	NA	NA	0,796	0,614	0,218	0,462	NZ	NA	NA	0,775	0,363	0,287	0,509
PT	0,004	0,277	0,485	0,740	0,195	0,002	PT	0,003	0,647	0,612	0,457	0,053	0,002
SE	0,281	0,119	0,266	0,171	0,676	0,442	SE	0,480	0,157	0,835	0,667	0,702	0,881
SZ	NA	NA	NA	NA	0,182	0,022	SZ	NA	NA	NA	NA	0,452	0,010
UK	0,375	0,806	0,138	0,191	0,772	0,389	UK	0,133	0,129	0,217	0,026	0,032	0,734
US	0,459	0,687	0,247	0,909	0,701	0,546	US	0,693	0,920	0,339	0,996	0,739	0,568
	1970-1981		**1982-1993**		**1994-2005**			**1970-1981**		**1982-1993**		**1994-2005**	
2 lag	w->d	d -> w	w->d	d -> w	w->d	d -> w		w->y	y -> w	w->y	y -> w	w->y	y -> w
AS	0,345	0,149	0,116	0,404	0,030	0,596	AS	0,640	0,069	0,239	0,604	0,204	0,670
AT	0,553	0,032	0,496	0,008	0,592	0,653	AT	0,684	0,006	0,474	0,186	0,924	0,925
BE	0,247	0,614	0,698	0,207	0,405	0,476	BE	0,402	0,586	0,684	0,192	0,576	0,314
CA	0,564	0,589	0,284	0,231	0,848	0,266	CA	0,716	0,388	0,500	0,294	0,184	0,653
DE	0,625	0,031	0,980	0,541	0,499	0,572	DE	0,357	0,049	0,796	0,056	0,021	0,382
DK	0,189	0,570	0,361	0,468	0,094	0,015	DK	0,214	0,261	0,232	0,408	0,727	0,015
EL	0,047	0,745	0,039	0,186	0,153	0,257	EL	0,066	0,631	0,281	0,032	0,336	0,925
ES	0,207	0,606	0,082	0,501	0,160	0,010	ES	0,004	0,128	0,070	0,925	0,605	0,003
FI	0,933	0,169	0,519	0,011	0,094	0,078	FI	0,814	0,084	0,289	0,006	0,157	0,081
FR	0,986	0,233	0,821	0,792	0,456	0,422	FR	0,996	0,131	0,844	0,781	0,322	0,342
IE	0,987	0,836	0,006	0,836	0,213	0,943	IE	0,058	0,089	0,107	0,995	0,627	0,991
IT	0,173	0,903	0,097	0,130	0,019	0,254	IT	0,486	0,953	0,530	0,202	0,004	0,106
JP	0,882	0,145	0,195	0,096	0,279	0,058	JP	0,872	0,194	0,456	0,492	0,057	0,168
NL	0,378	0,668	0,345	0,010	0,141	0,564	NL	0,240	0,871	1,000	0,011	0,617	0,721
NO	0,331	0,014	0,208	0,212	0,695	0,173	NO	0,979	0,021	0,434	0,481	0,517	0,474
NZ	NA	NA	NA	NA	0,319	0,453	NZ	NA	NA	NA	NA	0,577	0,370
PT	0,038	0,628	0,798	0,252	0,584	0,029	PT	0,011	0,976	0,531	0,251	0,529	0,064
SE	0,663	0,120	0,615	0,181	0,248	0,209	SE	0,558	0,283	0,846	0,931	0,546	0,845
SZ	NA	NA	NA	NA	0,210	0,098	SZ	NA	NA	NA	NA	0,444	0,044
UK	0,369	0,207	0,412	0,428	0,227	0,433	UK	0,368	0,450	0,268	0,130	0,072	0,905
US	0,939	0,728	0,466	0,994	0,469	0,175	US	0,634	0,314	0,504	0,982	0,685	0,271

Source: AMECO database, own calculations.

4.5 Summary of findings from the time series data analysis and conclusions

The empirical findings in Chapter 4 together with some provisional conclusions can be summarised as follows:

- The gap between nominal wage and output growth generally closely foreshadows employment growth, although for periods of time – mostly temporary but sometimes extended – shifts in the national income towards wages (profits) can lead to faster (slower) employment growth than that implied by the output-wage gap.
- Rates of nominal output and domestic demand growth frequently differ, sometimes substantially, in the short run; the average absolute annual gap is 1.3pp. But balance of payments constraints usually prevent discrepancies from persisting. Three quarters of all shifts between a negative and positive output-demand gap occur within two years. There is a positive but weak correlation between trade openness and the absolute size of output-demand differentials; Belgium and the Netherlands stand out as being highly open but exhibiting small differentials. It does not follow from this, however, that control of domestic demand is sufficient to ensure a parallel development of nominal GDP. Rather, it seems plausible that a balance of payment constraint pushes macroeconomic authorities to adjust the demand trajectory to the pace of output growth, or this occurs via exchange rate changes, avoiding persistent current account surpluses and, especially, deficits.
- The data does not suggest that given wage bargaining systems systematically deliver more or less stable nominal wage trends. Rather, wage volatility tends to move, across time and place, in parallel with the volatility of nominal output and demand. These findings would be consistent with a prevalence of national strategies of tailoring the pace of wage growth to changing macroeconomic circumstances, but also a common third factor might be driving wage and demand/output trends. The Granger causality tests lend some support to the first explanation. There is only very weak evidence that nominal output is more volatile in open countries; we can conclude that small open economies have developed methods to stabilise nominal output and domestic demand in the face of a greater potential exposure to external shocks.
- When we consider these developments against the background of varying (un)employment performance, the data suggest that countries that ensure or experience relatively stable growth of nominal output or demand and (less so) wage variables enjoy better labour market performance (especially since 1981). This is in line with the view that a conscious policy design that successfully constrains the volatility of demand and output developments can be seen as an employment-friendly policy regime. The effect is not particularly strong, however. Given demand/output variation, an adaptive wage

strategy might be desirable. Ultimately it is the size and the persistence of the positive output-wage gap that is key for employment performance, not low volatility per se.

- Overall, across the entire period Granger causality tests suggest that in the majority of countries wages seem to follow (adapt to) rather than precede (drive) demand/output. Surprisingly there is only very weak evidence for the hypothesis that in more closed economies wages lead demand/output, and vice versa in small open economies. Belgium and the Netherlands (and also Ireland) are notable exceptions. In the case of Belgium and the Netherlands this multiple exceptionalism is consistent: the economies are open, but do not suffer from above-average demand-output gaps nor output or demand volatility, and also do not seem to be particularly wage-sensitive. Also Ireland does not appear to be an outlier once employment performance is taken into account.
- A full test of this conjecture would need to allow in a more formal way for (un)employment performance, but the statistical reliability of the Granger causality tests is limited for the sub periods, casting doubt on the robustness of the findings. The evidence is inconclusive. It does *not* show that greater sensitivity by wages to output and employment trends is desirable, particularly in small open economies, in employment policy terms. It may be that a wage stabilisation strategy is equally valid.

5 LABOUR MARKET PERFORMANCE: A FUZZY SET QUALITATIVE COMPARATIVE ANALYSIS OF CONDUCIVE INSTITUTIONAL CONFIGURATIONS

This chapter describes the conception, implementation and results of a fuzzy set qualitative comparative analysis (fsQCA) to examine the possible role of coordinated wage-setting and employment-oriented demand management in explaining positive labour market outcomes. In the first section the methodology of fsQCA analysis and its relevance for the subject of this dissertation is explained. Then the process of data selection and collation, the construction of indicators, and the coding of the data is described (5.2). The results obtained from a series of fsQCA analyses are described in 5.3 and conclusions are drawn in section 5.4.

5.1 The fsQCA methodology: requirements, appropriateness for research question

Qualitative comparative analysis (QCA) is an approach developed beginning the late 1980s by Charles Ragin and subsequently expanded by him and other researchers and adapted for use in political science, political economy and institutional economics.[110] QCA is a set-theoretic approach that seeks to establish causal relations between configurations of causes and certain outcomes. It is set-theoretic in that entities (typically countries or states, but also, for instance political parties) are coded along a number of dimensions, and are then assigned to sets possessing or not possessing the characteristic in question. For instance a group of countries can be coded according to whether or not they have democratic institutions; those that do are then assigned to the set of "liberal democracies". Causality in the QCA approach is established by identifying consistent patterns between the absence and presence of combinations (usually referred to as *configurations*) of certain hypothesized causal factors and the absence and presence of the outcome of interest. Expressed in set-theoretic terms: causality is established by seeking consistent patterns between membership or non-membership in the sets (such as the set of liberal democracies) hypothesised as causes and membership or non-membership of the set that represents the outcome of interest; this might for instance be countries with high living standards.

Take as an illustrative starting point the idea that democracies do not go to war with one another, which goes back to Kant if not further.[111] This can be interpreted as a causal statement to the effect that democracies have features that prevent them going to war against one another.

[110] There is a steadily expanding literature in this field. Groundbreaking works are Ragin (1987) and Ragin (2000). A methodological overview is provided by Rihoux and Ragin (2009). A recent textbook is Schneider and Wagemann (2012).

[111] The discussion that follows takes its starting point from Ragin 2006: 1f. For the idea itself see the Wikipedia entry "democratic peace theory" at http://en.wikipedia.org/wiki/Democratic_peace_theory/. Note that whether or not this theory is factually correct is irrelevant to the current discussion.

This is a simple, monocausal, not a configurational example. This, in turn, can be expressed in set-theoretical terms: the set of pairs of democratic countries is a sub-set of the set of those country-pairs that have not gone to war against each other. That is, all members of the set of democratic country-pairs are also members of the set of pairs of countries that have maintained peaceful relations. This is because, conversely, the hypothesis or theory would be falsified if a country-pair is simultaneously a member of the set of democracies and that of countries that have gone to war against each other, in which case the sub-set relation would no longer hold. The sub-set relation is a key concept in QCA. As long as the sub-set relation does hold, democracy can, given plausible theoretical considerations, be implied to be a *sufficient causal condition* for peace. Of course many sub-set relations could be posited and identified in the real world although they are entirely spurious or trivial. For them to be meaningful theoretical justification is indispensable.

It is useful to note at this point a difference to correlational methods. In this example some non-democratic countries may also be at peace with one another. Unlike in a regression analysis of correlation, this in no way weakens the claim that democracy is a sufficient condition for the outcome. In set-theoretic terms it is actually irrelevant (Schneider/Wagemann 2012: 57f.). Additional conditions may be identified such that non-democratic countries also enjoy peaceful relations. An implication of this is that the fact that there is a consistent relationship between the presence of a putative cause and an outcome does not mean that the same is true of the absence of that cause and the absence of the outcome ("asymmetric causality", Schneider/Wagemann 2012: 81f.).

It is also possible to establish that a condition is necessary (within the universe of cases considered), but not sufficient. For this to hold the outcome needs to be a subset of the cases in which the cause is present: this demonstrates that there are no cases of the outcome being present when the posited cause is absent. Conversely, whenever the cause is present, so is the outcome. Thus necessity can be seen as the mirror image of sufficiency in set-theoretic terms. [112]

The reader may find the above somewhat trivial, but an important methodological implication follows. If a researcher runs a regression analysis with a series of dependent variables, including democracy, as possible explanations for the "failure" of country-pairs to go to war, the correlation coefficient for democracy, while positive, might well prove statistically insignificant. The reason is that there may be many other reasons why countries may not be at war. Other causes, for instance simple geographical distance, while empirically seemingly important (large, statistically significant coefficient), might well be theoretically and/or politically uninteresting; the important sufficient condition – democracy – might be lost. The QCA method, in other words, shows up possible paths that are (sufficient) explanations for certain outcomes and

[112] It is worth noting that this distinction between necessary and sufficient causation cannot be readily assessed with regression techniques.

allows the researcher to focus the search on those considered of theoretical and/or normative interest.

More importantly still, the set-theoretic approach can be easily extended from the mono-causal example given to consider combinations of causes and alternative pathways to the same outcome. For instance democracy might conceivably only be a sufficient condition for country pairs to maintain peaceful relations if the populations both are above a certain per capita income level. This would emerge if democratic country-pairs above a certain income threshold are a sub-set of peaceful pairs, while (most of) those below that threshold are not. In such a case neither democracy nor wealth are sufficient on their own, but together they can be considered a sufficient cause, or causal configuration. In QCA the idea of joint causation is expressed by "logical AND" (democracy AND wealth are required). As noted above, there may, though, be other pathways to peaceful relations. Suppose, for instance, that an empirical regularity is that countries with military spending below 2% of their GDP never go to war, irrespective of wealth and form of government. In such a case low levels of military spending could be plausibly considered a second, alternative pathway to peaceful relations. This idea is expressed by "logical OR": either democracy AND wealth, OR an absence of military capability are sufficient for peace. If two or more "paths" to an outcome exist they are said to be "equifinal" (Berg-Schlosser et al. 2009: 8).

Together the three elements mentioned – equifinality, configurational causation and causal asymmetry – constitute causal complexity (e.g. Schneider and Wagemann 2012: 78). QCA can be conceived as a method to deal with causal complexity in the social sciences.

Testing a single sub-set relation can be done by hand with pencil and paper. For more complex, configurational questions, such as the one addressed here, a software is used that examines the patterns in the data. The software, at heart, generalises John Stuart Mill's methods of agreement and difference, or the most similar and most different research designs used in case study research (Berg-Schlosser and De Meur 2009: 20ff.). The basic idea of this method is that for cases with similar outcomes, those (combinations of) factors that are common to the cases are contenders for causal explanation of that outcome; in contrast, factors that are present in some of the cases but not in others are apparently not part of the causal explanation and can be excluded. Conversely, where outcomes differ, those factors that are common to the cases can be excluded as potential causal factors.

The software uses Boolean algebra to reveal configurations of explanatory factors that constitute either necessary or sufficient conditions for the outcome. The following paragraphs explain the Boolean algebraic notation used, which follows the common practice developed in the QCA literature :

Upper case letters (e.g. A) are used to denote the presence (or a high value) of a phenomenon either lower case letters (e.g. a) are used to denote the absence (or a low value) of a phenomenon or the symbol ~A is used.

-> is used to indicate a (posited) causal connection between conditions and outcomes
The multiplication symbol * is used to indicate logical AND
The addition symbol + is used to indicate logical OR

Example: The Boolean expression A * b + C -> X can be read as: There are two causal configurations that imply/lead to X: either the presence of factor A AND the absence of factor B, OR the presence of factor C.

The expression A*B*C + A*B*c -> X can be simplified through what is called Boolean minimisation (following Mill's method of agreement) to A*B -> X. This is because X is always found, in the sample considered, in the context of the simultaneous presence of A and B, but in some cases C is present in others it is absent. This suggests that C can be eliminated as a causal factor.

For another interesting case (cf. Wagemann/Schneider 2010: 8f.), consider the following Boolean expression:

A*B + a*C -> X

Here there are two alternative pathways to outcome X. One requires the presence of both factors A and B, the other requires the presence of C combined with the *absence* of factor A. Standard regression analysis would consider the impact of the three factors while, in each case, holding that of the other two constant. A single coefficient on factor A cannot adequately deal with the fact that under certain conditions (namely the presence of B) it is a necessary supplementary causal factor, while in others (the presence of C) it needs to be absent for the outcome to occur. For instance, the impact of high union density on the incidence of industrial action could be very different depending on the ideological orientation of the government in power. High union density might be associated with above-average strike activity when the political Right is in power, but below-average rates of industrial action when a Left-wing government, perceived to be well-disposed towards union interests, is in power. Well-designed QCA analyses can pick up such causal complexity.

Indeed a frequent finding in QCA analysis is that a condition is "INUS" (Schneider/Wagemann 2012: 79ff. and the literature cited there). INUS stands for a condition that is in itself insufficient, but it is a necessary contributor to a causal configuration that is unnecessary but itself sufficient". This is for example true of factor A in the expression we encountered above: A * b + C -> X. A is clearly not sufficient for outcome X by itself: it needs to be combined with the absence of b. When it is so combined it is not necessary (because C is an alternative pathway), but it is sufficient. This is typical of the sort of causal complexity that social sciences are confronted with.

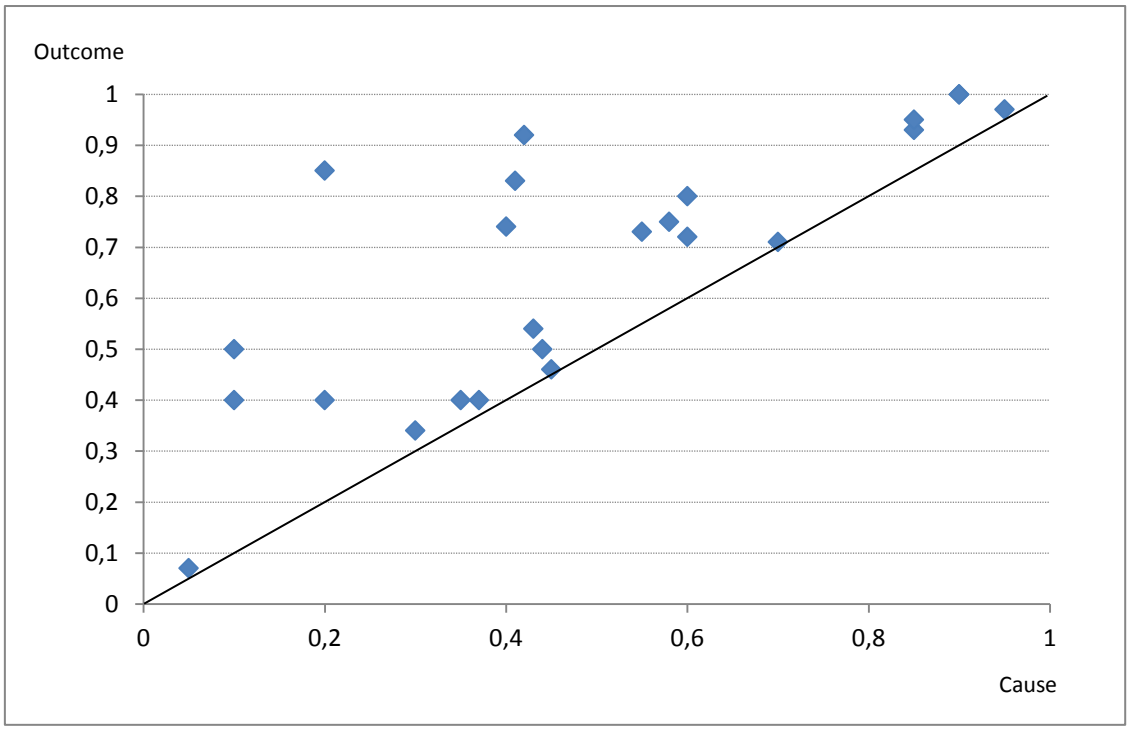
5.1.1 Shades of grey: fuzzy set QCA

In the examples discussed so far, cases are coded in a binary way: either in or out of a set – democratic or not, peaceful or belligerent. Clearly this limits the range of issues that can be suitably addressed by QCA. Many variables – per capita income is a good example – are continuous over a wide range: it is not easy to justify a plausible cut-off between rich and poor. Concepts such as democratic and peaceful can also be considered matters of degree rather than simple binary issues. Moreover, if poverty is hypothesised as being a causal factor behind military belligerence, one might expect the likelihood of belligerence to increase steadily as poverty increases. Non-linear relationships are also conceivable. In any case, the degree or level of outcomes and potential causal conditions is clearly important for analysis. The methodological innovation known as fuzzy set qualitative comparative analysis – fsQCA, the seminal text is Ragin 2000 – enables such continuous variables to be incorporated into QCA analysis. It is this innovation, permitting much richer research designs and more sophisticated causal analysis, that has undoubtedly led to the considerable increase in the number of QCA-based studies in the social sciences.

The term "fuzzy set" means that the cases are coded not simply as being in or out of a set, but in terms of *degrees of membership* of a set (e.g. the set of rich countries). The fuzzy set range is from zero (full non-membership) to one (full membership). Obviously this relativises also the claims regarding causal links. Rather than establishing a simple binary sub-set relationship, as with the so-called crisp-set (CS) QCA, the subset relation, and thus the claim of causal sufficiency, is established when the membership scores of the cause are, for (almost) all cases, lower than or equal to that for the outcome (Ragin 2000: 237).[113] Consider Figure 5.1 which plots (hypothetical) scores for an outcome and a cause or causal configuration. Such a distribution would be supportive – assuming there is a plausible theoretical link – of the claim that this is indeed one cause of the outcome: there are no cases in which a high score for the cause is associated with a low score for the outcome (i.e. no cases below the 45 degree line). The cases that are close to, but above the 45-degree line are those for which also a correlation analysis would point to a strong causal link. Note, however, that the data point in which the cause scores low (0.2) but the outcome is strongly present (0.85) does *not* weaken the argument of causal sufficiency in QCA: the reason is the presence of alternative causal factors or configurations. In contrast the existence of such a finding would weaken the causal (strictly: correlational) link as identified by regression analysis.

[113] In fact this is exactly the same principle as applies to crisp sets. Here the subset relation is given if, wherever the cause (or causal configuration) is scored 1 (present), the outcome is also scored 1, and (almost) never zero. Where the cause is absent, it is irrelevant whether the outcome is scored one or zero. In other words, with crisp sets, too, the condition is that the causal score is less than or equal to the outcome score (Schneider/Wagemann 2012: 66f.).

Figure 5.1
Illustration of sufficiency in QCA



Just as with crisp sets, necessity is the mirror image of sufficiency. This would be revealed by a concentration of (almost) all cases in the bottom-right half of an X-Y diagram like figure 5.1.

The use of coded fuzzy sets allows for degrees to which a given characteristic is present, rather than forcing a researcher to allot cases based on a simple coordinated/uncoordinated dichotomy and to this extent there is a similarity to regression analysis. An important difference, however, is that QCA codings are theory driven and not purely quantitative along an unlimited scale. This aims to take account of the fact that certain variables may be expected, on the basis of existing theoretical or empirical knowledge, to have no impact below a certain threshold value while, conversely, there may be no increase in effect above a certain ceiling. Regression analysis, by contrast, usually assumes a linear and open-ended correlation. This makes QCA potentially more appropriate for complex institutional analysis. There is a corresponding drawback, however: the need for more hands-on coding can raise difficult issues of appropriate selection and opens the door to (conscious or unconscious) manipulation. An important requirement of QCA analysis is therefore rigour and transparency in coding choices (Ragin 2009: 118, Wagemann/Schneider 2012: 277); this is addressed in the following section. Similarly to using different model specifications in a regression analysis, multiple fsQCA analyses can be run using different parameters and codings to test for the robustness of findings. Also, interesting individual cases (e.g. outliers, apparent anomalies) can be identified in the course of analysis and

these cases can be discussed in more detail. The former of these two approaches is adopted in this study with a view to obtaining robust results.

Boolean algebra is also applied to fuzzy sets. In this case logical AND (the joint presence of two or more causal factors) is operationalised by taking the *lowest* of the scores of the causal factors being considered. Thus if a country scores 0.7 in the set of democratic countries and 0.3 in the set of wealthy countries, it is accorded 0.3, the lower value, in the set of countries that are both democratic and wealthy. By contrast, if two or more causes are seen as alternatives (logical OR), it is the highest of the scores that is recorded; i.e. the case is measured against the feature in which it "performs best". The intuition is that given that there are two or more alternatives all but the one on which the case is scored highest can be ignored.

An important implication of combining causes into causal configurations needs to be borne in mind. As we have seen, the score for the configuration is based on the lowest-scored of the individual causal factors. Purely mathematically this increases the chance of the configuration being a considered a sub-set of the outcome and thus potentially being seen as a sufficient causal configuration. However, a complex configurational set with many causes will have a small number of members and is thus likely to explain (i.e. be sufficient for) a smaller proportion of the cases in which the outcome is present. In QCA analysis this property is called "coverage". In the limit the results of sufficiency analysis become trivial.[114] This degree of coverage is therefore very important for interpreting the results and is reported by the QCA software.

In addition to coverage, the issue of "consistency" is also important. This is analogous to the idea of "goodness of fit" in regression analysis. In the real world, data are noisy and in many cases likely to be mis-measured. For these reasons, it would be surely wrong to reject a causal condition as being a sufficient cause if, in Fig. 5.1 above, one data point, say, was slightly below the 45 degree line. However, if a substantial number of points were below the line, and to a sufficient degree, that claim of sufficiency would not be sustainable. Clearly this begs the question as to how many "exceptions" can be in the data, and how far away from the 45 degree line they can be, while still permitting the researcher to conclude that there is a valid sub-set relation. In QCA this concept is measured by the concept of "consistency". For an intensive discussion of this concept see Ragin 2006 and chapter 5 of Schneider/Wagemann 2012. For present purposes the above statement of principle will suffice; consistency outcomes are indicated by the software and will be discussed in the course of the empirical analysis.

The necessary steps for conducting a "good-practice" fsQCA analysis can be summarised as follows (this overview draws on Ragin 2009, Wagemann/Schneider 2008, Wagemann/Schneider 2012: 275ff.; for examples of QCA studies in related fields to this work see Theodoropoulou 2008, Ochel/Rohwer 2009, Epstein et al 2008):

[114] Schneider/Wagemann (2012: 64) give an amusing illustration. It is true that a sub-set of the set of „stable democracies" can definitely be constructed by combining countries that are small AND rich AND located in the heart of Europe AND with a long democratic tradition AND called Switzerland. But this combination „explains" just one case and is as such not especially helpful.

1. Establish (and justify) the population of cases. Generally it is advisable to include all the cases that are relevant to the argument at hand and for which reliable and comparable data is available. Given the importance of case-specific knowledge, however, there is less of a premium on maximising the number (N) of cases than with regression analysis.
2. Draw up a list of explanatory factors, inspired by theoretical considerations, hypotheses to be tested or heuristic interest, that can reasonably be expected to be able to be classified into either crisp or fuzzy sets on an objective basis.
3. Code the cases in terms of both outcomes and the explanatory factors, by assigning each case membership or not in a crisp set, or a membership score in fuzzy set, for the outcome and each explanatory factor. This coding is done actively, but also transparently and is driven by theory or in the light of other empirical findings. Key in the case of fuzzy sets is the establishment of appropriate threshold values for complete non-membership of a set (which are then coded zero), full membership (coded 1), and the point at which membership is most ambiguous (coded 0.5). In this study this is done twice for country-case in each period: once using threshold values that are kept constant across the three time periods ("time-invariant"), and secondly using values selected with a view to the distribution in each period ("time-varying"). Country-cases are then assigned numerical values between 0 and 0.5 and 0.5 and 1. This calibration has an "active" component – distinguishing useful and not useful variation by selecting the three threshold values, and a passive component: the interim values are calculated mathematically from the raw data. This is done using the fsqca software (the mathematics of the transformation is explained in Ragin (no date) and Hudson/Kühner (2009: 37).
4. Based on the codings of conditions and outcomes for the population of cases considered, which can be summarised in a matrix, the findings regarding the conditions and outcomes are summarised in a so-called truth table. The rows of the truth table consist of all the logically possible combinations of factors; there are thus as many rows in the original matrix of cases as there are cases, but there are 2^k rows in the truth table, where k is the number of conditions. The outcomes are also entered. Any contradictory rows – where the conditions are the same, but the outcomes differ – are identified. The fsQCA software is used to identify configurations of necessary and sufficient conditions, for the outcome in question by means of Boolean minimization (the so-called Quine-McCluskey algorithm). Each case (country) belongs to one causal configuration, and one only.[115] The test of sufficiency is whether the case's membership of the causal configuration set is smaller or equal to that in the outcome set. Choices need to be made by the researcher concerning any contradictory cases and also causal configurations that, while possible in theory and listed in the truth table, are not encountered in the data set (so-called logical remainders[116]).

[115] It is that single configuration in which its membership score is highest. For mathematical-logical reasons – explained in Ragin 2000, 2009 and Schneider/Wagemann 2012: 96ff. – there can in fact only ever be one configuration in which that score is above the 0.5 threshhold. In other words each case is umambiguously assigned to one of the 2^k possible combinations of the presence and absence of the k conditions.

[116] Remainders occur arithmetically whenever the number of cases is smaller than 2^k, where k is the number of causes. They can be "impossible" (a contradictory set of causes given real-world condtions) or "clustered" (due to causal relations between the putative causes). For a discussion see Chapter 6 of Schneider/Wagemann 2012.

5. The resulting causal configurations are analysed with respect to the different cases (countries) that are explained by the different pathways. The process can be repeated with alternative specifications in the light of the results to test for robustness. Causal conditions can be extended to improve the consistency of the results, but there is a trade-off with coverage, that requires discussion. Specific cases can be subsequently analysed with more fine-tuned, qualitative methods.

5.1.2 Appropriateness and limitations of QCA analysis

To conclude this section we discuss the appropriateness of QCA methodology for the analysis of our research questions.

QCA methodology is particularly suitable when the number of cases is relatively small compared with the number of explanatory variables; this is the case given that the unit of analysis is (OECD) countries. In particular, where it is alternative causal configurations – rather than identifying linear coefficients on single explanatory variables while holding other causal factors constant – that are of prime interest, the methodology comes into its own. The concept of equifinality, key to QCA, is highly relevant to my research question, which examines competing but non-exclusive explanations for labour market outcomes. These factors make QCA an appropriate tool to enable the hypothesis of the role of demand and its interaction with wage setting to be tested in a rigorous, comparative way, in competition with, but not to the exclusion of, approaches centred on LMIs.

A number of weaknesses or limitations of QCA should, at the same time, be mentioned and borne in mind. An important one is that it cannot, without modification, deal with causal processes that extend over longer periods of time (Caren and Panofsky 2005; Schneider/Wagemann 2012: 263). This can be potentially an issue for the institutional variables discussed here, whose impact may extend over an extended period. However, this is an issue also facing approaches such as regression analyses. Just as there, it is possibly to introduce lagged variables but this requires a model for estimating lag lengths; for such work QCA is not well suited. Instead rather long (eleven-year) period averages are used here. As noted already, QCA requires a rather hands-on approach to coding the data, as decisions have to be taken at various stages. There are two solutions to this. One emphasised in the QCA literature is absolute transparency about the choices made (e.g. Schneider/Wagemann 2012: 278ff.); the choices made in the course of this analysis are described and justified as far as possible in the next section. In particular the robustness of the scorings on the wage coordination indicator is tested. The other, which to my knowledge is not a common feature of QCA analyses in the literature, but is also adopted here, is to test robustness by performing a rather substantial number of QCA analyses using slightly different specifications to check for the consistency of results. A third strategy – to complement QCA with other analyses, especially more in-depth case studies – is left for further research.

5.2 Data selection and collation and the construction of fuzzy sets

This section describes the process of selecting and collating data, constructing indicators for variables of interest, and the setting of threshold values for full membership, full non-membership and the cross-over point of the relevant fuzzy sets. It draws attention to the compromises necessary in some cases and to some data availability issues, and offers justifications for the choices made. A table at the end of the section summarises the datasets and the three critical threshold values for each time period.

5.2.1 Outcome variables

Two measures were initially proposed and calculated to assess labour market performance (c.f. Theodoropoulou 2008: 62ff.). The average level of unemployment (the standardised unemployment rate "urate") and the annual average percentage-point change in the unemployment rate over the period considered ("uchange"). Both levels and changes can serve as useful pointers to periods of good performance. Focusing only on changes penalises countries with low initial rates compared to those that start a given period with high rates. They are sensitive to cyclical developments and details of the periodization to which undue importance should not be attached. Levels provide a better indication of longer-run performance, but may obscure significant medium-run changes: a country's rate may be high in international comparison but a fall of, say, five percentage points over the twelve-year periods considered, is noteworthy and may well reflect institutional or policy changes. Level comparisons may also be misleading to the extent that there are – "standardised" data notwithstanding – country-specific reasons affecting reported unemployment rates that reduce its value as a comparative indicator of labour market performance.[117]

These two measures were combined into a composite measure of good labour market performance using logical OR ("uperf"). In other words, either a low unemployment rate or a substantial improvement constitutes labour market success in the period under consideration; The data source is AMECO. There are no data gaps.

For reasons discussed in the next section, as part of the "back and forth" between QCA analysis and the data, ultimately the bulk of the analysis was conducted using the unemployment rate as the output variable.

At least from a mainstream New Keynesian perspective, the NAIRU, or equilibrium rate of unemployment (Carlin and Soskice 2006: 13), might be considered a better indicator as, conceptually, it abstracts from purely cyclical forces and "shocks", allowing us to focus on the longer-

[117] Standardised concepts used to define unemployment, such as „actively" searching for work may, be applied or interpreted differently in different national contexts. Detailed examination of this issue goes beyond the scope of this analysis. See for instance Sorrentino 2000, who concludes that there are country-specific differences, although they are comparatively minor.

run determinants. As examined in Chapter 1, and not least as shown during the recent global economic crisis, however, actual measures of the NAIRU prove to be little more than moving averages of the actual rate. To the extent that it is actual unemployment that determines the measured NAIRU, rather than the other way around, using the available estimates as an output measure is not in fact conceptually preferable, especially given that we are looking at period averages. In addition, the NAIRU estimates by different organisations vary, at times considerably, adding additional uncertainty to the measurements.

Purely frictional unemployment is important to the functioning of a market economy. Thus it does not make sense to define 0% unemployment as representing full membership in the set of countries with good employment performance. Instead a time-invariant figure of 3% is taken; this was the full-employment figure assumed by the UK Beveridge report. A figure of 10% was selected for full-non-membership in the set of countries with good labour market performance; this separates a number of particularly bad performers in the actual data and has acquired some symbolic importance (double-digit unemployment). The mid-point between them – 6.5% – is then selected as the cross-over point.

For the time-varying cut-off points, in each case the period average was taken as the 0.5 cross-over value. The 0 membership value was set at one standard deviation (SD) above, the full membership at one SD below the period mean, except where this was below 3% or above 10%, in which (two) cases, these values were used.

For the change in unemployment rates the period averages are an annual increase in unemployment by 0.32pp and by 0.25pp in the first two periods and a fall of 0.23pp from 1994-2005. Overall there is a mean increase of 0.12pp a year. For the invariant estimations we used the overall mean and cut-offs of 0.45pp above and below this, which appeared on visual examination to truncate the data sensibly. For the time varying estimates we use the period mean and +/- 1 SD as threshold values, as for unemployment-rate levels.

5.2.2 Constructing an index of liberal LMIs

Liberal labour market institutions are included in the analysis to enable potentially competing explanations to be weighed against each other. The Bassanini-Duval data set that was the basis for the 2006 review of the OECD Jobs Study, has been much used in much comparative empirical work, and already in this study (see 1.2.3.1), and has been made available by the OECD. For the entire 1970-2005 period the choice of variables is somewhat limited. The average unemployment benefit replacement rate (UBRR), the average index of employment protection legislation (EPL) are available. Only from 1983-2003 are more sophisticated unemployment benefit indicators (first year, duration, average replacement rate), and for EPL (overall, permanent, fixed-term contracts) and different definitions of the tax wedge available, as is the minimum wage as a percentage of the median. EPL and UBRR data are not available for Greece. For this

reason, and also because the scoring of Greece on wage coordination poses some problems, this country was excluded from the analysis.

Theodoropoulou (2008) uses EPL and UBRR and constructs an OR combination of the two as a measure of liberal LMIs. The justification for the OR (taking the highest value for each country in the two sets) is that either factor can insulate wage setters from the consequences of unemployment; the two are thus "functional equivalents". I also opt to construct a composite EPL/UBRR fuzzy set as this can be done consistently for the entire period, and permits consistent inter-period comparisons. I used the "eplcm" and "arr" variables, which are those used to estimate the unemployment equations. This has the advantage of ensuring comparability with other studies. In the meantime and following critiques of the OECD's EPL indicators a range of different measures has been developed. [118] However, most time series are available only for a shorter time period and the plethora of indicators makes it difficult to select the one most suited for a given analysis.

The data in the eplcm series, which is an overall measure, are in most cases virtually constant over the whole period (except for some countries – DE, SE, FI, where there is some limited change). A number of the more recently available series show greater variation, although of limited magnitude. In many cases this relates to temporary contracts, whose quantitative importance for wage-setting can probably be disregarded. Given that the research interest here is in longer-run institutional configurations, the use of these data seems appropriate.[119] We see a very clear and constant group of liberal EPL countries: US, UK, CA, IE, NZ, AS, CH. A cut-off is chosen such that all these countries are full members of the set "countries with liberal EPL". With the exception of Switzerland they are all English-speaking countries (liberal model)[120]. At the other end of the scale values are more graduated. The score for Portugal (3.89), the country with the most restrictive employment protection legislation, is set as defining full non-membership; this is slightly lower than the maximum possible value of four. The cut-offs are then 1.1 (the value for CH) for full membership, 3.89 for full non-membership, and, for the cross-over points, 2.13, 2.12 and 2.03, the average values for the three periods, and 2.10, the overall average, respectively. (The upper and lower cut-offs are in all cases just slightly below one SD from the mean.)

The second set is that of countries with low unemployment benefit replacement rates, in line with the orthodox view of the impact of generous systems in reducing search intensity and raising reservation wages, thus pushing up unemployment. The replacement rate data, in con-

[118] The data can be downloaded from the OECD website here: http://www.oecd.org/employment/emp/EPL-timeseries.xlsx/

[119] Future research could use the more recent time series while restricting the analysis to later periods.

[120] This is in line with (Wagemann/Schneider's injunction to avoid a simple normalization across a range from zero to infinity or that of Ragin (no date: 10) "to distinguish between relevant and irrelevant variation". A defensible alternative would be to single out just the US, which has a much lower score than the other six as defining full membership, in which case the other countries would each have a score close to but above zero. This is unlikely to affect the results significantly.

trast to EPL, is characterised by a lot of time variation in the data.[121] Overall there is a trend increase, which took the replacement rate up by almost 10 pp; the period averages rise from 22% to 31%. There is a clear group of high UBRR countries (DK, BE, NL) in the 1970s and 1980s; in the third period, BE drops out, merging into a group including NO, PT and FR which saw considerable further rises in replacement rates in the third period. There is considerable change in the group of low UBRR countries, but in each period there is a visual "step" in the distribution that suggests a cut-off that sets apart the countries that can be considered full members of the set with low UB replacement rates in the respective period. The period means are used for the cross-over points.

Once the epl and ubrr scores have been converted into fs membership scores, they are combined using logical OR (i.e. the higher of the two values is taken) to construct the fuzzy set of countries with liberal LMIs.

5.2.3 Openness

A variable describing a country's trade openness was created by averaging imports and exports as a % of GDP. (It is the same variable as used for the analysis in Chapter 4). There is a steady overall trend to greater openness over time. Nevertheless, simple and intuitive time-invariant cut-off points at 10% and 50% do a good job of delineating highly closed and very open economies. These are used, together with the (rising) period average as the point of maximum ambiguity, to determine membership in the set of open countries.

5.2.4 Codifying wage-setting institutions

The most difficult task in order to operationalise the concepts central to this analysis for an fsQCA analysis is selecting the "right" measure for institutions that can be seen as orienting wage-setting towards employment policy goals, or at least facilitating such an orientation. Consequently an extended discussion is necessary.

There is an extensive literature on these issues, some of which was reviewed in chapter 3 (especially section 3.3.2). Quantitative data covering most of the institutional features and indicators discussed in the literature – trade union, density, the existence of social pacts, etc. – have been brought together in the ICTWSS database developed by Jelle Visser and other researchers. This database – available via http://www.uva-aias.net/208 – provides annual data for a large number of countries, in many cases going back to the 1960s. It also includes two composite indicators compiled by leading researchers in the field of comparative wage bargaining institutions: Lane Kenworthy and Torben Iversen. It is used as the primary source of quantitative data

[121] Unlike the case with EPL, no more recent series on UB replacement rates appear to have been published by the OECD.

for this analysis. Literature cited in Chapter 3 was also used as qualitative background, as were the useful comparative overviews for EU countries at worker-participation.eu and the European Industrial Relations Observatory[122].

The problem is less a shortage of data than the existence of plethora of indicators; for a recent discussion see Visser 2013. I have opted to base the analysis on an own ("proprietary") scoring of countries in each of the three periods according to a six category ranking. The procedure is explained below, first in general terms and then for each country individually.[123] The Kenworthy index of wage coordination, as coded by Jelle Visser in the ICTWSS database, is the conceptually closest 'off-the-shelf' indicator – and thus not subject to conscious or unconscious manipulation by the present author – provides an unambiguous ranking, while offering comprehensive data coverage. Theodoropoulou (2008) is an example of an fsQCA-based approach using the Kenworthy index. At the end of this sub-section I report the result of robustness checks by comparing my scorings with the Kenworthy index and a number of other composite measures from the literature.

For my own scoring countries are allotted a score of zero, 0.1, 0.4, 0.6, 0.9 and 1 for each period. In set-theoretic terms these countries are, respectively, "fully out", "almost fully out", "more out than in", "more in than out", "almost fully in" and "fully in" the set of countries in which wage setting is considered coordinated in the light of macroeconomic parameters.

According to Ragin (2009: 90), for QCA a classification with four or six steps[124] is "especially useful in situations where researchers have a substantial amount of information about cases, but the nature of the evidence is not equal across cases." It appears to be a good compromise in the current context between, at the one extreme, a simple "coordinated/uncoordinated" dichotomy (crisp set) – which would lose substantial information – and a fully continuous fuzzy set which would suggest a degree of mathematical precision about the "quantity" of coordination at a country's disposal that is at odds with the multi-facetted nature of the concept and disagreements in the literature. I experimented with a four-step scale, but it appeared in too many cases to lump together countries in categories which the literature and data seemed to provided grounds for treating separately.

Initially an attempt had been envisaged to construct a more rigorous quantitative indicator, based on a weighted combination of indicators from the ICTWWS database. This would have had the advantage of reducing the degree of intervention by the researcher in the evaluation, which raises questions of possible (unconscious) manipulation. This attempt was abandoned,

[122] Useful comparative tools are provided by the former at: http://www.worker-participation.eu/National-Industrial-Relations/Compare-Countries/ and the latter at: http://www.eurofound.europa.eu/eiro/cwb/

[123] For valuable discussions about the codings I would like to thank – without implicating them in the choices finally made – Martin Behrens and Thorsten Schulten.

[124] Three or five-step classifications are avoided as they would result in cases being assigned the value of 0.5, for maximum ambiguity regarding set membership. In QCA this can mean that cases cannot be unambiguously classified as being characterised by a unique configuration of causal factors.

however. Weights would have had to have been accorded to the different measures: such weightings would be hard to justify.[125] Linked to this, the nature of the different indicators (some binary, others a continuous variable on a 0-1 scale) makes them difficult to render commensurate. In line with much of the industrial relations literature discussed in Chapter 3, an expert scoring was used, but one that is rooted closely in the quantitative data in the ICTWSS database.

It goes without saying that much rich institutional information is lost in any such exercise. The corresponding advantage is to permit quantitatively rooted comparative analysis over a large sample of countries and time periods. There is undoubtedly scope for disagreement on the scorings chosen. Problems can arise where substantial institutional change occurs in the middle of the periods considered, although it will be recalled that the periodisation was selected partly with a view to demarcating known periods of institutional changes, notably the shift in the early 1980s to more market-oriented approaches. It is worth reiterating at this point that QCA analysis is not the end of the analytical road. The findings it generates can be used to motivate finer-grained case studies to supplement and enrich the analysis.

The main indicators that were considered in making the evaluation were: the Kenworthy (coordination) and Iversen (concentration) indices; the existence of bipartite and tripartite institutions and the signing of substantial and lasting social pacts; the coverage of collective bargaining; and the use of legal extensions of collective bargaining. In coding countries I put a greater weight in my customised scorings on evidence that wage setting is linked to macroeconomic policy setting, in line with the hypothesis under examination. Thus I put greater store by things such as the existence of bipartite and tripartite (social and economic) councils, and also explicit social pacts, and, in relative terms at least, somewhat less emphasis – as is done particularly in the Iversen and to a lesser degree in the Kenworthy index – on intra-union coordination of wage bargaining. A justification for the codings by country is given below, whereby straightforward countries, i.e. those on which there is a consensus in the wage-bargaining literature, are dealt with cursorily, more complex cases at greater length.

Description of codings by country

Australia (AS)

During the 1960s and 1970s Australia had a wage-setting system not dissimilar to that of many western European countries: moderately high rates of coordination and centralisation, industry level bargaining prominent with considerable use of extensions, but no permanent macro-level (bi- or tripartite) councils, with unions (not confederations) in a strong position vis-à-vis companies. From the early 1980s to the early 1990s there followed – in direct contrast to a number of European countries – a corporatist phase: much stronger government intervention and shift up in bargaining to the national level, supplemented by sectoral agreements. A tripartite council

[125] See also the discussion in the box at the end of this sub-section of the paper by Schneider et al (2014) which takes this "mechanical" approach.

and a social pact were introduced. The centralisation and coordination indicators rose markedly. From the early 1990s the system was fairly radically liberalized. Bargaining shifted to the sectoral level and much greater leeway for firm agreements: extensions were stopped in 1997 and unions' influence over companies declined. Corporatist institutions (council, pact) were abolished. Collective bargaining coverage started to fall sharply in the late 1990s. The Kenworthy (2) and Iversen indices (0.4) fell to substantially below the first (pre-corporatist) phase.

Australia is scored 0.4, 0.6 and 0

Austria (AT)

Austria is the prototypical coordinated and – certainly into the 1980s – also highly centralised wage-setting system. It scores the highest or close to the highest scores on virtually all the indicators encountered in the literature. The country exhibits features of long-term corporatism (such as bipartite and tripartite councils), collective bargaining coverage has always been very high, above 95% and even increased to virtually complete coverage during the 1980s. At the same time the bargaining locus has moved from sectoral with macroeconomic elements, to sectoral with greater scope for company dissension. The confederation's (ÖGB) grip on wage setting remains strong, while that of affiliates has declined somewhat. Both the Kenworthy and Iversen measures agree in declining somewhat from the highest to merely high values, although for the former 'coordination' the change came already in the 1980s, whereas for the 'centralisation index, the weakening of central authority came later, in the mid-1990s.

Austria is scored a full member (1) in all periods.

Belgium (BE)

Most traditional institutional corporatist features are maintained rather constantly over long periods. They include heavy use of legal extensions, permanent tri- and bipartite councils, high CB coverage (almost universal since the 1980s) and confederal involvement in affiliates' wage setting. An exception was a brief period in the late 1970s in which bargaining was forced down to sectoral level, national central agreements stopped; this was offset by greater direct government involvement in wage setting, however. The mixture of centralised agreements and government bargaining leads to consistent scores between 4 and 5 on the Kenworthy index. The Iversen centralization index is stable, at moderately high levels.

Belgium is scored a full member (1) in the first period and almost a full member (0.9) subsequently.

Canada (CA)

Canada is an interesting case in that its annual values scarcely change at all over the entire fifty year period for which data is available. It is a liberal model, with decentralised collective bargaining. Collective bargaining coverage went up from the low to the high 30%s during the 1970s and 1980s. There was a very short phase of direct government involvement in wage set-

ting 1976-78, and a slight increase in sectoral rather than company bargaining in the 1970s. No lasting corporatist institutions exist. The Kenworthy index is consistently 1 (except 76-78) and Iversen consistently low: 0.25-0.3.

Canada is firmly in the liberal camp as far as wage setting is concerned. For periods two and three it can indisputably be considered completely out of the set of countries with coordinated wage bargaining (0); the interventionist phase during the first period was limited to just three years, but this was clearly an attempt to respond the macroeconomic shocks of the time. Given this a marginally higher score, 0.1 would seem justified in the first period.

Germany (DE)

In terms of bargaining level, the German case is a rather stable mixed sectoral/national system, with dominance of the sectoral level. The limited number of unions and the principle of one-plant-one-union have traditionally favoured substantial wage coordination, notwithstanding the only marginal role of the peak organisation in setting wages. The legal extension of collective agreements used to be an important feature in some branches, but has declined sharply more recently (Schulten und Bispinck 2013). Normally government intervention is limited to framework setting (without standing social partner councils). However, the period from 1998-2001 saw, formally at least, more hands-on government involvement in wage setting under the *Bündnis für Arbeit*, with an explicitly orientation towards employment creation. The years since the early 2000s have seen a weakening of sectoral coordination: union control over sectoral bargaining has weakened substantially, the collective bargaining coverage rate has fallen by almost 10 pp. since the mid-1990s, and the importance of company derogations has increased. German unification has played a role (with companies in the eastern part of the country swiftly opting out from sectoral agreements in the wake of the transformation crisis of the early 1990s). Legal extensions declined steadily since the early 1990s, applying to less than 2% of collective agreements by the mid-2000s.[126] A persistent and substantial wage drift between union-negotiated and average effective wage increases opened up as did, related to this, sectoral differentials (Ludwig 2013). Kenworthy's index is a constant 4, the Iversen index is only slightly above the average, fairly constant in the low to high 0.4s.

It is uncontroversial to accord a scoring of 0.9, 0.9 in the first two periods. The more recent period is more difficult to evaluate. Many observers identify a substantial erosion of the German industrial relations model. Arguably this was concentrated towards the end of the period, however. The impact of the *Bündnis für Arbeit*, on the other hand, is controversial (Alt/Nehls 1999) and in my view should not be overstated. My overall assessment is that there has been a significant weakening in coordination capacity in the third period, even if this does not show up in the two main indices. I have opted for a scoring of 0.6.

[126] Here I have exceptionally departed from the ICTWSS scoring, which seems to me inaccurate; cf. Schulten/Bispinck 2013).

Denmark (DK)

Denmark has seen a fair amount of change over the years in some institutional aspects, but not others. What has stayed the same is a rather high bargaining coverage (80% or more) and the corresponding absence of extension clauses. Until the early 1980s the system was predominantly national/centralized (Kenworthy: 5) with some sectoral bargaining. From then on the sectoral level became more dominant and indeed in the 2000s the company level has gained in importance; at the same time a central agreement on wages was applied, so that it is hard to speak of a simple and pronounced decentralisation trend. The Iversen measure came down from high values around 0.6 in the 60s and 70s to 0.5 since, with a slight declining trend.

Denmark is scored 1 in the first and 0.9 in the two subsequent periods.

Spain (ES)

Spain exhibits rather uneven developments over time, on some indicators at least. Emerging from dictatorship, the country had a highly statist system, with direct wage setting in the 1960s and substantial direct involvement into the 1980s. In the wake of democratisation national agreements and social pacts were widely used (every year from 1977-1985).But from 1986/87 the system became progressively less coordinated/centralized. The industry level became the dominant one, supported by legal extensions. From 2002 a renewed attempt was made to use national agreements (causing the Kenworthy index score to rise from 3 to 4). A tripartite council had been set up back in 1990. Collective bargaining coverage is high (80% in the 1980s and late 2000s, over 90% at the end of the 1990s and early 2000s). Interestingly Iversen's index shows a slow but very steady increase in his centralisation index. Overall, while Spain is clearly an intermediate case, coding is not entirely straightforward given shifts in indicators different directions.

Still, an overall trend, of a movement from a more state-centred, to a more liberal, followed by greater attempts at coordination, can be made out, and a 0.9, 0.4, 0.6 coding seems plausible.

Finland (FI)

There is some short-term variation in the ICTWSS scores, but over the medium-range periods considered here essentially a stable, coordinated system emerges with: a mix of sectoral level and macroeconomic elements, the consistent use of legal extensions (a feature that distinguishes it from other Nordic countries) and macro-level wage agreements, a tripartite council. Collective bargaining coverage, always high, increased steadily and from the mid1990s has been over 90%. Kenworthy's coordination index oscillates between 3 and 4, the Iversen index is average at around 0.4. Interestingly the period around and after the 1990 crisis seems to have been one of greater coordination and centralisation. It is noteworthy that the system had been very highly centralised until the start of the 1970s: the decentralisation to sectoral level was accompanied by simultaneous greater use of collective bargaining extensions. Finland exhibits very high levels of wage coordination in the sense of having the capacity to be targeted in a conscious way to-

wards employment-policy requirements, despite the fact that bargaining is not centralised, thanks to the important role played by the other measures cited (tripartite councils, extensions, high and rising bargaining coverage).

Finland is scored 1 in the first and 0.9 in subsequent periods.

France (FR)

The country exhibits, consistently over the decades, a rather low level of coordination, based on a mix of industry and firm level bargaining with extensions. There is indirect state involvement in wage-setting through the relatively high minimum wage and large public sector, which, directly and indirectly, sets wages for a substantial proportion of the workforce; these factors are not assessed by the ICTWSS data or the two indices. Collective bargaining coverage was high in the 1960s and 1970s and very high since then. Very sporadic hands-on state involvement occurred in 1976 and 1983 – in response to the two oil-price shocks. No bipartite council, but always a tripartite one. The Kenworthy index is consistently at 2, Iversen exhibits a consistently low score close to 0.2. Overall France is in a stable, intermediate-low position.

France is scored consistently 0.4.

Ireland (IE)

Ireland presents an interesting case with a great deal of institutional change over time. The 1960s, not explicitly part of this analysis, had been a very liberal regime. In the 1970s attempts were made at introducing more macroeconomic bargaining, but these were highly sporadic, somewhat as in the UK. The early 1980s saw a return to the liberal model. However, in sharp contrast to the UK, the period 1987-2008 saw the establishment of social partner model, involving highly centralised wage agreements, and strong government involvement in what can be described as a semi-permanent and institutionalised social pact; the Kenworthy index is consistently at 5, its maximum level. Meanwhile collective bargaining coverage rose, plateauing at around 60% before declining considerably in the 2000s. Iversen's centralisation index also increased significantly during this period, but was still only around 0.5 in the 1990s and 2000s.

The shift in 1987, the middle of the second period from a very liberal to a very coordinated model complicates coding in the second period somewhat, but steadily rising scores of 0.1, 0.6 and 1 best convey the institutional development.

Italy (IT)

Italy shows a somewhat mixed picture on different indicators. The Kenworthy index puts Italy at level 2 until 1991, from then on at 4. Iversen also sees an increase from 0.3 to 0.35. This assessment seems to be based on a shift up in the bargaining level to sector, or, more precisely, the reduction in company level derogations. The binding power of both confederations and union affiliates is moderately high and constant over time. Collective bargaining coverage has very slowly eroded from 90% but remains very high at around 80%. There is no on-going state ex-

tension of collective agreements. However a notable feature is the repeated use of use of more state-led corporatist solutions: 1976-1979, again in 1983-85 (which weakened pay indexation) and in 1993. These pacts were in each case a response to crisis and as such clearly had a macroeconomic focus. However, the fragmented nature of both Italian politics and the trade union movement meant that such features were fragile and short-lived entities.

What is certain is that Italy is to be considered an intermediate case; arguments can be made for it being slightly above or below average in different times. Italy is scored 0.4 in the first and third period, and 0.6 in the intervening period.

Japan (JP)

Japan is a case in which the opinions of scholars differ (Kenworthy 1996: 506). Here we tend towards Kenworthy's view that Japan has a de facto more coordinated system than is picked up by institutions on which (western) observers focus (see also Traxler et al 2001: 237). The standard indicators tend to be low, i.e. 'liberal'; there are neither bi/tripartite councils nor agreement extensions. Collective bargaining coverage is low and steadily declining since the late 1970s, while Iversen's centralization index is very low, although rising. However, features such as the dominance, until comparatively recently, of wage-setting in the very large corporations and the coordination of bargaining by inclusive employer federations around the Shunto or Spring Offensive are noteworthy. As such, Kenworthy's indicator is set at 4 until 1996 and 3 thereafter. Cf. Switzerland below.

Japan is scored 0.6 in all periods.

Netherlands (NL)

The Dutch economy is a well-established corporatist social and economic model (e.g. Hartog/Leuven/Teulings 2000), characterised by longstanding use of bipartite and tripartite councils and consistently high CB coverage in excess of 80%. Collective bargaining was rather closely coordinated primarily via sectoral level agreements until the early 1980s. Subsequently, periodic social pacts (Wassenaar etc.) 83/4, mid90s and early/mid 2000s ensured a high orientation towards macroeconomic needs even as bargaining has incorporated more decentralised elements. The Iversen index is rather high (0.5-0.6) and stable as is the Kenworthy index (at around 4). Hartog/Leuven/Teulings find only marginal differences in wage outcomes between firms covered and not covered by collective bargaining which "fits an analysis of a corporatist system where unions are not seeking profile as aggressive local rent seekers" (2000: 12). We can confidently consider the Netherlands a paradigmatic case of highly corporatist wage setting.

The Netherlands is scored 1 in the first period and 0.9 subsequently.

Norway (NO)

Norway is traditionally seen as representing the centralised corporatist model, particularly in the early decades. Bipartite and tripartite councils are a permanent feature. There is no use of exten-

sions, rather framework national agreements play an important role. This was punctuated by a brief more 'liberal' phase (1982-86) without national agreements. Norway achieves consistently high scores on all the usual indicators (including Kenworthy and Iversen), except for extensions. Collective bargaining coverage is not especially high, although increasing somewhat over time.

Norway is scored 1 in the first period and 0.9 subsequently.

New Zealand (NZ)

New Zealand constitutes an interesting case with marked changes in regime. Until 1986 it represented a highly centralised model. Within a few years a radical neoliberal model was established. Bargaining was decentralised at company level, legal extensions reduced, government involvement reduced. Collective bargaining coverage, which had been around 70% declined drastically from 1990. The country never had a corporatist tradition (no bi- or trilateral councils or national agreements). These trends make New Zealand a paradigmatic case to contrast with that of Ireland (cf. Glyn 2006).

New Zealand is scored 0.9 up until 1982, falling rapidly to 0.4 in the second (the drastic regime shift came some years into that period) and zero in the final period.

Portugal (PT)

Against the background of a generally low degree of coordination, Portugal exhibits greater short-run fluctuations in the indicators than for instance in Spain, making developments somewhat hard to interpret. Notable is the frequent use of social pacts, in the run-up to EMU but also subsequently and in the second half of the 1980s. The Iversen indicator rises slightly from a lowish level of 0.3 to 0.35. The Kenworthy index has a 'noisy' series, oscillating between 2, 3 and 4. Collective bargaining coverage seems to have peaked in the late 1990s at almost 90%.

Despite the short-run volatility and contrary developments in specific indicators, Portugal is clearly a case of low-intermediate coordination throughout the period and is scored 0.4 in each sub-period.

Sweden (SE)

Until around 1982 Sweden was a highly centralised system based on bilateral national-level agreements with limited government involvement (Kenworthy: 5). No extensions were applied, nor were they necessary. Both a bi- and tripartite council existed until 1990 when both were scrapped; the former was reinstated in 1996. The system was decentralised to some extent in the rest of the 1980s, although more centralised mechanisms were briefly re-established in the wake of the deep 1990 economic crisis. This was short-lived though: since 1995 the system has been industry based with some limited scope for company bargaining (Kenworthy: 3). At the very end of the third period 2004 a national agreement applied. Collective bargaining coverage was high (around 85%), from which level it rose further, to 94% during the third period. Sweden was unambiguously highly coordinated in the heyday of the Keynesian Swedish model, with a

conscious wage policy a cornerstone of a model designed by two economists, Rehn and Meidner, with strong links to the trade union movement. However, there was considerable fracturing in the neo-liberal period, while nevertheless, in OECD comparative terms, remaining a relatively coordinated system and subsequently showing some signs of a move back towards greater coordination.

Sweden can be scored 1 for the first period, 0.6 in the intervening era, returning to 0.9 in the third period.

Switzerland (CH)

Switzerland constitutes a puzzling case in terms of the ICTWSS indicators. On the face of it all the institutions seem liberal: there are no extensions, no bi- or trilateral councils, and the country records the lowest level of government involvement. The Iversen index broadly follows this, with slightly below average figure 0.35 falling then below 0.3 in the 90s and 2000s. Collective bargaining coverage is moderate, but stable around 50%. On the other hand, until 1995 Switzerland scored a steady 4 on the Kenworthy scale, subsequently 3. The reason for this lies in an unusual fact, namely that the wage coordination occurs largely through "encompassing, cohesive *employer* federations" (Kenworthy 1996: 506; emphasis added; see also Traxler et al. 2001: 237)). In this Switzerland resembles Japan.

Consequently Switzerland is scored 0.6 in all periods, as was Japan.

United Kingdom (UK)

The UK resembles the New Zealand case. It had a largely liberal industrial relations model in the 1960s, supplemented by sporadic attempts at government intervention from the mid-60s to end of the 70s. However, these had shallow, if any, roots because corporatist institutions remained weak and the trade union movement had a long and proud tradition of fragmented, craft-based, localised organising and, with some exceptions, bargaining. Bargaining initially remained primarily company-focused, with some role for sectoral agreements. Only briefly, between 1975 and 1979 were more macroeconomic-level wage bargaining schemes and a form of social pact tried under the Labour government, explicitly oriented towards curbing inflation without raising unemployment. Since 1980 the UK has had an entirely uncoordinated system (Kenworthy=1, Iversen=0.1). Collective bargaining coverage was moderately high until 1980, then fell precipitously (from around 70% to 32%).

The scoring for the UK is 0.4 for the first period and zero for the two subsequent periods.

United States (US)

The US has had over the entire period considered an almost entirely liberal system, the only exception being brief but forceful government intervention under Nixon in 1972-3. There are no corporatist institutions whatever. (Kenworthy=1, Iversen=0.1). Collective bargaining coverage

has traditionally also been low, around one third, and by the mid-2000s was down to just 13%. Clearly we have no difficulty in ascribing the value zero to the USA in all periods.

The country codings on the six-point wage coordination scale are summarised in Table 5.1:

Table 5.1
Fuzzy set wage-coordination scores

	1970-1981	1982-1993	1994-2005
AS	0,4	0,6	0
AT	1	1	1
BE	1	0,9	0,9
CA	0,1	0	0
DE	0,9	0,9	0,6
DK	1	0,9	0,9
ES	0,9	0,4	0,6
FI	1	0,9	0,9
FR	0,4	0,4	0,4
IE	0,1	0,6	1
IT	0,4	0,6	0,4
JP	0,6	0,6	0,6
NL	1	0,9	0,9
NO	1	0,9	0,9
NZ	0,9	0,4	0
PT	0,4	0,4	0,4
SE	1	0,6	0,9
SZ	0,6	0,6	0,6
UK	0,4	0	0
US	0	0	0
Simple ave	0,65	0,58	0,55

Source: Own assessment; see text for details.

It is noteworthy that the (simple) average of coordination capacity in the sample countries declines steadily across the three periods. Implicitly, coordination capacity is being compared against a notional scale that is time invariant. For the time-varying specification, as an approximation, an adjustment was made by dividing the scores by the period mean and multiplying by the whole-period mean.

As the measurement of coordinated wage bargaining is both crucial for the research design and clearly open to some interpretation, it is important to establish the robustness of the results to plausible variations in measurement. The box reports a robustness-check exercise with respect to this variable. It is shown that the correlations between the assessments used here and figures used by other authors for subsets of the countries and time periods are generally rather high. This inspires confidence that the results of the QCA are not highly sensitive to the specific codings of the wage coordination variable compared to others that could be justified with respect to the literature. At the same time weaknesses were also identified in some of the codings used by other researchers that, it may be hoped, are resolved here.

The wage-coordination scoring: a robustness-checking exercise

In order to guard against the danger that the proprietary wage-coordination indicator used in this study might be (consciously or even consciously) biased, I tested for correlations between this scoring and a number of potential alternatives. The table at the end of this box summarises the R^2 values between alternative indicators and my scorings in the closest comparable period for as many countries as possible.

It is seen that, with one exception, the correlations are high given, to different degrees, the small number of countries, the unavoidable differences in time periods compared and the non-discrete nature of the values being compared.

The Kenworthy index was described in some detail earlier in the text. It was an important reference in deriving my customised scoring. The Kenworthy index is, though, not actually a scale but describes discrete types of wage coordination, albeit ranked in such a way as to reflect an increasing capacity to coordinate wage setting according to theoretical conceptions. The correlation can be done for virtually all the countries and the periodisations are directly comparable. In all three periods the two data sets are seen to be highly correlated (with R^2 around 0.78). By way of illustration the scatter plot of the second period is presented, showing the way that the discrete scorings have the effect of reducing what is a very clear positive correlation (the Kenworthy scores are often not integers because of averaging values across the period).

Schneider et al. (2014) construct a corporatism indicator as a simple average of seven variables taken from the ICTWSS database, each re-scaled to the interval 0-1. It is particularly interesting to use this composite as a comparison, because these authors have used the same major data source that underlies my proprietary scorings, but they have opted for a “mechanical” approach to calculating the indicator.[127] The scope of the indicator is less specific than the wage-

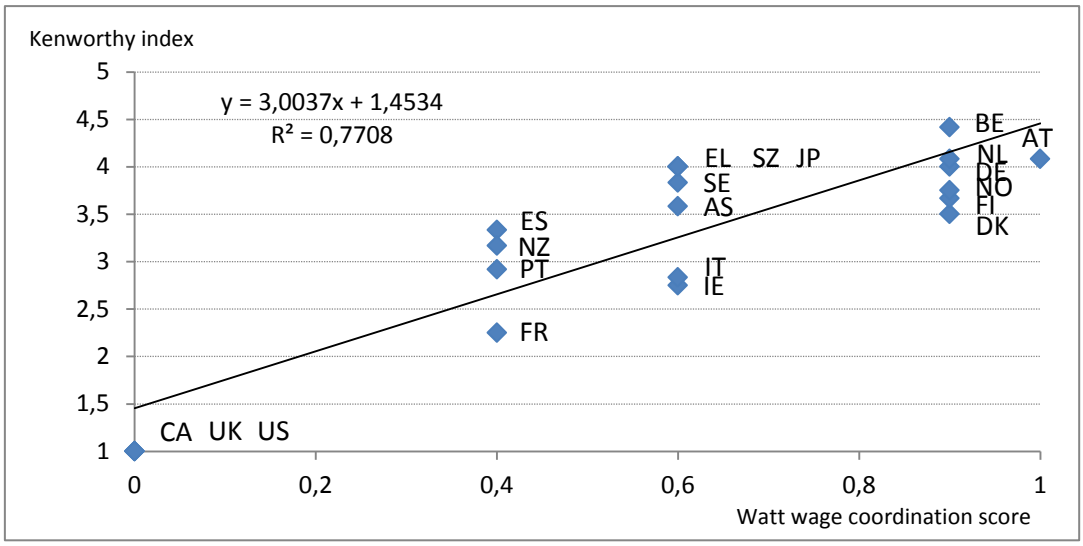
[127] The variables are the degree of external demarcation between union confederations, centralisation of wage bargaining, the share of employees covered by wage bargaining agreements, whether (nation-wide) agreements between employer and employee representatives have been reached in the specified year), the scope of social pacts (i.e. formal contracts over social concertation procedures), the veto power of union confederations over labour unions with respect to strikes, and the scope of wage clauses. I am grateful to one of the co-authors, Florian Wakolbinger, for a useful exchange about this paper.

coordination focus in my analysis; the authors refer to a national system's "institutions of conflict management" (so the title of their paper).

Correlation analysis between my third-period expert scoring and the values calculated by Schneider and his co-authors for the fifteen countries covered by their study for the period 1990-2011 is fairly high (R^2 0.67), although not as high as with the Kenworthy index. Partly this may reflect the rather different time periods (which in their case, notably, include the crisis) being compared. As noted, the scope of the indicator is broader than wage coordination. Moreover, these authors arrive at findings that are in some cases in marked contrast to the literature. For instance, in their sample, which only contains European countries, the UK is only the third least corporatist regime,. Conversely Switzerland is considered the least corporatist while the majority view in the industrial literature is that Swiss industrial relations is highly coordinated, albeit through somewhat atypical mechanisms. All in all the "expert scoring approach", in my view holds up better than the rather mechanical approach taken by Schneider et al.

A recent paper by Martin Höpner and Mark Lutter (2014) considers and compares a number of different indicators of coordinated wage setting for the purposes of empirical investigation. The authors' interest is also somewhat broader than in the present analysis, focusing on the impact of "corporatism" more broadly defined.

Box, Fig. 1
Comparison of Kenworthy index and customised wage coordination score, period 2



The variables are unfortunately only available for a European subset of the countries in my sample and refer to different time periods, so the R^2 values need to be treated with circumspection.[128] I consider four of the composite indicators used by Höpner/Lutter for the purposes of comparison, the others being single variables taken from the ICTWSS database, and one a composite expert scoring by Höpner but which relates narrowly to the issue of employee representation at board level. The four measures are two classical measures of corporatism dating from the 1980s and 1990s – termed "corporatism" and "integrated economy" respectively – plus two measures from the varieties of capitalism literature, referring to the 1990s, and termed "coordinated capitalism" and "organised capitalism". For details on these indicators and their sources see Höpner/Lutter 2014: 9f.).

Box Table 1: Correlation between own and other wage coordination measures

	Kenworthy P1	Kenworthy P2	Kenworthy P3	Corporatism-Schneider	Corporatism-Schmidt	Integrated economy	Coordinated capitalism	Organised capitalism
Watt P1	0,77				0,57			
Watt P2		0,77				0,95	0,21	0,76
Watt P3			0,78	0,67				

Note: R^2 values of the correlation between my expert scoring and alternative indicators in the three periods

As can be seen from the table, the correlations with my own codings vary considerably, from an almost perfect correlation (R^2 0.95 "integrated economy"), via high values, given the circumstances of the comparison, for "organised capitalism" and "corporatism", to a rather low R^2 (0.21) in the one case of "coordinated capitalism". It is worth noting (from visual inspection) that the outlier that has the biggest depressing effect on R^2 varies between the different indicators (Spain, Ireland). In all cases except "coordinated economy" a clearly positive relationship emerges from a visual inspection of the data. In the case of "corporatism" the positive correlation takes a more parabolic form; and the one major outlier, Spain is somewhat odd. It is classified as not at all corporatist even in the first period, whereas given the substantial state involvement in wage setting at that time there was clearly a potential for strategic use of nominal wage outcomes in that country. In the case of "coordinated capitalism", the composite variable contains a number of elements (e.g. "shareholders' rights, diffused firm ownership, and stock market size" – Höpner/Lutter 2014: 9) which seem difficult to subsume under the concept of wage coordination that is the focus of the present study; to that extent this indicator is almost certainly not a good comparator for the purposes of the present analysis – it was included so as to avoid any suggestion of cherry-picking – and the low correlation is not surprising. By contrast, the

[128] I am grateful to Martin Höpner for kindly sharing his data with me and for related discussions.

indicator with an extremely high correlation with my own scoring, although going by the rather opaque title of "integrated economy", clearly does have a focus on wage-setting. In Höpner/Lutter's (2014: 9) description it "measures the extent of social partnership in a multitude of spheres (in particular, wage coordination, conflict intensity of wage bargaining, co-determination, and concertation)."

All in all the robustness checks described in this box give considerable confidence in the validity of the proprietary expert scorings underpinning this study. Correlations with alternative indicators are generally high, and particularly so with indicators that seem to come closest to the idea of "strategic capacity to set nominal wages" that is the focus of this study. This is all the more so given features of the data that might be expected to depress the correlation scores. Where substantial discrepancies were identified, with reference to the industrial relations literature a strong case can be made for preferring the score selected here for the purposes of this study over the alternative measure.

5.2.5 Control over nominal demand growth and employment orientation of macro policy

Conceptual issues

As discussed in section 3.2, under macroeconomic policy measures to steer nominal demand can be subsumed monetary policy, fiscal policy. Important contextual factors are the exchange rate regime and the openness of the economy. Two basic approaches to operationalisation for the QCA approach suggest themselves. One is to focus on key institutional features (e.g. the mandate and degree of independence of the central bank, membership or not of EMU). The other is to focus more on output measures such as, for fiscal policy, the cyclically adjusted primary balance or, for monetary and fiscal policy, the real interest rate. The two approaches have opposing dangers. The formal institutional measures may tell us little about the actual conduct or orientation of policy on demand over longish periods of time. The risk of the latter is that they refer to short-run movements in demand and (un)employment and are thus rather trivial in terms of the theoretical debate: an expansionary fiscal policy leading to falling unemployment, but which is unsustainable and subsequently reversed and with resultant rising unemployment is not, of course, evidence against the claim that, in the medium and longer run, it is LMIs that are decisive for the rate of unemployment.

Some commonly used measures of the policy stance (such as cyclically adjusted budget balances or Taylor rules for monetary policy) are either conceptually problematic or are difficult or impossible to implement in a research setting with a large country panel over an extended period of time. A Taylor rule requires a number of parameters (the neutral long-run interest rate, the target inflation rate and the output gap and the weighting of inflation and output stabiliza-

tion) that cannot be estimated or set without risking distortions for a large panel. This is also true of the – in other research contexts very promising – approach of using a "narrative method": drawing on seminal work by Romer and Romer (1989, 2010), this approach looks explicitly at the timing and motivation of monetary and fiscal policy interventions with reference to government statements, central bank minutes etc. Although some attempts have been made by the IMF to develop cross-country indicators (Devries et al. 2011), this approach is clearly inoperable in a panel approach such as here.

In view of these conceptual and practical difficulties, a pragmatic approach to operationalising the idea of an employment-oriented demand-side policy setting had to be taken. It consists of three elements: a measure of the (likely) automatic-stabilisation properties of the country in question; the extent to which fiscal and monetary policy have been counter-cyclical; and a measure of the employment and output orientation of monetary policy.

Automatic stabilisers

A proxy for the scale of the automatic stabilisers was created by averaging the share of government expenditure and government revenue as a % of GDP. On the link between the size of government and the size of automatic stabilisers see Watt (2011: 206ff.) and the literature cited there. Values are missing for the first period for Australia, New Zealand and Switzerland. The workaround was to take the average increase in the size of the public sector between the 1970s and 1980s for the remaining countries, and to extrapolate backwards in time for the missing values; in other words we calculate the size of government as a share of GDP that would have prevailed in these three countries assuming that they had experienced the country-average rate of growth between 1970 and the first year for which we have data.

The period average rises rather strongly between the first and second periods (38 to 43.7%), before falling back slightly in the post-1994 period (42.4%). In most periods the countries rank in a rather continuous distribution. In view of this, the period average and that figure plus/minus one SD were used to derive the three crucial values for the set of countries with large automatic stabilisers. This seems to generate plausible results on visual inspection.

Countercyclical fiscal policy

The degree of counter-cyclical fiscal policy can be intuitively captured by the correlation coefficient between the output gap in year t and the change in the primary structural balance in that year compared to the previous year[129]. Where this coefficient is large and positive discretionary fiscal policy is working to offset the business cycle: expanding demand when the output gap is negative as the structural deficit is increased (or the surplus falls), and restraining demand when the output gap is positive. Where it is negative discretionary fiscal policy is acting to exacerbate

[129] This approach is taken, among others, by the European Commission. See for example European Commission (2006).

the amplitude of the business cycle, destabilising the economy. For an extended discussion of related measurement and conceptual issues see European Commission 2006: especially pp. 208ff.). As noted earlier there are conceptual and operational concerns about "structural" adjustment measures. Both types of concern are mitigated in this instance. While both series are subject to repeated revision, this is primarily a problem at the leading edge, while here the interest in in historical data; all calculations were redone towards the end of the project using the latest data (July 2015). For many research designs it is an issue that the known output gaps at the time that fiscal policy decisions are taken differ from those subsequently published. This distinction is all but irrelevant here; the expectation is that countries that succeed in limiting economic fluctuations through a fiscal policy that ultimately proves to be counter-cyclical will do better in employment-policy terms. Quite what features it is that permits this to happen more than serendipitously is a second-order issue.

Data are available on the primary government structural balance from AMECO for all EU countries for the entire period. For the other OECD countries structurally adjusted government balances (total, not primary) are available from the IMF WEO database. In most cases these only start in 1980, however, and in Japan only in the 1990s. For output gaps the EU countries are again covered by AMECO for the whole period; the figures are consistent with the fiscal data, both expressed as a % of potential GDP. For the non-EU OECD countries output gap data that is again consistent with the fiscal measure are available from 1980 by the IMF. An exception is Switzerland where output gap data had to be taken from the OECD (available from 1985). The fact that for the EU countries we can used the (preferred) primary structural balance, whereas for the non-EU countries only the structural balance (including interest payments) does not cause serious comparability problems as we are considering year-on-year changes in the fiscal stance.

Interestingly, the (simple) average correlation coefficient over the whole period is approximately zero, suggesting that, on average, discretionary fiscal policy is neutral according to this measure. It was rather negative (implying procyclical policy) in the third period. The distribution of countries is highly dispersed, however (SD around 0.4). The means and SDs were used to define the cut-offs given rather continuous distributions and to avoid giving undue weight to outliers.

Monetary policy

Similarly for monetary policy two indicators were selected with regard to their intuitiveness, operationalisability and data availability. Each emphasises a different aspect of monetary policy. The first is a direct corollary to the countercyclical fiscal measure, and much of the discussion there applies. The correlation coefficients for the different periods are calculated between the output gap in year t and the change in the short-run nominal interest rate between year t and the previous year. A positive correlation suggests a monetary policy that is seeking to stabilise the

business cycle, with interest rates falling in downturns and rising in upswings, given that policy rates directly influence short-term nominal market rates (see the discussion in 3.2): of course the nominal interest rate is also affected by other factors than monetary policy. This monetary policy "leaning-against-the-wind" in the spirit of the Taylor Rule is a key part of standard policy recommendation for good economic performance.

In contrast to the outcome for the countercyclical fiscal measure the average correlations are rather strongly positive, while SDs are relatively small, implying a norm of "in-built" interest-rate stabilisation: values bunch between 0.3 and 0.6. This empirical finding already gives rise to doubts whether differences in the strength of this coefficient within such a rather narrow range will be decisive for explaining either levels of or changes in unemployment. Still, we use the standard cut-offs (mean, +/- 1 SD) as including this indicator provides a (rough) test of whether monetary policy stabilisation is as relevant as it is often held to be.

Amore explicit proxy for an employment (or growth) orientation of monetary policy is to consider the gap between the nominal GDP growth rate and the nominal short-run interest rate: the lower that policy rates are set with respect to the rate of nominal GDP growth, the more expansionary monetary policy can be considered to be, with a favourable impact on employment. Conversely, when policy is set such that interest rates are higher than growth rates, policy has a depressing effect on nominal demand and thus on employment creation. The reader is referred back to the discussion in 3.2

This measure is not ideal for the reasons given above. An expansionary stance of monetary policy might seem trivially to reduce unemployment, but this is likely to be only temporary if it leads to above-target inflation. A safeguard here comes in the form of the long periods of 12 years under consideration, which rules out short-term "dashes for growth". It is true that the ability to run a monetary policy in which r<g will depend not least on the supply side characteristics of the economy. But it is precisely a strength of QCA that this monetary policy variable can be considered "configurationally" i.e. in its interaction with the supply side conditions of more or less liberal LMIs and more or less coordinated wage setting.

Unfortunately, for the first period there are a number of missings: ES, NO, NZ, SE, SZ, meaning that only a reduced sample can be analysed for the first period. As would be expected, we obtain very different findings during the three periods. The simple average across all countries and periods amounts to around 0.36pp, supporting the intuition of a close alignment over longer periods of both rates. Monetary policy, on this measure, was substantially expansionary during the first, contractionary during the second and more or less neutral during the third period. Given relatively continuous distributions in all three periods the period averages +/- one standard deviation were used, and these values were in turn averaged to derive the time invariant cut-offs.

Table 5.2 provides an overview of the three threshold values (representing full membership, full non-membership and the point of maximum membership ambiguity, given here to two decimal places) for all the variables to be included in the fsQCA calculations.

Table 5.2: Threshold values for fsQCA variables

Variable	Invariant	70-81	82-93	94-05	
urate	10.00	5.92	10.00	9.85	Full non mbr
	6.50	3.84	7.35	7.14	Crossover
	3.00	3.00	3.63	4.42	Full mbr
uchange	0.57	0.57	0.52	0.12	Full non mbr
	0.12	0.32	0.25	-0.23	Crossover
	-0.33	0.08	-0.01	-0.57	Full mbr
epl	3.89	3.89	3.89	3.89	Full non mbr
	2.09	2.13	2.12	2.03	Crossover
	1.10	1.10	1.10	1.10	Full mbr
ubrr	50.00	40.00	40.00	50.00	Full non mbr
	27.12	21.72	28.31	31.33	Crossover
	10.00	5.80	12.50	17.25	Full mbr
cwb	0.00	0.00	0.00	0.00	Full non mbr
	0.50	0.50	0.50	0.50	Crossover
	1.00	1.00	1.00	1.00	Full mbr
open	10.00	10.00	10.00	10.00	Full non mbr
	30.97	26.94	30.11	35.85	Crossover
	50.00	50.00	50.00	50.00	Full mbr
autostab	33.19	30.12	34.88	34.58	Full non mbr
	41.39	38.01	43.73	42.44	Crossover
	49.60	45.91	52.57	50.30	Full mbr
counterfisc	-0.29	-0.37	-0.42	-0.43	Full non mbr
	0.00	-0.02	0.01	-0.11	Crossover
	0.28	0.32	0.44	0.21	Full mbr
countermoney	0.14	0.00	0.20	0.13	Full non mbr
	0.37	0.37	0.47	0.40	Crossover
	0.60	0.74	0.75	0.67	Full mbr
g-r	-1.37	1.22	-5.31	-0.87	Full non mbr
	0.35	4.21	-3.43	0.98	Crossover
	2.06	7.19	-1.55	2.83	Full mbr

Source: Own calculations and assessments; see text for details.

5.2.6 FsQCA analysis description and justification of approach adopted

The data for the ten variables (urate, uchange, epl, ubrr, cwb, open, autostab, counterfisc, countermoney and g-r) were brought together for the three periods under consideration. Periods 2 and 3 cover twenty countries; period 1 thirteen EU countries. Corresponding fuzzy sets were

calibrated, forming the fuzzy sets UR, UC, EMPPL, REPR, OPENNESS, ASTAB, CCFP, CCMP and EOMP.[130] CWB was conceived already as a fuzzy set and required no calibration. Both the time invariant and period-specific threshold values in Table 5.2 were used.

An indicator of unemployment performance (UPERF) where UPERF = UR OR UC, that is, it is the union of these two sets (logical OR) was calculated, as was an indicator of flexible labour market institutions (LFLEX), where LFLEX = EMPPL OR REPR.

Somewhat untypically for published QCA studies I have performed a large number of different analyses. There are a number of reasons for this, but they fall into three categories: the panel nature of the data in my analysis, a concern with robustness of the results and the relationship between the number of conditions and cases.

With some exceptions, the same set of countries is considered over three consecutive periods. In what is called **specification one** in what follows, the same (i.e. "time-invariant") threshold values (for zero, full and completely ambiguous set membership) were applied to these three periods. This is appropriate to identifying the possible causal role of factors not only between countries in a given period (i.e. the relative success in employment-policy terms and the degree to which a given institutional feature compared to the country distribution in that period) but also across periods. This would reveal, for instance, that a higher average level of unemployment in a period compared to the other two is associated with an equivalent increase (or decrease) in one or more of the posited causal conditions.

This approach has a drawback, however. It means that the set membership in outcome and conditions that vary substantially across the whole time period can be skewed towards the upper or lower half of the distribution in certain periods. QCA is based on comparing the relative values of outcome and conditional variables, giving rise to concerns that such skewness might influence, and possibly weaken or even invalidate the results.[131] In addition there may be common factors driving results in certain periods that are not in the list of potential causes (cf. omitted variable bias in regression analysis). For both these reasons it is helpful to use period-specific threshold values, as detailed in Table 5.2, based on the distribution of cases in the period in question. This is referred to as **specification 2**.

As a result six (three times two) separate data sets needed to be prepared for analysis.

The basic analysis posits seven conditional factors: wage coordination (CWB), the countercyclicality of fiscal and monetary policy (CCFP and CCMP), the automatic stabilisers

[130] This calculation and all others related to the fuzzy sets were performed using the software fsQCA version 2.5. June 2009, downloaded from: http://www.u.arizona.edu/~cragin/fsQCA/software.shtml

[131] On the problem of skewed set membership see Schneider/Wagemann 2012: 232ff. If the distribution of scores for a condition is very low, for instance, it might conceivably be possible for it to appear to be sufficient both for outcome Y and its non-occurrence ~Y. Diagnostic statistics produced by the software PRI, PRODUCT) help to guard against such pitfalls (242f.). The authors note that getting fully to grips with problems of skewness is a "still-pending task in the set-theoretic literature" (244) and recommend wherever possible avoiding skewed distributions. Here multiple QCA analyses with alternative definitions are used as a strategy to guard against the risk of drawing incorrect inferences due to skewness.

(ASTAB), the employment-orientation of monetary policy (EOMP), labour market flexibility (LMFLEX) and the degree of openness (OPENNESS). As explained above, this generates for each analysis 128 (2^7) theoretically possible constellations of factors (rows of the truth table) under which the cases can be subsumed. Given that there are only 20 cases (and just 13 in the first period), and there are often more than one case in some rows, this leaves a large number of truth table rows empty of cases. This is perfectly normal, reflecting the principle of "limited diversity" (Schneider/Wagemann 2012: 151ff.). Clearly though – just as with regression analysis – it is preferable to limit the number of posited causal conditions, if possible, with respect to the number of cases against which they can be tested. There are trade-offs here: if conditions can be merged together this will help reduce the problem of limited diversity: each condition fewer halves the number of truth table rows. However, combining conditions may lead to measurement inaccuracies or hard-to-justify assumptions, and may also lead to skewness problems.

With a view to exploring these trade-offs I reduced the number of conditions through two combinations of fuzzy sets as follows. The three counter-cyclical policy variables (ASTAB, CCFP and CCMP) were combined via logical OR on the basis that they are alternative ways of achieving cyclical stabilisation. The variable is termed MACROSTAB. This variable tests for the idea that cyclical stabilisation is what macroeconomic policy should be about, that this is the best contribution it can make to delivering positive employment-policy outcomes. This leads to a five-variable set.

Lastly MACROSTAB can be combined using AND with EOMP .This is the intersection of countries that are achieving high levels of countercyclical stabilisation while at the same time pursuing an employment-oriented monetary policy (MACROEMP). These countries might, in the light of previous discussions be expected to perform particularly well. It is of great interest to see which countries managed this combination, during what periods, and with what concomitant supply-side orientation – wage coordination and/or liberal labour market institutions. This combination reduces the number of variables to four.

When the results are presented in the next section the suffix a refers to the version with seven variables, while the suffixes b and c refer to those with five and four variables respectively.

Combining the three different numbers of conditional variables (7, 5, 4) with the three periods and the time-invariant and period-specific specifications leads to a total of 18 fsQCA analyses. The aim is not to present all of these outcomes but to examine similarities and difference between the findings. Broadly, we can have confidence in the results when small differences in the specification of the causal conditions lead to minimal changes in the findings and when different specifications (for instance using time-specific and time-invariant specifications) lead to plausible and easily explained changes in outcomes that shed additional analytical light.

Table 5.3
Overview of the fsQCA variables used

One LMI variable:	LMFLEX
One openness variable:	OPENNESS
One wage coordination variable:	CWB
Two fiscal policy variables:	ASTAB, CCFP
Two monetary policy variables:	CCMP, EOMP
Two macroeconomic policy variables:	MACROSTAB, MACROEMP

Source: own codings

A final source of parallel calculations results from the fact that, when coding the truth table rows as indicating the presence or absence of the outcome, account needs to be taken in fsQCA of the consistency of the findings when "neat formal logic meets noisy social science data" (Schneider/Wagemann 2012: 117). The default setting in the fsQCA software is a cut-off of 0.8 (see above). Often this appears adequate; where in the following no specific figure is given, the reader should assume that this cut-off was used. However, frequently it does not, for instance when a group of countries lies just below the threshold, or when there is a gap in consistency values well above the 80% value. Occasionally alternatives – "lo consistency", hi consistency" – were calculated to test for plausibility and robustness.

5.3 Results of the fsQCA analysis

The presentation of the results broadly follows recommendations in the QCA literature (e.g. Schneider/Wagemann 2012, esp. 280ff., Legewie 2013, section 4). However, the research discussed in that literature usually focus on a single truth table established after considerable "tooing and froing" between the model and the data. The results are presented as a detailed discussion of the single truth table (TT) and the solution set produced by the truth table analysis (TTA). In contrast this investigation was conducted in a way that has with some similarities to panel regression analyses characteristic of the literature on institutional causes of unemployment. An approach using a repeated back and forth between the data was largely eschewed[132]. The two simplifications of the conditional variables via set combination were selected on grounds of their economics-theoretical plausibility, without regard to the data themselves. Even without allowing for additional analyses resulting from different choices of consistency thresh-

[132] Largely, but not entirely. For instance it was initially intended to combine unemployment rates and the change in rates as an indicator of labour market success (cf. Theodoropoulou 2008). For reasons discussed in 5.3.1, this approach was, however, not pursued.

olds and analysis of the negation of the outcome set, a minimum of 18 TTs and TTAs arises from this approach.

Clearly, all of these cannot be extensively analysed: not only would such a presentation tire the reader's patience, there would be a substantial danger of missing the wood for the trees. Rather a three-step presentation approach is chosen as follows. Firstly, some remarks are made based on descriptive statistics of the six fuzzy set data matrices, and the issue of possible "necessary" conditions is briefly discussed (5.3.1). Second, a quantitatively oriented overview is provided of the TTA findings, comparing the results for different periods and specifications and drawing out some key "big picture" findings (5.3.2). Third for a limited number of specifications an in-depth discussion of TTAs is provided (5.3.3).

Much of the data and output generated in the course of the analysis is collected in a data appendix at the end of this study. This enables other researchers to replicate and critique the analyses presented here. It is also a springboard for future work: only a subset of the investigation possible on the basis of the fuzzy sets created here has been conducted and presented. Some pointers to further planned work are given in a brief concluding chapter.

5.3.1 Descriptive statistics and necessity tests

The analysis begins with exploratory descriptive statistical analysis of the fuzzy sets. The tables are reproduced in the data annex (A1). Starting with the simpler case, when period-specific cut-offs are used (S2), all the single fuzzy sets are reasonably well distributed, with means closely bunched around 0.5 and within the range 0.4-0.6. The means of the various sets in periods 2 and 3 are almost equal, in line with the focus here on cross-sectional comparisons. There are some differences with the means for period 1 for some variables, but this relates to the limited sample size in period (13 European as opposed to 20 OECD countries). The SDs are also tightly bunched around 0.3 for all variables in all periods.

The fuzzy sets formed by unions naturally exhibit somewhat higher means. In the case of UPERF (the union of UR and UC) the degree of upward skewedness in the second and third periods was such that it was felt that trivial sufficiency outcomes might result. Worse, especially in P2, XY plots (not shown) suggested that the level and change variable were in many cases at opposite ends of the two underlying membership sets; this gives high fs membership scores to low-unemployment *rate* and fast *reduction* (implying high level) countries. It also evens out, in the outcome variable, the important differences between periods 1 and 3, eliding the fact that in P1 performance on rates was high, on changes low and vice versa in P3. All in all using UPERF as outcome variable would render the interpretation of the results difficult and probably misleading. As a result of this analysis, all further investigations used the most important indicator of labour market performance, the unemployment rate, as the sole output variable. MACROSTAB and MACROEMP have high and low means respectively, but this is conceptu-

ally justified, the latter being an intersection (logical AND), and cases are distributed, if in skewed fashion, across virtually the full range.

Given that an underlying interest of the study is the relationship between wage coordination and labour market flexibility in explaining labour market outcomes, it is worth noting that the means of the CWB and LFLEX fuzzy sets in all three periods in this specification (S2) are almost equal. This was not a conscious coding decision but emerged from the data and the mode of calculation. But it means that the solution path outcomes containing these two variables can be readily compared; outcomes cannot be driven by a difference in the aggregate coding of these two fuzzy sets.

The distributions within fuzzy sets are of course rather different when time-invariant cut-offs are used (S1), because some underlying variables, not least the outcome variable UR, exhibit very different average outcomes in the three periods: capturing this is the whole point of specification 1. For instance the mean of UR in P1 is 0.80, falling to 0.43 and 0.45 in the two successive periods. This is very closely paralleled by the changing mean score for CWB: 0.73, 0.58, 0.55. (Partly this reflects the differences in country sample just referred to.) The changes between period means for other variables are less pronounced. This opens up interesting research perspectives by comparing the results for the same period across the two specifications. As noted earlier, it remains an open question at the start of the analytical process, whether the fsQCA methodology, which works by comparing relative values of outcome and conditional variables, might encounter difficulties in coping with the inevitably skewed sets. In any case these features of the data will need to be borne in mind at all times when analysing the TTAs under specification 1. Partly for this reason, analyses were also conducted of ~UR, the negation of good labour market performance.

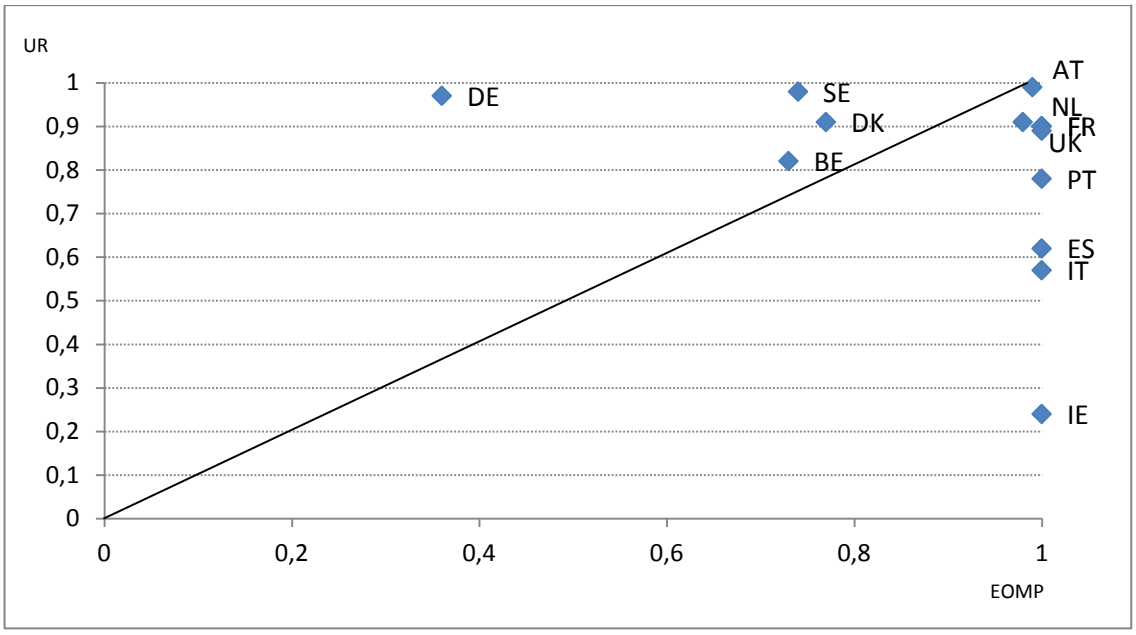
In S1 the mean for CWB is somewhat higher than for LFLEX in the first period and somewhat lower in the other two, but the differences are not particularly pronounced.

Next we perform a text of whether any of the causal conditions considered here are necessary for the outcome of good unemployment performance (cf. Theodoropoulou 2006: 76f. Schneider/Wagemann 2012: 69ff., 233ff., 278, Legewie 2013: 19). As explained above, the test of necessity is whether for those cases with a membership of greater than 0.5 in the outcome set the case scores for the cause in question are systematically (i.e. always or almost always) higher. Following recommendations in the literature, the necessity thresholds are set high: at least 0.9 for consistency[133] and above 0.5 for coverage (indicating the relevance of the relationship for the cases). If these are passed, tests are required to guard against trivial necessity readings.

[133] The consistency score is obtained (see Ragin 2009: 107ff.) as follows: the smaller of the values for each case for the outcome and each cause is taken. This figure is divided by the sum of the outcome scores. If the cause score is always larger than the outcome score then the consistency is 1. The more frequently, and the greater extent to which, the outcome score is higher, the more the consistency indictor declines towards zero.

The results are brought together in the data annex (A2). In both specifications the analysis shows that necessity cannot be assumed for any of the seven individual conditions: the consistency scores were in almost all cases substantially lower than the 90% threshold. In P1S1 the consistency score for EOMP comes in only just under the threshold. Moreover, the coverage ratio is also high at 0.82. There are a number of reasons to be cautious before concluding that this indicates the necessity of expansionary monetary policy, however. In the second specification of the same period, both consistency and coverage are very low (a little over 0.3). It is also (extremely) low in the second period using the time invariant specification. This is suggestive of a "trivial" necessity relationship. And analysis of the X-Y plot mapping the relationship between UR and EOMP scores (Fig. 5.2) reveals that all cases beneath the 45 degree line (i.e. those indicating necessity) clustered along the right-hand Y-axis (i.e. where the monetary policy variable is at or very close to one); this is strongly suggestive that the posited necessity is in fact trivial (cf. the discussion in Schneider/Wagemann 2012: 146f.).

Figure 5.2 UR against EOMP scores, P1S1



Rather high consistency scores are achieved for MACROSTAB (the union of the three sets indicating counter-cyclical macropolicy) in most specifications, in one case (p1s2) breaching the 0.9 threshold. Particular care is required with such unions as they almost invariably have upwardly skewed membership. Schneider/Wagemann caution that such unions "need to be carefully justified on theoretical grounds" (2012: 278). This has been done above: all three measures

are “functional equivalents” in stabilising the economy and thus employment in the face of cyclical shocks. However, as might be expected from such a union set, with one exception (p1s1) the coverage is only around half of the cases. The two specifications from which a case for necessity might be made are both from the first period with its limited (European) sample; the two XY plots can be found in the data annex (Annex Figs. 1 and 2). Weighing the evidence, and with due caution to ascribing necessity to union sets, we refrain from making a *general* claim for the necessity of anti-cyclical macroeconomic policy. Particularly in the first period, the evidence does suggest, though, that it was hard for countries to achieve good employment performance unless one of the three elements of counter-cyclical macroeconomic policy was working well: either the automatic stabilisers were large, or the fiscal or the monetary stance varied systematically to offset cyclical down- and upturns as measured by the output gap.

The necessity analysis confirms one of the hypotheses underlying this study, namely the existence of multiple paths to good labour market performance (equifinality). There is no one single path to good employment performance. In particular the idea that “there is no alternative” to flexible labour market institutions (at least as defined here) if good labour market performance is to be achieved receives no confirmation from this analysis. Having established that no one condition is necessary for good employment performance we turn to the more fruitful and complex question of sufficient conditions and configurations.

5.3.2 Overall findings on sufficient causes of good employment performance

To recall, a hypothesised cause or combination of causes is a subset of the outcome, and thus plausibly a sufficient condition for that outcome, if the membership scores in the condition’s fuzzy set(s) are systematically lower than that in the outcome set. The software browses all the possible logical combinations of the causal variables specified and determines whether cases exist in the empirical reality observed that fit each combination and, if so, whether or not they are associated with the existence of the outcome. The results are presented in a so-called truth table. This truth table is edited for minimisation by the researcher, requiring two (sometimes three) decisions. The first decision is how to treat rows that exist in the data set (i.e. where there is at least one country[134] with that combination of characteristics and the outcome is present) but where there are some country cases in which the condition score is not below the outcome score, leading to less than 100% consistency. As discussed above, a cut-off of 0.8 is standard; higher values are preferred. Here depending on the distribution of the consistency scores of the empirically observed cases, different cut-offs were selected to test robustness (cf. Schneider/Wagemann 291ff.). The consistency threshold actually used is indicated in the TTA output documentation.

[134] The frequency cut-off was here left at the default value of one case, as is appropriate for N between ten and twenty.

The second is how to treat consider "logical remainders", i.e. constellations of causal conditions that are logically possibly, but not actually found in the data set considered here. Here, in line with the economic and industrial relations literature discussed in earlier chapters – and indeed reflecting the way that the research has been set up – we have no difficulty in positing a directional expectation for all the variables but one that its presence is more likely to lead to favourable labour market outcomes. The exception is the variable openness: we have no clear theoretical grounds for assuming that openness, by itself, will influence labour market performance in either direction. We did refer in Chapter 1 to some indication that the relative performance of small open economies had improved over time, but the way that openness combines with other factors is precisely a question where we wish to let the data speak. Consequently, in all specifications the directional expectation on openness was left undetermined. Being confident in the directional expectations for the logical remainders, only the intermediate solutions are discussed; the parsimonious solutions are known to be unreliable and their use is not recommended, while the "conservative" solutions in many cases scarcely reduce complexity; the data for these solutions is available on request.

Occasionally a choice also has to be made as to which of two or more potentially redundant prime implicants (see above) should be disposed of. In most cases this did not change the results of the intermediate solution. Where a choice was relevant the differences were rather small and to avoid unnecessarily complicating the presentation one only is reported.

All the intermediate results of the truth table analysis are presented in the data appendix. The truth tables themselves are available on request. By referring to the truth tables and the output on the intermediate solutions, including the various diagnostic statistics, the reader can evaluate the choices made in the course of the analysis and validity and robustness of the conclusions drawn.

The evidence from the intermediate set solutions of the TTAs can be summarised as follows, broadly moving from observations about the overall findings to more specific discussions of conditional variables and specification types.

- Using the time-specific cut-offs (S2) the fsQCA analysis delivers readily interpretable solution sets for UR for the purpose of cross-sectional analysis. Coverage and consistency rates tend to be lower, however in P3 (Table 5.4). When the time-invariant cut-offs are used (S1), the fsQCA fails to deliver interpretable results in several specifications in periods 2 and 3, due to the low membership scores in the outcome variable. For these specifications we rely more on the analysis of the negation of UR (~UR, i.e. the analysis of the causal conditions associated with *poor* labour market performance). Conversely, the ~UR analysis is unhelpful for period one.
- The solutions for the time-variant and invariant specifications for a given period tend to be qualitatively similar. However, some interesting discrepancies are observed (discussed in more detail in the next sub-section). For instance, comparing the outcomes for

the first period, expansionary monetary policy (EOMP, MACROEMP) appears to be an important driver from a longitudinal, but not from a cross-sectional perspective; indeed the opposite appears true for monetary policy.

- The solution pathways all consist of configurations of at least two conditional variables. Put another way: no single condition is ever sufficient for good employment performance. Causation is configurational. Moreover, in all but a few specifications with just one pathway in the solution set – and these tended to have very limited coverage – multiple sufficient configurations were identified by the minimisation process, demonstrating equifinality. Unemployment performance is thus clearly characterised by causal complexity.
- Looking at the consistency and convergence scores for the three sets of conditional variables (a, b and c) in each period and for each specification (1 or 2) it can be seen that the results are in most cases rather similar (Table 5.4).[135] This suggests that the results are fairly robust with regard to changes in the number of conditional variables and the way that the macroeconomic policy variables were brought together in variations b and c. Averaging across all 30 TTA we find that solution sets cover considerably more than half the cases (0.54) and have a rather high consistency of 0.85. We can "trade" a loss of coverage for somewhat greater consistency (0.49 and 0.87) if we consider the "hi" consistency versions or vice versa for the "lo" consistency versions (0.61 and 0.83).

[135] In some cases different consistency cut-offs were used when conducting the TTA. When a "hi consistency" cut-off is used the coverage of the solution set is reduced, but its consistency increases (meaning there are fewer "exceptional" cases compared to a calculation of the same TT using a lower consistency threshold). In most cases choosing the TTA based on the "lo" consistency cut-off generates results that are in line with the others from that period specification and these are then preferred.

Table 5.4
Summary of solution convergence and consistency scores, all specifications

Specification	solution convergence	solution consistency
p1s1a	0.77	0.95
p1s1b	0.84	0.95
p1s1c	0.84	0.94
p1s2a	0.62	0.9
p1s2b hi	0.7	0.91
p1s2b lo	0.87	0.73
p1s2c hi	0.72	0.83
p1s2c lo	0.89	0.71
p2s1a	0.38	0.84
p2s1b	0.48	0.83
p2s1c	NA	NA
p2s2a hi	0.23	0.87
p2s2a lo	0.51	0.85
p2s2b	0.49	0.82
p2s2c	0.72	0.73
p3s1a	0.62	0.88
p3s1b hi	0.23	0.89
p3s1b lo	0.42	0.78
p3s1c	NA	NA
p3s2a hi	0.34	0.96
p3s2a lo	0,79	0,84
p3s2b	0,38	0,75
p3s2c	0,27	0,75
p1s1a neg	0,48	0,83
p1s1b neg	NA	NA
p1s1c neg	NA	NA
p2s1a neg hi	0,17	0,96
p2s1a neg lo	0,81	0,78
p2s1b neg hi	0,10	0,95
p2s1b neg lo	0,69	0,80
p2s1c neg	0,20	0,87
p3s1a neg	0,69	0,86
p3s1b neg	0,66	0,79
p3s1c neg hi	0,27	0,96
p3s1c neg lo	0,58	0,82
Average	0,54	0,85

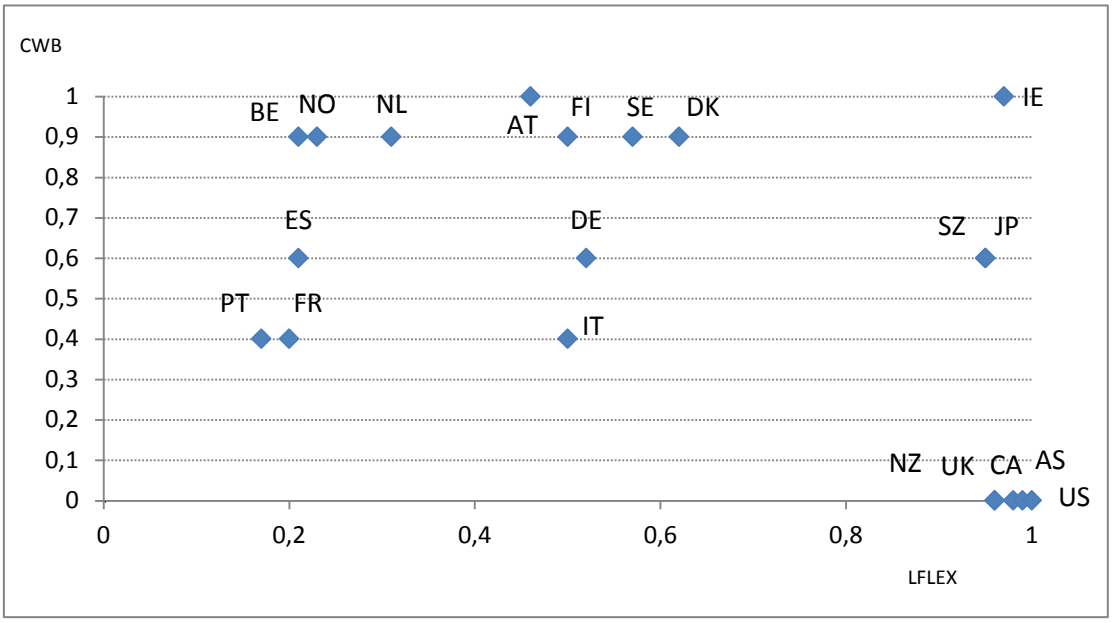
- Table 5.5 provides a quantitative overview of the causal configurations of the 30 TTAs with a focus on the presence or absence of the fuzzy sets representing coordinated wage bargaining (CWB) and flexible labour market institutions (LFLEX) in the causal configurations identified. Of the 81 solution sets no fewer than 49 (more than 60%) contained CWB with the "expected sign" (i.e. high wage coordination scores in the analyses of UR and low when ~UR is the outcome). More strikingly still, there was only a single solution set which contained CWB with the "wrong" sign. Moreover, it occurred as one of five solution sets in period 3 specification S1a, but did not emerge either in the other two specifications (b and c) of that period nor in p3s1a when examined with ~UR as the outcome. Thus we have overwhelming evidence from these analyses of a positive role of coordinate wage bargaining across the entire period from 1970 to the mid-2000s as an element in policy configurations that constitute sufficient conditions for good labour market performance. At the same time, as noted, CWB never appears alone as a solution in its own right: it is not on its own sufficient, for generating low unemployment, irrespective of other variables. The solution-set data are also provisionally suggestive – provisionally because to be sure we need to examine the consistency and coverage results – of a decline in the relevance of coordinated wage bargaining as a route to low unemployment in period 3 compared with the other two periods. After 1994 more than half of the solution sets did *not* contain CWB. On the other hand there does not seem – on this simple metric – to have been a decline in the role of coordinated bargaining between the "Keynesian" and the "neoliberal" periods.

Table 5.5
Quantitative summary of intermediate solutions

Specification	Solutions	Solutions cwb expected sign	Solutions cwb unexpected sign	Solutions lmflex expected sign	Solutions lflex unexpected sign	cwb and lflex expected sign	Solutions lacking either CWB or lflex	Solutions lacking CWB	Solutions lacking LFLEX
p1s1a	4	3	0	2	0	1	0	1	2
p1s1b	3	2	0	1	0	0	0	1	2
p1s1c	3	2	0	1	0	0	0	1	2
p1s2a	3	2	0	1	1	1	1	1	2
p1s2b hi	2	2	0	1	0	1	0	0	1
p1s2b lo	3	2	0	0	1	0	1	1	3
p1s2c hi	2	2	0	1	0	1	0	0	1
p1s2c lo	3	2	0	0	1	0	1	1	3
p2s1a	2	1	0	1	0	0	0	1	1
p2s1b	3	2	0	2	1	1	0	1	1
p2s2a hi	1	1	0	0	0	0	0	0	1
p2s2a lo	4	4	0	1	0	1	0	0	3
p2s2b	2	2	0	1	1	1	0	0	1
p2s2c	3	3	0	0	1	0	0	0	3
p3s1a	5	2	1	3	1	1	1	3	2
p3s1b hi	1	0	0	1	0	0	0	1	0
p3s1b lo	2	0	0	2	0	0	0	2	0
p3s2a hi	2	1	0	2	0	1	0	1	0
p3s2a lo	5	2	0	3	0	1	1	3	2
p3s2b	2	0	0	2	0	0	0	2	0
p3s2c	1	0	0	1	0	0	0	1	0
p1s1a neg	1	1	0	0	0	0	0	0	1
p2s1a neg hi	1	1	0	1	0	1	0	0	0
p2s1a neg lo	4	2	0	0	1	0	1	2	4
p2s1b neg hi	1	1	0	1	0	1	0	0	0
p2s1b neg lo	3	2	0	0	1	0	1	1	3
p2s1c neg	1	1	0	1	0	1	0	0	0
p3s1a neg	6	2	0	2	0	1	3	4	4
p3s1b neg	4	2	0	2	0	0	0	2	2
p3s1c neg hi	1	1	0	1	0	1	0	0	0
p3s1c neg lo	3	1	0	2	0	0	0	2	1
Totals	81	49	1	36	9	15	10	32	45

- Our proxy for flexible labour market institutions, LFLEX, appears in a substantial number of solution sets (36), but this is less than half of the total and notably fewer than was the case with CWB (49). More tellingly still, in no fewer than 9 solution sets LFLEX appears with the "wrong" sign: less flexible labour market institutions are associated with good labour market performance, or flexibility with bad performance. The impact of labour market flexibility thus appears decidedly more ambiguous than that of coordinated wage bargaining. Comparing over time the pattern is the mirror-image of that for CWB: in the first and second periods LFLEX does *not* appear (with the "right" sign) in around two thirds of solution sets, but this falls rather sharply in the third period (although less so in the ~UR specifications).
- To some extent implicit in the changing relevance of collective wage bargaining and labour market flexibility for successful labour market performance in the third compared to the first two periods, we observe that just 15 solution sets contained *both* CWB and LFLEX. Even fewer, just ten sets, exhibited neither of the two variables (with the expected sign). We look at some of these solution sets in more detail in the next subsection, but these findings tentatively suggest that coordinated bargaining and flexible labour market institutions can serve as functional equivalents. This is in line with theoretical considerations discussed in previous chapters: either can be used as a way to limit inflationary pressures, averting the need for macroeconomic policies to throttle demand and raising unemployment. Confirmation for this finding comes in the form of the XY plots of CWB against LFLEX: Fig. 5.3 shows the plot for the P3S1 specification, in which it is most pronounced. We will return to discuss the country groupings that emerge here in the next sub-section.

Figure 5.3
XY plot of CWB against LFLEX, specification P3S1



- In contrast to the findings for CWB and LFLEX, it is hard to find consistent patterns in the solution sets regarding the openness variable. This confirms the decision not to impose a directional expectation for OPENNESS on the logical remainders. Solution sets in which openness is negatively associated with good employment performance predominate overall. This is particularly true of period 1 in the time-invariant specification; this is not surprising given that on average both openness and the unemployment rate were increasing over time. This parallel development could conceivably be cast in causal terms: if increased openness makes it more difficult to pursue employment-oriented macroeconomic policies. This would be directly visible in the macroeconomic variables, though, and here the evidence is mixed. As noted, there was a major shift between the first and second periods from expansionary (employment oriented) to restrictive monetary policy; this was very largely reversed in the third period, however, while the process of opening was rather minor in the first to the second period, and only subsequently more substantial. In the cross-sectional specification using period-specific cut-offs this finding disappears and the influence of openness and its negation balances out. The findings for periods 2 and even 3 are very mixed across the specifications, perhaps surprisingly in view of the stylised fact of small successful European countries identified in Chapter 1. Moreover, no systematic interaction with either LFLEX or CWB immediately emerges from this quantitative overview of the solution sets. If flexible LMIs and coordinated bargaining are functional equivalents there is no consistent evidence

that either one is substantially more likely to be deployed by small open or by large closed economies.

- Regarding the macroeconomic policy variables, the data are broadly supportive of the idea that countercyclical fiscal and/or monetary policies and expansionary monetary policy are associated with positive labour market outcomes. There are some exceptions, however. In the first period the macro results are uniformly and strongly in accordance with expectations in specification 1; but using time-varying cut-offs, expansionary monetary policy (and thus also MACROEMP) is associated with *higher* unemployment. In period 2 findings are in accordance with expectations in all specifications. In period 3 the findings are rather mixed when UR is the outcome variable, but run in line with expectations for ~UR, i.e. a lack of cyclical stabilisation and a restrictive monetary policy is associated with poor labour market performance. Some reasons for these interesting findings will be pursued in the more detailed analysis of specific cases in the next sub-section.
- MACROEMP – found in the four-variable (c) specifications – is the most "demanding" macro variable. Countries with high scores exhibit both strong stabilisation and an expansionary, employment-oriented monetary policy. However, because of the way it is calculated, as the intersection (i.e. lowest value) of a union of three sets and of EOMP, in practice it is the latter variable that, as the limiting factor, tends to drive the MACROEMP scores. This means, for instance, that the dichotomous pattern identified for expansionary monetary policy in the first period in the invariant and time varying specifications applies also to MACROEMP. The low average scores for this variable in the third and especially the second period meant that the minimization process was not possible for UR in the four-variable, time-invariant specification. However, in both cases it did enter the solution set for ~UR in the expected (i.e. negative) direction. All in all, the "added value" of the four-variable specification using MACROEMP was therefore limited.

5.3.3 In-depth discussion of solution sets and country cases

So far the discussion of the results has been abstract in the sense that we have examined and compared solution paths, but have not taken into account their consistency and coverage scores and, more importantly, have not sought to relate them to actual country cases and attempted to find patterns in the results. This is the task of this sub-section, which makes use of XY plots and other visualisation techniques to identify and communicate more specific findings about the solutions sets derived from the QCA analysis.

The useful framework to classify cases on an XY plot of outcome against solution set out by Schneider/Wagemann 2012: 206ff. is deployed: a quadrant is superimposed on the XY plot and

its 45 degree line by drawing a notional vertical and horizontal line at 0.5 on each axis. Cases in the lower left quadrant are essentially irrelevant, whether above or below the 45 degree line (because they are not in the outcome set). Cases in the upper left quadrant are not explained by the model: having large numbers of cases here suggest that important conditional variables are missing. Cases in the lower right quadrant are problematic or "deviant" cases, because they do not exhibit the outcome despite being members of the solution set. The 'ideal' outcome is when cases are concentrated in the upper right quadrant while being above and to the left of the 45-degree diagonal. Those in the same quadrant but below the 45 degree line are not particularly problematic, being members of both the outcome and the solution set, but they reduce consistency of the sufficiency claim, because the membership score on the condition set is higher than in the outcome set.

To do such an in-depth analysis practicably it is necessary to reduce the number of specifications. Here we focus on the (b) specification which groups together the three counter-cyclical variables und MACROSTAB – reducing the complexity of solutions compared with the seven-variable (a) versions – , but leaves us free to examine the role of expansionary monetary policy separately; as noted already, the added value of the reduction to three variables (c) proved limited. Where both hi and lo consistency solution paths were calculated a choice was made based on which seemed to provide more information (a better trade-off between coverage and consistency). It is recalled that all the solution sets are in the appendix, permitting the reader to compare the results discussed here with others not examined in detail.

For each time period and specification (1 or 2, UR or ~UR), the causal configurations are discussed in order starting with the one with *highest raw coverage*.

P1S1

	raw coverage	unique coverage	consistency
macrostab*cwb*~openness	0.484733	0.044847	1.000000
eomp*~openness*lflex	0.572519	0.132634	0.931677
macrostab*eomp*cwb	0.665076	0.225191	0.998567

solution coverage: 0.842557

solution consistency: 0.951509

The solution set consists of three alternatives, all three with extremely high consistency scores. In words: counter-cyclical economic policy AND employment-oriented monetary policy AND coordinated wage bargaining OR expansionary monetary policy combined with flexible labour market institutions but limited to relatively closed economies, OR a similar configuration to the

first, but lacking the monetary policy component while excluding small open economies. Together the pathways have a very high coverage (0.85) and extremely high consistency (0.95).

The first-mentioned configuration has a considerably higher unique coverage than the others, meaning that only it can explain these cases. There is substantial overlap between the solution configurations – indeed the unique coverage of the last-mentioned configuration suggests that it adds little explanatory power. Adding the knowledge that in this specification the outcome scores are upwardly skewed while those of openness are downwardly skewed (labour market performance declines on average while openness rises over time) suggests downplaying the substantive relevance of the ~OPENNESS finding (see also the discussion of P1S2).

Figure 5.4
XY plot of UR against solution set and its components, P1S1

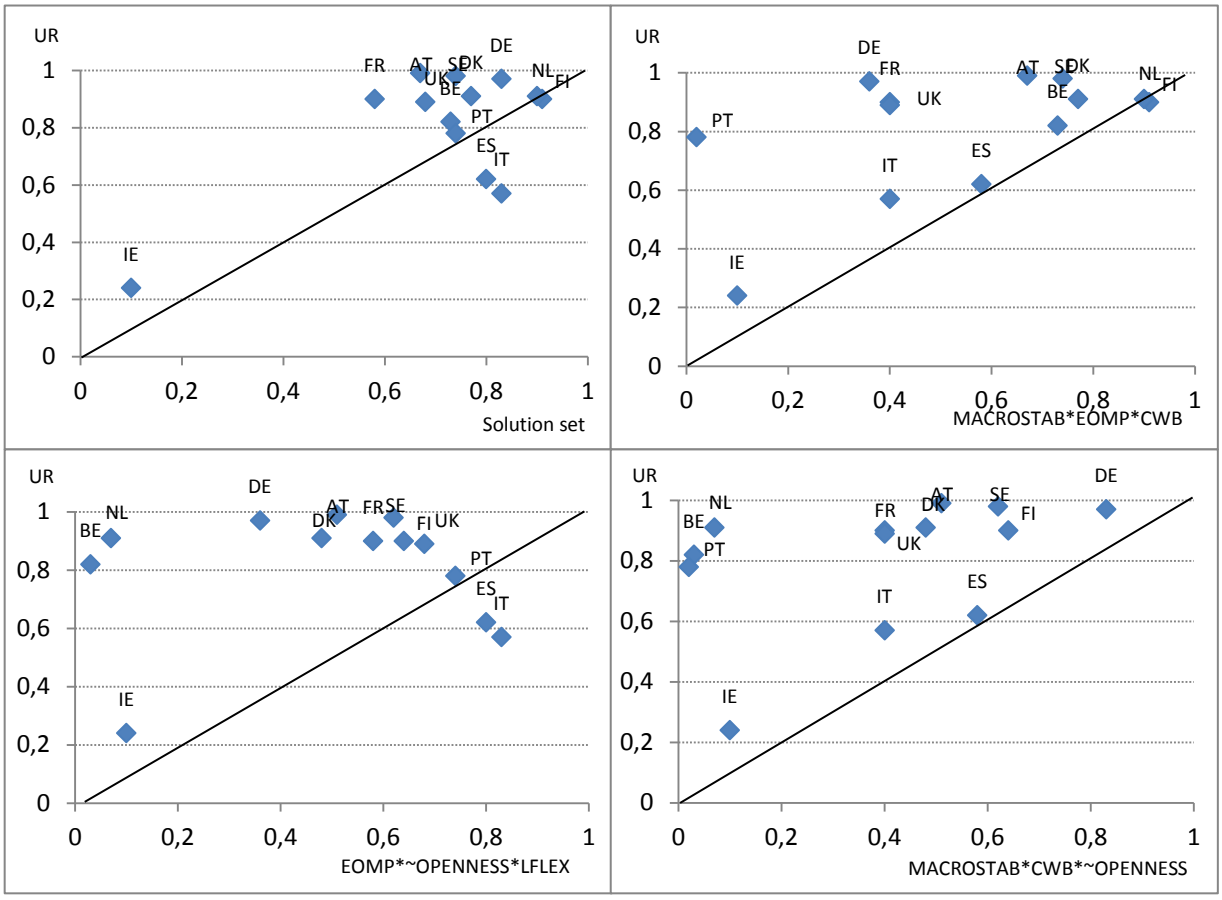


Figure 5.4 plots the solution set and its three constituent configurations. Looking first at the solution set we see clearly that the sufficiency condition is met with noticeable bunching in the top right quadrant (high scores on both outcome and solution set), constituting 'ideal' cases for the sufficiency claim. Of the 13 cases, only one, IE, is out of both the outcome and the solution sets. It is an "irrelevant case". The diagram entirely lacks cases in the upper left quadrant of the diagram. These would be cases that are left unexplained by the model, suggesting "missing var-

iables". Only in the cases of ES and IT do we see a slight loss of consistency: their outcome score is somewhat higher than their score in the solution set. But they are not true logical contradictions or "deviant cases for consistency". This would be the case if they fell below the qualitatively important threshold of 0.5.

The graphs confirm that it is counter-cyclical policies, coordinated wage bargaining and an employment friendly monetary stance that is the constellation with the strongest link with good employment performance. This is particularly true of the three (small open) Nordic economies and their corporatist counterparts AT, NL and BE. The group relying on the second configuration (EOMP*~OPENNESS*LFLEX) to achieve high scores in the solution set consists of a rather disparate group, consisting of “Club Med” countries (ES, PT, IT, FR) plus the UK. In IT, PT and the UK, it was relative closedness that is picked up by the configuration, with the others it is, ultimately, the rather low unemployment benefit replacement rate, as a component of LFLEX. The consistency of this pathway is the lowest of the three, and all in all it is less than persuasive as an explanation. There is only one country in which the result is driven by the third configuration, and that, surprisingly, is Germany. Here too it is (lack of) openness that is the limiting factor, and simply reflects Germany’s large size at a time before the major boost to international trade that came in the 1980s. This is also why the unique coverage figure is so low: this result must be considered a “freak” result of little substantive analytical value.

P1S2

	raw coverage	unique coverage	consistency
macrostab*~eomp*cwb*~openness	0.545685	0.115905	0.993837
macrostab*cwb*openness*lflex	0.588832	0.159052	0.900388

solution coverage: 0.704738

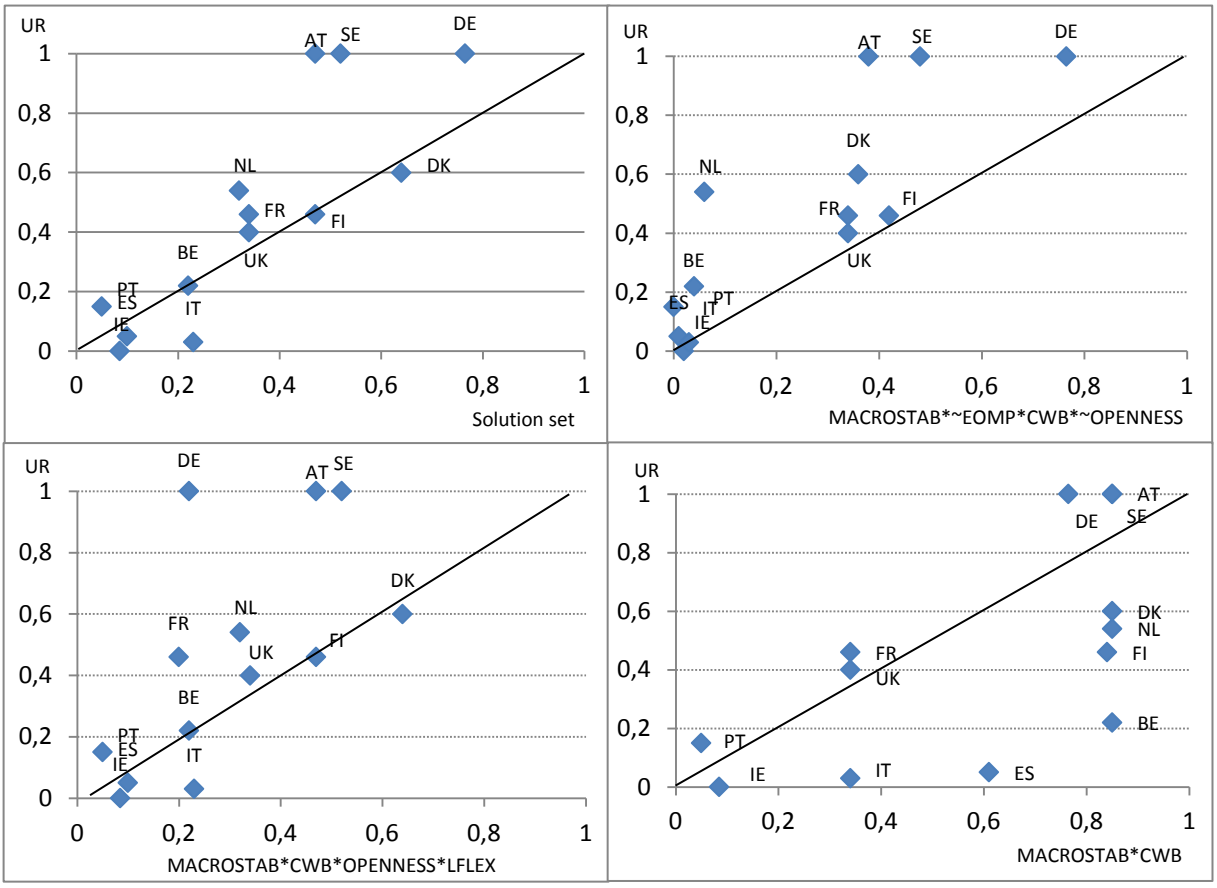
solution consistency: 0.915385

That the preceding analysis of P1S1was not unduly dismissive of the substantive importance of two of the pathways is evident when those results are compared to those for period one using period-specific cut-offs, i.e. with the focus on cross-sectional performance and conditions. Both configurations contributing to the solution set contain the combination MACROSTAB and CWB identified as key in P1S1. So there is a substantial overlap between the two pathways (confirmed by comparing the unique and raw coverage scores). In the last panel of Fig. 5.5 the intersection set MACROSTAB*CWB is plotted against the outcome set. As can be seen it looks rather like the combination is a necessary condition for good (cross-sectional) employment performance in period one. This simple two-component pathway is *not* considered sufficient on its own, however, because Spain and Belgium (and to a lesser degree Finland) constitute contradic-

tory cases, with poor outcomes despite high membership in the pathway. This is why the two configurations contributing to the solution set contain additional variables.

The configuration with slightly higher coverage but considerably reduced consistency adds flexible LMIs in open countries; the other, offering slightly lower coverage but virtually complete consistency – on the face of it intriguingly – brings in a *lack* of expansionary monetary policy in rather closed economies.

Figure 5.5
XY plot of UR against solution set, its components and MACROSTAB*CWB, P1S2



As can be seen from Fig. 5.5 the solution set, with counter-cyclical policies and coordinated bargaining as key elements, yields a clear picture of sufficiency: only DK is very slightly inconsistent with this claim. Coverage is, however, rather low, because only 5 of the 13 cases (AT, DE, SE, DK, NL) are members of the outcome set (with three, FR, FI, UK, just below the 0.5 threshold). AT and SE are, respectively, just in and just out of the solution set, but full members of the countries with good labour market performance. The more interesting issue here is country memberships in the two pathways that make up the solution and to examine which element is driving them. Of the five countries in the outcome set, only the German score is from the

second configuration and, specifically, by virtue of its CWB-score (rather than by ~openness as is the first specification). In the other four the score differences between the two configurations are rather minor.

Examination of the underlying fuzzy set scores shows that the finding of ~EOMP in one configuration is no coincidence.[136] During this period the gap between nominal growth and interest rates was consistently higher in less developed southern European countries and Ireland, characterised by high unemployment, than in the "core" countries to the north and west (plus Austria), i.e. what would subsequently constitute the "D-Mark bloc"; FR and the UK are in an intermediate position.

This cross-sectional finding stands in stark contrast to the previous, longitudinal one, in which expansionary monetary policy in the period was associated with good labour market performance. It may be that running expansionary monetary policies in an inflationary environment in the wake of the first oil-price shock was destabilising; this is certainly the standard view that influenced policy in the subsequent period. A strong "reverse causation" aspect seems plausible, though: countries entering the mid-1970s shock with higher unemployment (for whatever historical/structural reasons) felt under greater pressure to resort to expansionary policies. Linked to this, there may be an important interaction effect that goes missing in country-by-country analysis (whether QCA or regression): countries with more restrictive policies benefited in employment terms from demand expansion (possibly also from fiscal policy) in trading partners. Of course this implies that aggregate effects would have been worse if all countries had followed the "recipe" of the most successful.

The fact that openness appears in one of the two configurations and its negation in the other confirms the view that, also from a cross-sectional point of view, this variable seems ambiguous.

P2S1

	raw coverage	unique coverage	consistency
macrostab*cwb*~openness*~lflex	0.368176	0.291521	0.810742
~macrostab*eomp*~openness*lflex	0.084785	0.019744	0.948052
~macrostab*cwb*openness*lflex	0.163763	0.074332	0.849398

solution coverage: 0.475029
solution consistency: 0.827935

[136] Another specification of p1s1b with a low consistency cut-off was also calculated (see the data annex). By far the most important pathway, in terms of both coverage and consistency, is MACRSTAB*~EOMP*CWB; indeed the unique coverage of the other two pathways is so low that they can surely be neglected. These results thus corroborate the results discussed here (also regarding the comparative irrelevance of OPENNESS).

For the second period in the time invariant specification, three alternate pathways are generated, but only one has a meaningful coverage; the other two can be neglected as spurious. The overall solution coverage is also low (under 0.5), reflecting high unemployment in this period (i.e. small membership in the UR set on this longitudinal specification). For the limited number of success stories, by far the most propitious pathway during this "neoliberal" period appears to have been to combine coordinated wage bargaining and stability-oriented macroeconomic policies in less open economies and with less flexible labour market institutions. By contrast in the two pathways pointing to a positive impact of LMIs, the coverage figures suggest triviality. The lack of members in the EOMP set is notable in this period and specification; cf. the discussion below of the negation of the output set (~UR in the specification P2S1neg) and of the cross-sectional finding (P2S2).

Figure 5.6
XY plot of UR against solution set and its components, P2S1

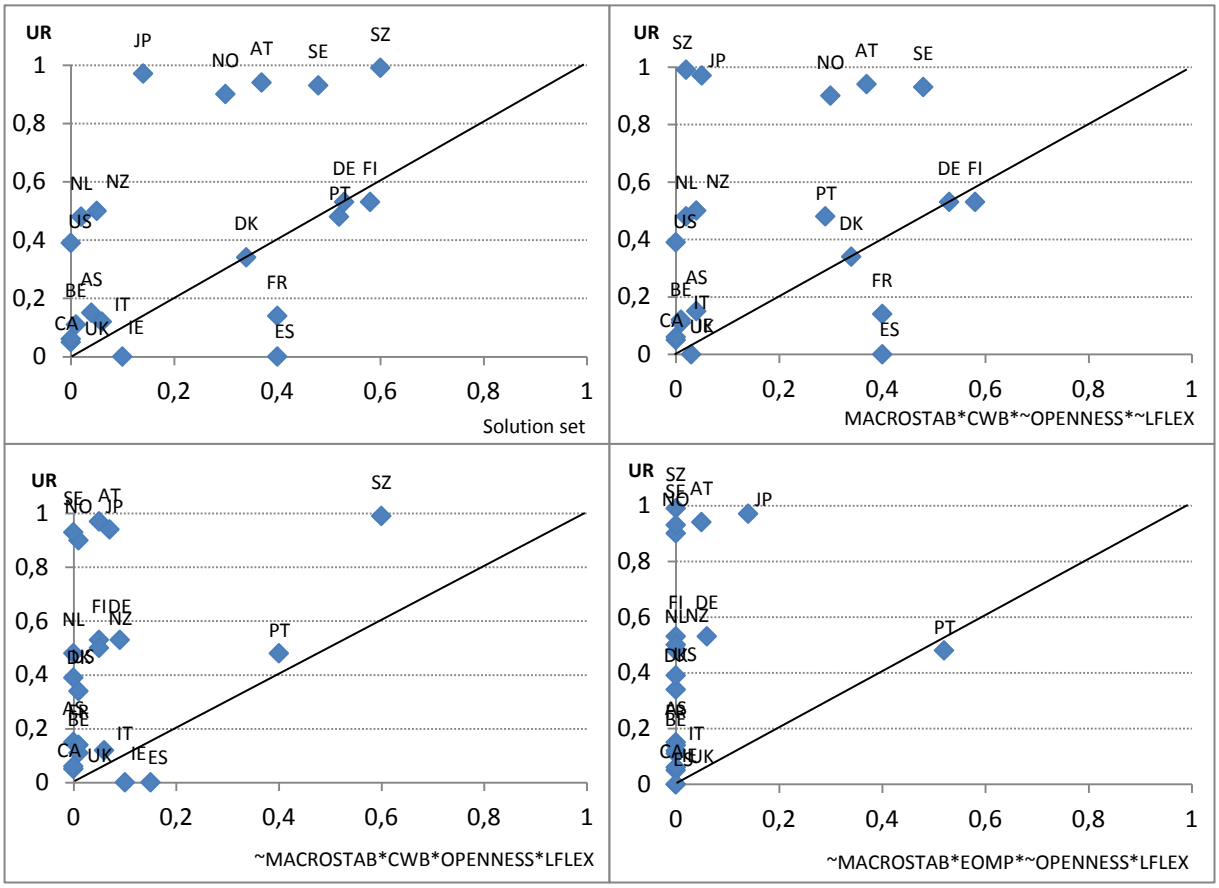


Fig 5.6 provides a visualisation of these results. The outcome set UR is notable for exhibiting a major discontinuity. Four countries have a score of 0.9 or more (SW, JP, AT, SE, NO). There is then a very substantial gap to a larger middle group and a smaller gap to a group with particularly poor performance, each with seven members. Of the five best performers, two had

high and three upper-medium levels of CWB. Only three countries score above 0.5 on the solution set. All the results must therefore be treated with some caution. The excellent performance of Japan is not explained by the solution set. As already noted the solution set outcomes are driven essentially by the first pathway: only Switzerland and Portugal are notably affected by the inclusion, of the second and third pathways. Portugal is in any case not a good performer, while the score for Switzerland reflects its rather coordinated bargaining system, this being the "limiting factor" in constellation two.

p2s1neg

	raw coverage	unique coverage	consistency
~eomp*~cwb*~openness	0.467954	0.199298	0.791976
~macrostab*~cwb*~openness	0.129061	0.018437	0.677419
macrostab*~eomp*openness*lflex	0.435470	0.206321	0.839256

solution coverage: 0.692713

solution consistency: 0.798583

Given the problems of low set membership in the UR outcome set in the "neoliberal period from 1982-1993 – and thus the, for methodological reasons, only partially satisfactory results from the time-invariant specification – it is particularly useful to examine possible causal constellations associated with *poor* labour market performance (~UR).[137] There are two pathways broadly similar in terms of both coverage and consistency, with a third of much more limited significance. The common feature of the two main pathways is clearly monetary policy: there is thus strong evidence that countries with poor unemployment performance suffered from a monetary policy stance inimical to job creation, i.e. in which the policy interest rate was above the growth rate of the economy. That expansionary policy did not show up in the specification P2S1 as generating good outcomes might reflect some asymmetry such that expansionary policy was less effective in driving good performance than restrictive policy in leading to high unemployment; it seems at least equally plausible though – not least given the clear evidence in period 1– that the fact that this did not emerge from the analysis is an artefact of the QCA methodology when applied to these data using time-invariant codings, in this period of historically high unemployment (and thus low UR scores).

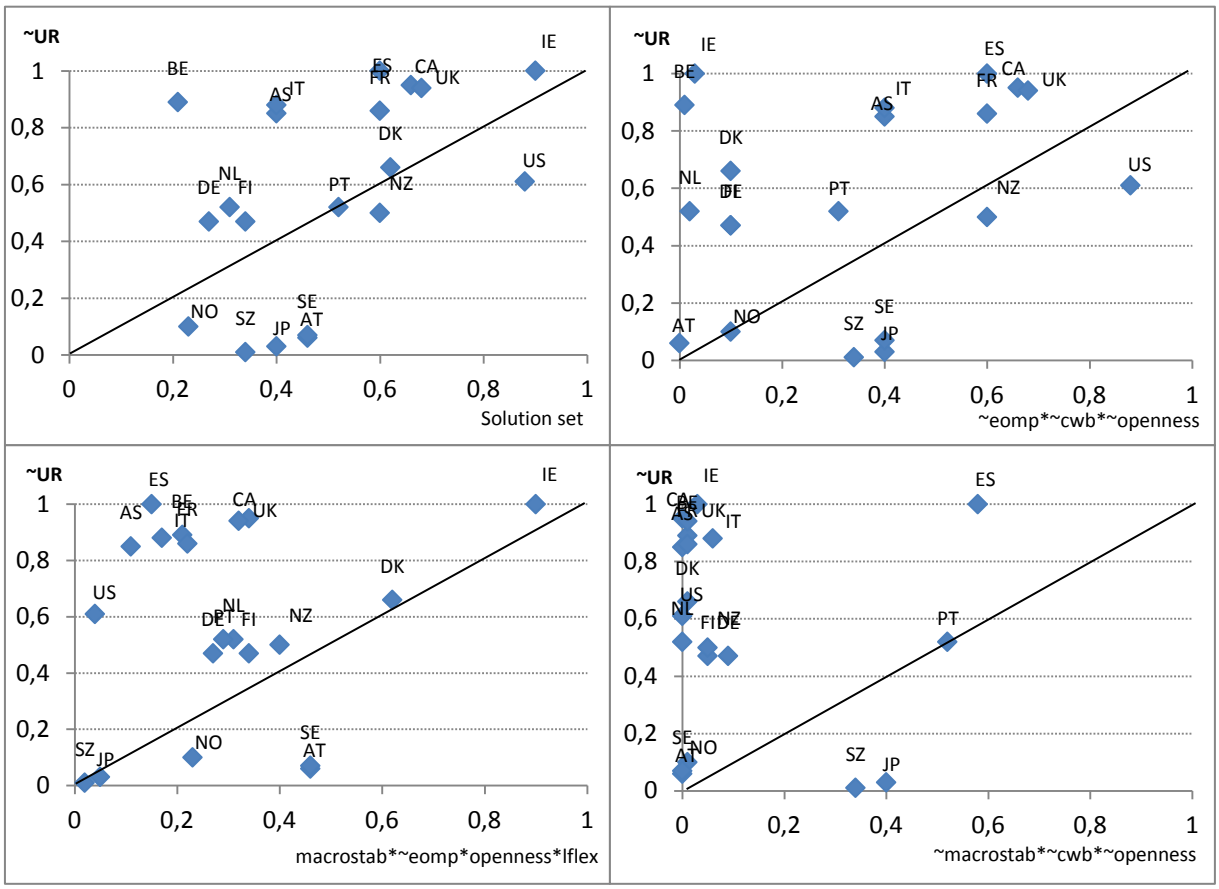
Otherwise these pathways are clearly supportive – in the "mirror image" sense – of the findings for UR: a *lack* of collective bargaining coordination and the *presence* of liberal labour

[137] The phrase "particularly useful" is used given that an examination of the negation of the output set is standard practice; as discussed above (5.1), because of so-called causal asymmetry there is generally no reason to assume a simple "mirror image" between the presence/absence of causes and the presence and absence of the outcome.

market institutions are associated with *poor* labour market performance in this period, just as coordinated bargaining and "illiberal" LMIs are linked to (relatively) good performance. Openness is again found to be ambiguous.

Overall, the consistency of the solution set is rather low, however (below 0.8): a substantial number of cases with features of the identified causal constellations have a "deviant" outcome, i.e. comparatively good labour market performance.

Figure 5.7
XY plot of ~UR against solution set and its components, P2S1neg



The Fig. 5.7 visualises the rather low consistency of the solution set. The USA and to a lesser degree New Zealand reduce consistency, because the solution-set score is higher than the outcome score, but they are not contradictory cases, being members of both sets. Japan, Switzerland Austria and Sweden, the plot implies, have other features than the three pathways indicated by the model to explain their very low membership of the set of countries with poor employment performance, but they are also not contradictory, being more out than in of the solution set. Given that these countries were rather well explained in the previous exercise with UR

as the outcome variable, it again seems plausible to conclude that the QCA methodology delivers more reliable results for high outcome set membership scores and to interpret the results accordingly. Once again Portugal emerges as an outlier: it is the only country for which the third configuration is (uniquely) relevant.

Looking at country patterns, the countries with high unemployment include the majority of the English-speaking countries, the rather closed southern European countries ES, IT and FR, and also BE. The results for the English-speaking countries with the exception of IE are all driven by the first configuration, that is the *lack* of employment-oriented monetary policy and coordinated bargaining and by their comparatively closed nature. The case of Ireland is at least partly responsible for the odd finding that stabilising macro policy is identified with poor performance: the country scores very highly (0.9) on just one component of MACROSTAB (namely countercyclical monetary policy); it would seem prudent not to lay too much store by this finding.[138]

Here too, openness seems decidedly ambiguous, with both highly open and closed countries among all three groups of (poor) employment performers.

P2S2

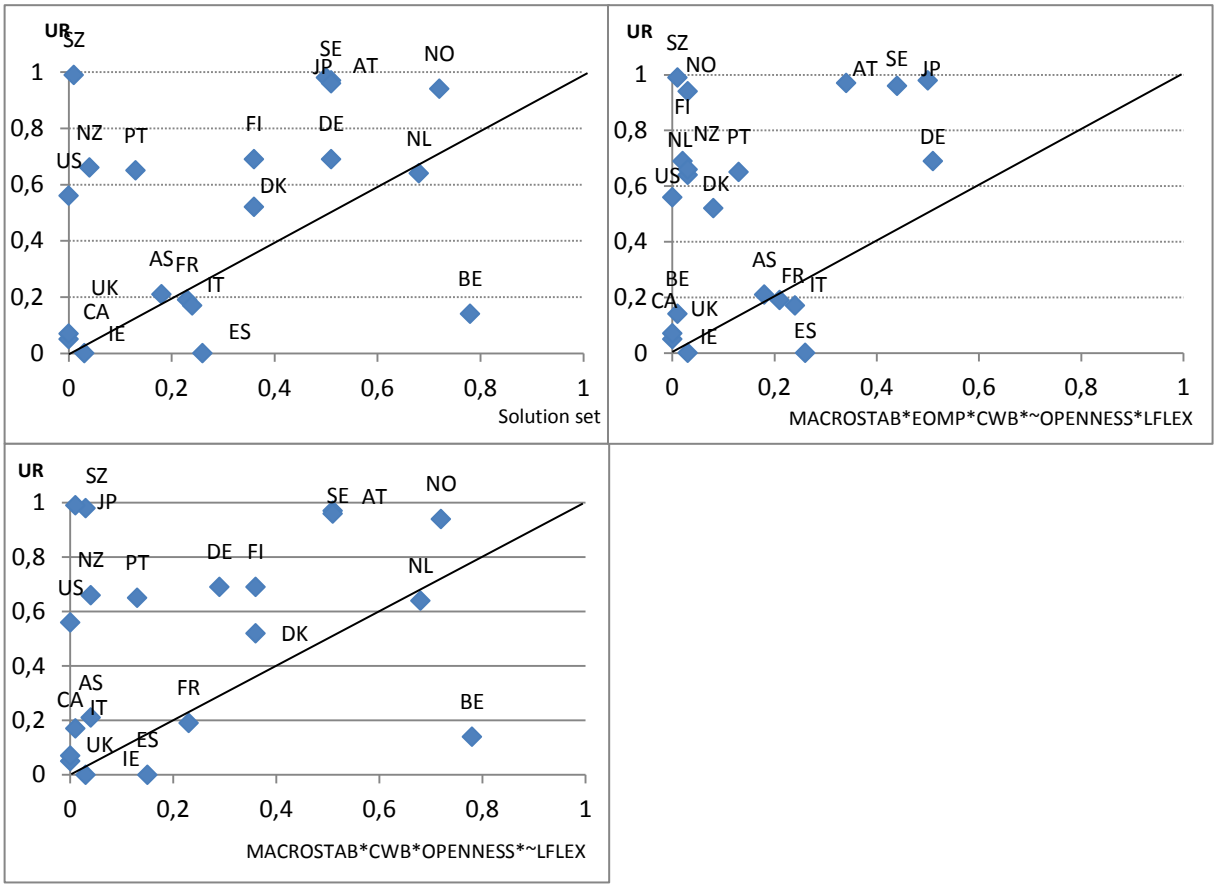
	raw coverage	unique coverage	consistency
macrostab*cwb*openness*~lflex	0.394841	0.228175	0.815574
macrostab*eomp*cwb*~openness*lflex	0.264881	0.098214	0.875410

solution coverage: 0.493056
solution consistency: 0.821488

Finally in our analysis of the second period we consider the cross-sectional perspective. Two configurations form a solution set which only has a coverage of around half and a consistency of 0.82; the coverage is slightly higher than for the time-invariant specification. Stabilisation via macroeconomic policy and coordinated bargaining are the two common features of these two pathways. The very low unique coverage of the second, more complex pathway is testimony to the central importance of these two factors. In the cross-sectional perspective tentative (the unique coverage is limited) further corroboration for the relevance of an employment-oriented monetary policy for good labour market outcomes emerges; once again labour market flexibility and openness have different signs in the configurations, suggesting ambiguity in this period.

[138] The distribution of MACROSTAB, a union of three sets, is strongly upwardly skewed; only in the case of IE, though, does the high score feed through into membership of configuration 2; yet there is only one other member, DK, of this configuration with a score above 0.5.

Figure 5.8
XY plot of UR against solution set and its components, P2S2



As can be seen in Fig. 5.8 the solution set does a good job of explaining the more or less pronounced relative success of the corporatist countries (Nordics, AT, JP, NL, DE) in the second, neo-liberal period. Belgium is a clear deviant case, however. Its institutional framework corresponds to a very high degree to that of the first configuration – while having virtually zero membership in the second – but records amongst the worst labour market performances. Most notably Switzerland, to a lesser extent, NZ PT and, just, the US are not well explained. It is notable that all the English-speaking countries are virtually completely out of the solution set, while their labour market performance (from a cross-sectional perspective) ranges from extremely poor (IE, CA, UK, AS) to somewhat above average (US, NZ).

The figure also indicates the limited relevance of the second configuration. Among the well-performing countries, Japan and Germany's score in the solution set primarily relies on the second configuration, but they are on the point of maximum membership ambiguity of the second configuration. Would we be hasty to dismiss it, and along with it the relevance of labour market flexibility – an element in this configuration – for period 2? A closer examination focus-

ing just on the LFLEX variable shows – contrary perhaps to widely held ex post reflections of the "neo-liberal period" – that it is in no way a reliable predictor of good performance. Only SZ and NZ are characterised by good employment performance and flexible LMIs. As we have seen, the other English-speaking countries had flexible labour markets but – excepting the USA's middling score – very poor outcomes in terms of unemployment.

As we will see, it was not until the third period that this changed.

P3s1b

consistency cutoff: 0.792453

	raw coverage	unique coverage	consistency
~macrostab*~eomp*~openness*lflex	0.230853	0.092998	0.890295
macrostab*eomp*~openness*lflex	0.324945	0.187090	0.769430

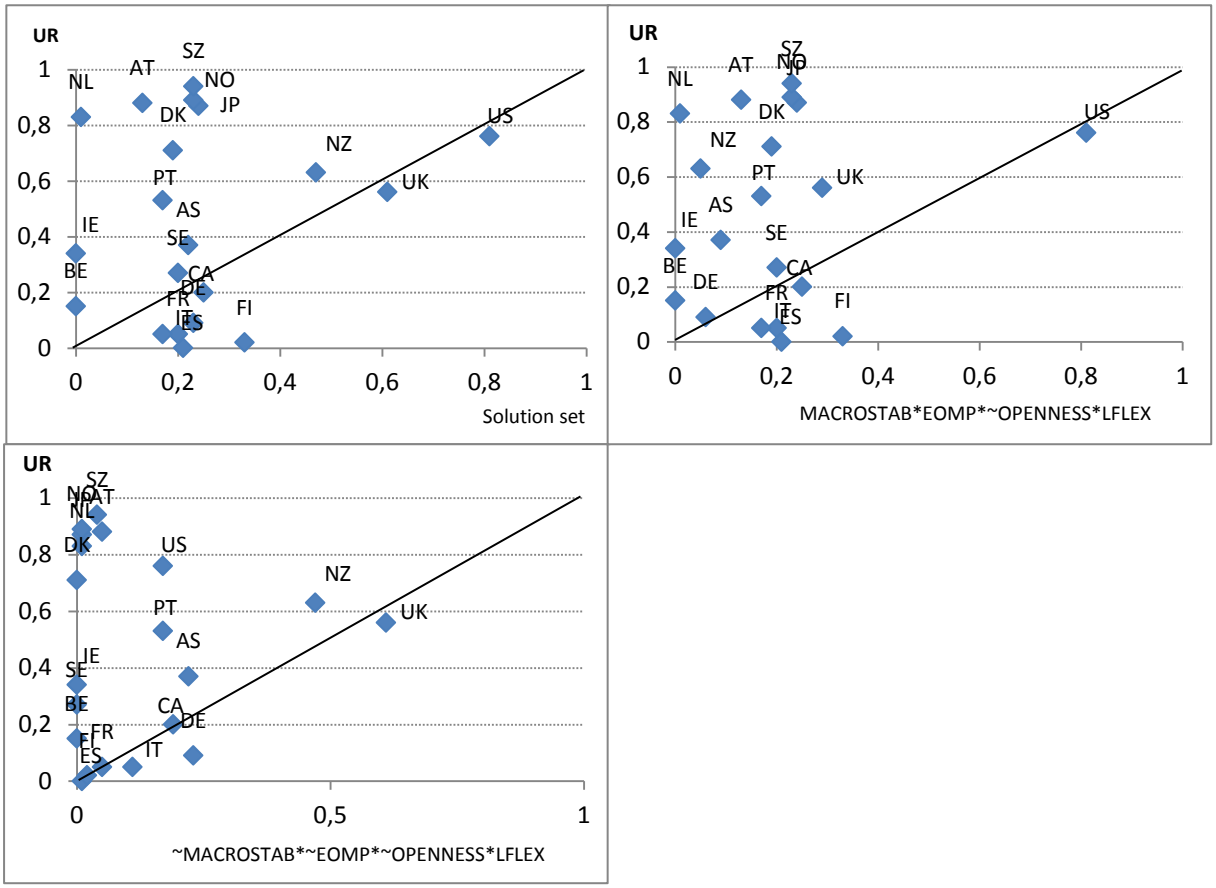
solution coverage: 0.417943

solution consistency: 0.779592

For the period from 1994-2005 we obtain a solution set consisting of two pathways. Both the coverage (0.42) and consistency (0.78) of this solution is disappointingly low, however. The pathways also contain seemingly contradictory implications regarding macroeconomic policy variables. Common to both pathways is the LFLEX variable and also – surprisingly in view of the success of small open economies noted as a stylised fact in Chapter 1 – ~OPENNESS. The pathway with the higher coverage combines these two variables with both stability-oriented macro and expansionary monetary policy. However the exact opposite is recorded for the macro variables in the second pathway, whose unique coverage, on the one hand is only half that of the more intuitive pathway, but with much higher consistency.

Overall the minimisation output is very hard to interpret, except as indicating that in the third period – one is almost tempted to say "finally" – there is unambiguous evidence of a positive role for flexible labour market institutions. Interpretation requires a closer look at the graphical evidence and comparison with the results for ~UR (see below).

Figure 5.9
XY plot of UR against solution set and its components, P3S1



The graphs readily visualise the limited explanatory value of the model. Only three liberal, English-speaking countries are clearly well explained: the US, UK and NZ; and even the latter is actually marginally below the intermediate set membership point. At first sight surprisingly, the minimisation process did not yield pathways – which would then have involved CWB – for the well-performing corporatist countries, such as AT, NL and DK. The most likely reason is the historically poor unemployment performance of Finland and Sweden following the steep crisis of the early 1990s (cf. the discussion of ~UR below). BE would also constitute a deviant case, as in period 2.

P3s2b

consistency cutoff: 0.803440

	raw coverage	unique coverage	consistency
~macrostab*~eomp*~openness*lflex	0.217794	0.106580	0.807560
macrostab*eomp*~openness*lflex	0.271548	0.160334	0.755155

solution coverage: 0.378128

solution consistency: 0.752768

Interestingly the solution set for specification P3S2, that is the cross-sectional view, using time-specific cut-offs to construct the fuzzy sets, is almost exactly the same as for P3S1. The two pathways identified by the minimisation are identical. All the consistency and coverage indicators are slightly weaker, though.[139] The comments made above apply equally to this output.

[139] This is interesting from a methodological point of view. The fuzzy-set means of a number of variables (notably UR, the outcome variable, and for CWB and LFLEX are somewhat higher in the second than in the first specification. This means that there is a greater chance for a country to be considered as a member of these sets. Still the coverage and consistency results in this specification were actually slightly weaker. This suggests that the issue of (specifically) downward skewedness, if not too pronounced, does not necessarily lead to "weak" results from the fsQCA analysis.

Figure 5.10
XY plot of UR against solution set and its components, P3S2

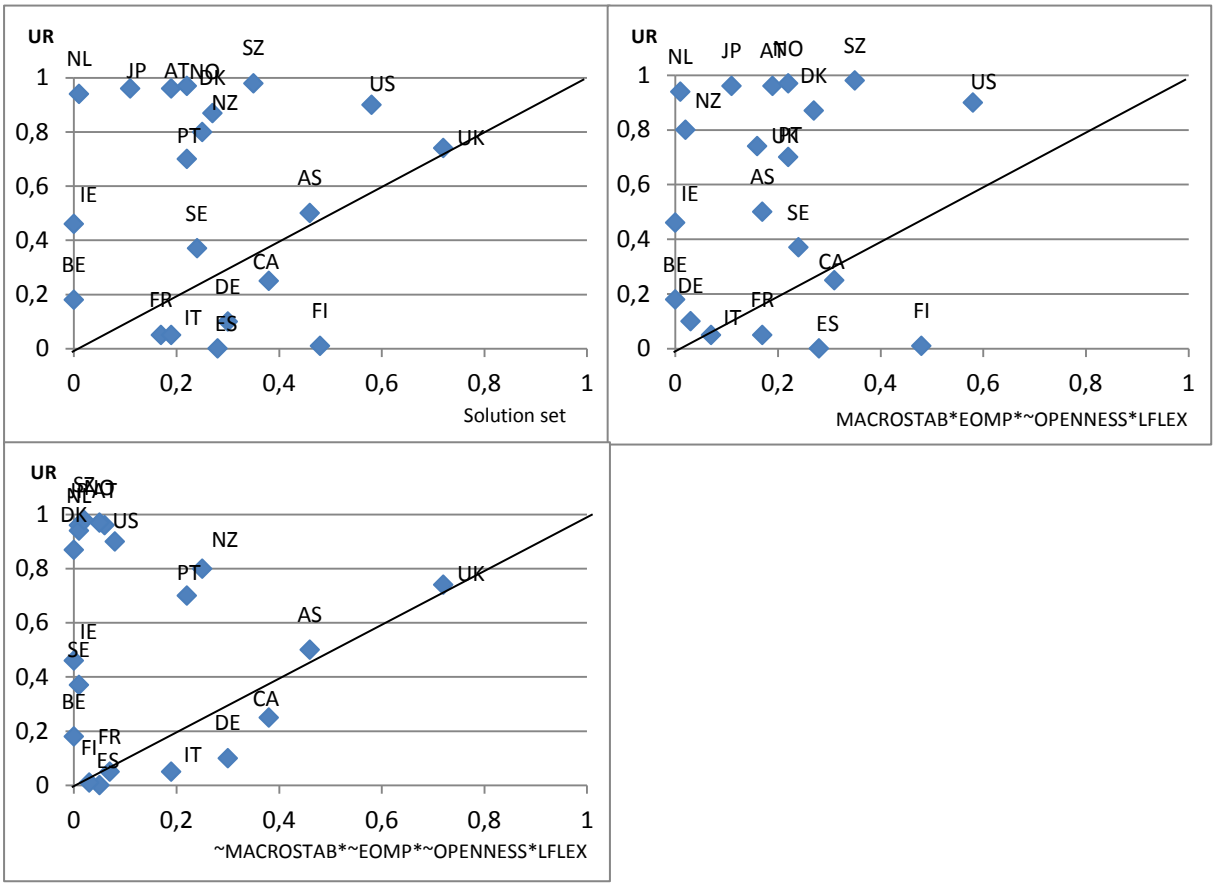


Fig. 5.10 is consequently qualitatively very similar to figure 5.9. Australia more or less takes the place of its Antipodean neighbour NZ is this specification. The upper left quadrant contains a large number of somewhat diverse countries, all with rather good labour market performance (in cross-sectional terms), but which do not fit either of the causal pathways proposed by the minimisation procedure. We note the extreme bunching in the second pathway in the very top right-hand corner – these are cases on which the model sheds no light at all. Again, the poor labour market performers include a number of countries with heterogeneous institutional characteristics, including "southern" countries such as Spain and Italy, but also two Nordic countries and, for the first time, Germany (cf. Chapter 1).

P3s1bneg

consistency cutoff: 0.828080

		raw coverage	unique coverage	consistency
~openness*~lflex	0.365562	0.071823	0.947494	
~eomp*~lflex	0.328729	0.072744	0.875000	
~macrostab*~cwb	0.322284	0.076427	0.817757	
~eomp*~cwb*~openness	0.348066	0.019337	0.828947	

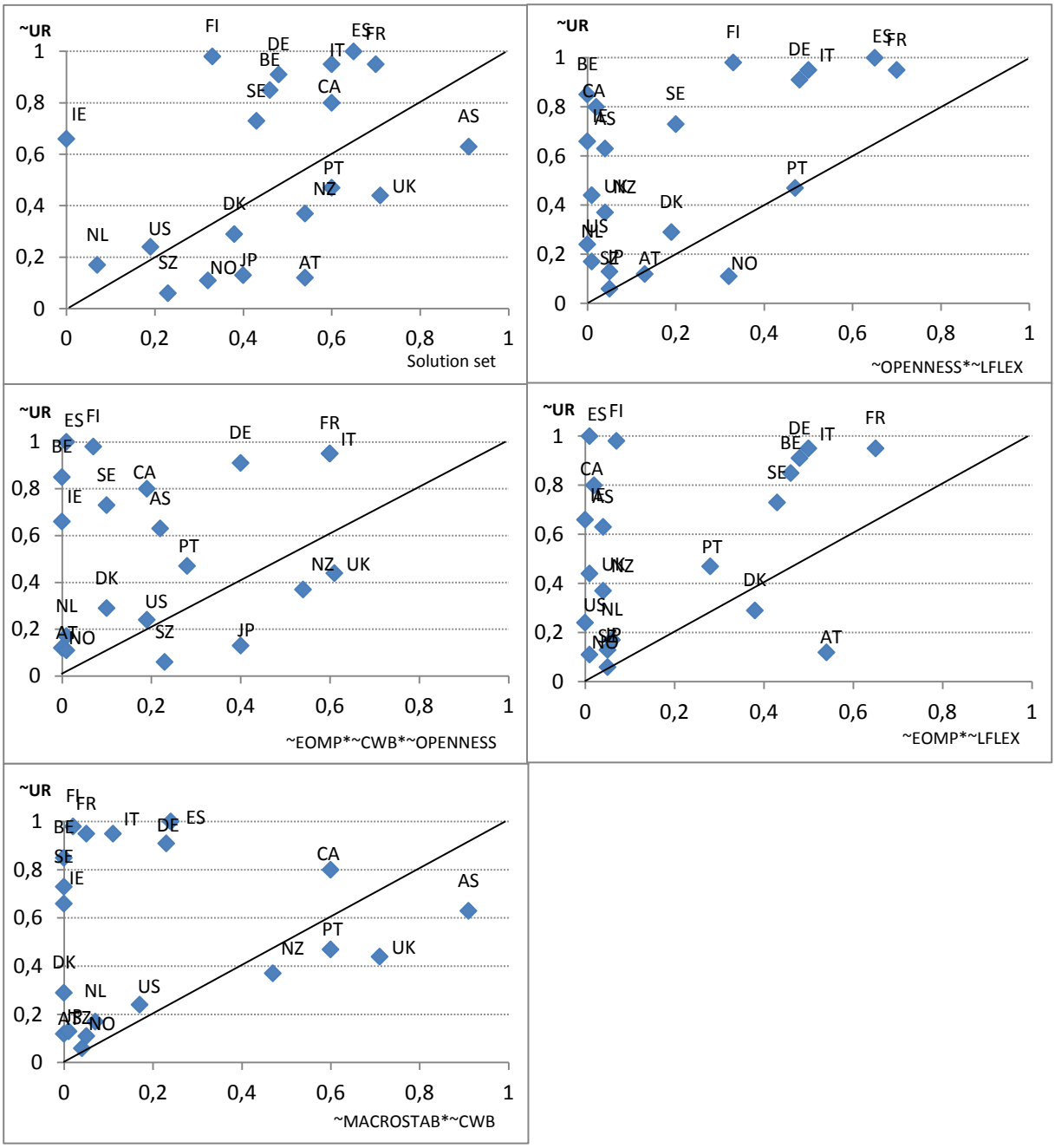
solution coverage: 0.656538

solution consistency: 0.780088

It is therefore instructive to look also at the results for ~UR in period 3. They prove to be more readily interpretable than those with UR as output variable, and offer valuable additional insights on the causes of *poor* labour market performance. There are four pathways with quite similar coverage rates of around one third each. Together the solution set has a very substantially higher coverage (0.66) than was the case for P3S1.

The five variables that make up the pathways are *all* negations, namely of LFLEX, CWB, of MACROSTAB and EOMP and of OPENNESS. This implies a positive role for all variables in avoiding high rates of unemployment in the third period. The two pathways with the highest consistency scores both include the negation of LFLEX; this is the mirror image of the importance for good performance of flexible LMIs. Rather less convincingly in terms of the consistency scores, the other two pathways imply a positive role for coordinated wage bargaining in avoiding high unemployment. Macroeconomic stabilisation, in one case, and expansionary monetary policy in another were necessary elements in establishing the sufficient conditions for avoiding poor labour market outcomes. Last but not least, this is the only one of the eight specifications discussed in detail in which there is strong evidence for a positive impact of openness, although only in the sense that “closedness” was found to be associated in two pathways with poor performance.

Figure 5.11
XY plot of UR against solution set and its components, P3S1neg



The plots avoid the problem of a large bunching of unexplained cases near the top left corner of the graphs (reflecting better coverage of the individual pathways and the solution than with the other two specifications of period 3). There are a number of deviant cases in the solution set though, below and to the right of the 45 degree line, reducing consistency. This applies

to AT, the UK and AS. The extent of the deviation is limited, however. Austria, for instance, is only just in the solution set, while almost completely out of the set of countries of poor labour market performers.

The large unsuccessful economies of southern and core Europe (ES IT, FR, DE) appear with roughly equal scores in the overlapping solutions involving a lack of openness and of labour-market flexibility. In all of them bar Spain, tight monetary policy would seem (from the fuzzy set scores) to be a major contributing factor to poor performance in this period.

5.4 Conclusions from the fsQCA analysis

Overall the fsQCA analysis delivers rich findings concerning the configurations that can be interpreted as causes of good and poor labour market performance in European and OECD countries in the thirty-five years between 1970 and 2005, both from a longitudinal and a cross-sectional perspective. The crudeness of some of the indicators, issues regarding periodisation and time lags, and the fact that the QCA methodology does seem sensitive to issues of skewed membership scores caution against drawing strong conclusions on this basis alone. Shocks, such as those that hit Nordic countries at the start of the 1990s or German unification are clearly important, but can scarcely be accounted for within the scope of this methodology. For some countries, notably Belgium, other explanatory variables are clearly needed. Further, case-study work would be an ideal complement; this is left for a separate endeavour, however.

Key findings from the QCA analysis are:

- Unemployment is characterised by causal complexity, with different policy options available for reaching positive, or suffering poor labour market outcomes.
- It seems that coordinated collective wage bargaining and flexible labour market institutions – as represented here, at least – constitute functional equivalents. The historical record of collective wage bargaining suggests that it is more unambiguously associated with positive outcomes, at least until the period since the early 1990s, since when countries with flexible LMIs tended to perform better. In the first two periods the evidence on the beneficial impact of liberal LMIs is decidedly mixed, to say the least.
- Certainly from a longitudinal perspective monetary policies oriented towards employment (specifically those ensuring short-run interest rates at the level of or below the nominal growth rate of the economy) are closely associated with unemployment trends. None of the other variables changed as much – on average across the countries – over the three periods. Changes in the monetary stance – the shift from employment-oriented policies in the 1970s to monetary rigour in the neo-liberal 1980s and a partial reversal from the early 1990s – are very clearly associated with corresponding, often long-lasting changes in the average unemployment rate across Europe and the OECD.

- The monetary policy story is somewhat more complex from a cross-sectional perspective. Notably, in the first period, within Europe, unemployment was lower in "core" countries than in the southern and western periphery, where monetary policy, on this measure, was more expansionary.
- In most specifications counter-cyclical fiscal or monetary policies to stabilise demand prove favourable to labour market outcomes.
- It is very striking that, in the anti-inflationary struggle characterising the second period, there is strong evidence that a lack of collective wage setting was associated with particularly poor labour market performance, and also – somewhat weaker – evidence that its presence contributed to an institutional configuration that delivered relatively good performance for the period. This was notably not the case for flexible LMIs whose role in this period appears to have been decidedly ambiguous.
- Almost no systematic relationships between labour market performance and the degree of openness of an economy were found, nor was the latter systematically associated with either a "liberal" or a "coordinated" strategy.

6 CONCLUDING REFLECTIONS

The global financial and economic crisis of 2008 ff., followed in Europe by the euro crisis, have in many (but not all) countries pushed unemployment back up to the high levels of the dark days of the early 1990s. At that time the OECD launched its Jobs Strategy, with its emphasis on supply-side, and especially labour market, reform. The academic analysis that underpinned it and accompanied it during the policy debates of the 1990s and 2000s is the stepping-off point for the present study. After all the debates and the very substantial reform efforts undertaken, mass unemployment is very much back, with all its attendant social horrors. And with it, 'reforms' have returned to the policy agenda.

As the discussion in Chapter 1 shows, when I first embarked on this present analysis, just before the global crisis hit, the predominant view was that – in anything but the short run – unemployment was a matter of having the right, or the wrong, labour market and welfare institutions. And right institutions were liberal and flexible and did not shield workers from market conditions. Well-meaning protective institutions, from trade unions to unemployment insurance to dismissal protection, were job-killers.

In the meantime the terms of the debate have changed, to some extent at least. Most academic economists and with them the media and policymakers have now at least partially accepted the view that the rise in unemployment since 2008 has had primarily macroeconomic causes. At least initially, counter-cyclical Keynesian demand-management policies were widely supported. The degree of intellectual progress is limited, however. For the shocks to demand are widely seen as a black swan event whose origins lie outside the immediate economic (policy) system. Worse, even if the original cause was a negative demand shock, the only remedy for lastingly correcting excessively high unemployment is widely perceived as being through painful 'structural reforms'. After the initial Keynesian response, the aggregate demand shortfall has, in many cases, been exacerbated, rather than counter-acted, by fiscal austerity. And, particularly in the countries subject to intrusive supervision from European and international institutions, a renewed attack on real and supposed institutional 'rigidities' has been launched.

This study has taken a comparative perspective over a rather long period of some three and a half decades, up to just before the crisis. Based on both empirical and theoretical considerations it has sought to make the case that employment-oriented nominal wage setting via coordinated forms of collectively bargaining has been a key factor for employment-policy success in a significant number of countries. At the same time, such policies need to be associated with – and that they can effectively underpin – both stabilising and employment-oriented macroeconomic policies in order to achieve lasting success. Small open economies may also manage aggregate demand and achieve employment-policy successes through strategic wage policy. Ultimately though, such policies have a beggar-thy-neighbour aspect; they are not generalisable.

The empirical methods deployed in chapters 4 and 5 can only go a limited way to weighing the hypotheses developed in the early chapters and set out in section 3.4 of this study. These broad, comparative analyses using statistical, correlational and set-theoretic approaches would need to be complemented with comparative in-depth case studies of specific country cases. This is particularly true of the question as to how demand-side policies and supply-side policies, and particularly collective wage setting, actually interact institutionally in different countries at different times. The findings of the present study do shed some light of their own, including on which cases would repay in-depth study. But the focus has here been on the institutional *capacity* for policy interaction and cooperation, rather than the interaction itself. Another key issue on which more empirical light must be shed relates to the changing constraints on macroeconomic policy-setting from different modes of integration into the world and the European economy.

Yet important findings have emerged. The hypothesis that demand-side policy in general, and particularly the stance of monetary policy, is crucial for employment outcomes and that this has been systematically downplayed in the prevailing (pre-crisis) employment-policy discourse, as typified by the OECD Jobs Strategy, is strongly confirmed. The very clear association of changes in the monetary stance with the overall trajectory of unemployment rates over time is so striking that it is something of a wonder that this mechanism plays such a limited role in the mainstream discussion. This remains true even if the choice of monetary stance is clearly not unconstrained (notably by the need to ensure some measure of price stability). With the exception of the first period, due to somewhat special circumstance, the monetary-unemployment link applies also in cross-sectional perspective. And given the rather long time periods considered here – 12 years per period – the link is surely more than merely a flash in the monetary pan, even if a research desideratum would be explicitly to incorporate into the analysis the issue of inflation and its management.

Yet, and this is the second main hypothesis of the study, one which is also strongly confirmed, a monetary stance oriented towards growth and jobs is not sufficient on its own. Both against the background of expansionary policies in the 'Keynesian' period and the shift to a more restrictive stance during the subsequent 'neoliberal' period, a capacity for coordinated collective wage bargaining emerges as a reliable predictor of relatively good labour market performance across the country sample. In line with the theoretical findings discussed in earlier chapters, it seems likely that this reflects an institutional ability in coordinated systems both to "lean against" inflationary pressures in good times and equally to facilitate competitive and disinflationary adjustment without the need to recourse to drastic demand deflation.

Flexible labour market institutions can, in theory, play a similar role. On the evidence produced by and discussed in this study – and it should be reemphasised that the LMI variable deployed in the QCA analysis is rather crude, and further work should seek to use more sophisticated measures – however, it seems that they did not do so nearly as consistently and effectively as coordinated wage bargaining, at least until the more recent period (since the early-mid 1990s). The subsequent period, though, saw a weakening and indeed partial reversal of this

finding. Countries characterised by flexible LMIs (as measured here) improved their performance relative to those relying on bargaining coordination. To some extent, however, this reflects the fact that the institutional capacity to coordinate wage-setting effectively had been misguidedly weakened in many countries. In one prominent case, Ireland, where the wage-coordination was, by contrast, re-engineered in the 1990s the employment outcomes were impressive. (Doubtless this was also due to other factors.)

It seems that, *where it is effectively deployed*, wage-bargaining coordination can still be an effective strategy in the 21st century. Nonetheless, the absolute and relative improvement of the English-speaking countries from the 1990s, with their more liberal institutional framework (true also of Ireland) and – I would argue – a misinterpretation of certain countries, most notably Denmark, as having achieved labour market success thanks to the adoption of liberal institutional frameworks, lent a certain subsequent plausibility to recommendations in the spirit of the Jobs Study.

An important aspect is often overlooked, however. Although the standard policy recommendations did not extend to consciously 'uncoordinating' collective bargaining – as we saw in Chapter 1 the evidence on the positive role of coordination was already strong in the studies conducted in the early 1990s – trade unions were singled out for criticism and trade union density was a frequently included variable, a 'usual suspect', in econometric analyses. Either unions constituted institutional 'rigidities' themselves, or they were seen as unwelcome defenders of undesirable rigidities, for instance in the area of social insurance. Partly as a result of increasing hostility to unions on the part of policymakers – alongside important structural trends, such as the decline of manufacturing – union density was put on a downward trend in most countries, in some cases precipitously so. Even if, as discussed in Chapter 3, collective bargaining coverage rates were to a considerable extent decoupled from this trend, there is no doubt that the capacity for wage coordination has declined, on average, compared with the situation in the 1970s. This is reflected in my own scorings and measures such as the Kenworthy index. Consequently, whatever successes labour market liberalisation has arguably achieved since the 1990s, it needs to be set against the simultaneous weakening that it brought about, perhaps partly unintentionally, to wage bargaining coordination, a tried and tested, effective strategy to maintain low unemployment. In addition – an aspect only fleetingly touched on in this study – income inequality tends to be lower and social outcomes on most indicators better in countries following a 'coordinated' rather than a 'liberal' strategy.

In the first three chapters of this analysis there was considerable discussion of the role of economic openness in helping to determine the scope for various employment-policy strategies and thus, presumably, also outcomes. A number of hypotheses were formulated. Yet the results of the time series analyses in Chapter 4 and of the QCA in Chapter 5 were rather ambiguous regarding its role. There was only weak evidence for the expected higher volatility of nominal demand and wage time series, or even for a greater gap between domestic demand and output in smaller economies. It seems that small open economic have developed coping strategies. And

coordinated wage bargaining can be an important tool. Clear associations between openness and institutional frameworks such as flexible LMIs or coordinated bargaining, and also to unemployment outcomes were hard to make out, though. It does seem the case, though that small open economies performed relatively better in the third period; in previous periods the advantage, such as it was, appears to have lain more with larger economies with smaller tradable sectors.

Historical studies that explicitly analyse policy interactions within a single country over time and relate them to changing performance constitute a fruitful complementary research strategy. Reference was made in the present study to the case of Ireland. The more recent improvement in labour market outcomes in Germany make that country an interesting case: it has now gone full cycle from paragon to sick man and back to employment-policy role model once again.

The euro crisis is, of course, a case in point of the fact that national institutions interact in complex ways with the constraints imposed and opportunities and provided by the regime by which the country is integrated into the regional and global economy. It is hoped that the framework sketched out in this study, fleshed out with careful empirical case study work, will shed some light on this crucial issue to help guide employment-policy debates in Europe in the coming years.

DATA APPENDIX

The appendix contains the following data:

A.1 The original country scores and the fuzzy set codings for the two specifications for all three periods

Period 1: original country scores

Country	urate	uchange	epl	ubrr	CWB	open	autostab	counter-fisc	counte-rmoney	gminusr
AT	1,41	-0,06	2,19	24,68	1,00	30,72	43,30	0,04	0,38	3,03
BE	4,73	0,60	2,88	45,09	1,00	52,16	42,60	-0,12	0,54	0,91
DE	2,23	0,28	3,20	29,12	0,90	19,70	39,39	0,48	0,74	0,02
DK	3,73	0,58	1,93	41,67	1,00	31,38	44,51	0,53	0,03	1,05
ES	5,91	0,98	3,45	19,07	0,90	14,54	27,48	0,03	0,18	8,38
FI	3,95	0,14	2,30	22,45	1,00	26,81	38,14	0,17	0,55	4,55
FR	3,96	0,35	2,91	25,26	0,40	19,26	43,40	-0,16	0,43	4,30
IE	7,83	0,44	0,91	22,40	0,10	45,15	43,09	-0,60	0,06	7,95
IT	6,16	0,18	3,25	1,39	0,40	20,00	33,98	0,24	0,75	7,74
NL	3,80	0,55	2,56	47,91	1,00	47,83	45,54	-0,28	0,54	2,54
PT	5,04	0,39	3,90	4,11	0,40	23,65	25,98	-0,37	-0,62	11,96
SE	2,08	0,05	3,50	17,51	1,00	27,52	53,50	0,07	0,44	0,95
UK	4,11	0,57	0,62	24,27	0,40	25,70	43,95	-0,62	0,76	4,34

Period 1: fuzzy set calculations, specification 1

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AT	0,99	0,77	0,99	0,46	0,61	0,61	0,49	1,00	0,67	0,61	0,53	0,99	0,67	0,67
BE	0,82	0,04	0,82	0,21	0,09	0,21	0,97	1,00	0,61	0,22	0,90	0,73	0,90	0,73
DE	0,97	0,26	0,97	0,14	0,43	0,43	0,17	0,90	0,32	0,99	0,99	0,36	0,99	0,36
DK	0,91	0,04	0,91	0,62	0,13	0,62	0,52	1,00	0,76	1,00	0,01	0,77	1,00	0,77
ES	0,62	0,00	0,62	0,09	0,80	0,80	0,09	0,90	0,01	0,58	0,08	1,00	0,58	0,58
FI	0,90	0,47	0,90	0,41	0,69	0,69	0,36	1,00	0,23	0,86	0,91	1,00	0,91	0,91
FR	0,90	0,18	0,90	0,20	0,58	0,58	0,16	0,40	0,68	0,16	0,69	1,00	0,69	0,69
IE	0,24	0,11	0,24	0,97	0,70	0,97	0,90	0,10	0,65	0,00	0,02	1,00	0,65	0,65
IT	0,57	0,40	0,57	0,13	0,99	0,99	0,17	0,40	0,06	0,93	0,99	1,00	0,99	0,99
NL	0,91	0,05	0,91	0,31	0,06	0,31	0,93	1,00	0,82	0,05	0,90	0,98	0,90	0,90
PT	0,78	0,14	0,78	0,05	0,98	0,98	0,26	0,40	0,00	0,02	0,00	1,00	0,02	0,02
SE	0,98	0,61	0,98	0,09	0,84	0,84	0,38	1,00	0,99	0,68	0,71	0,74	0,99	0,74
UK	0,89	0,05	0,89	0,99	0,62	0,99	0,32	0,40	0,72	0,00	0,99	1,00	0,99	0,99

Period 1: fuzzy set calculations, specification 2

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AT	1,00	0,99	1,00	0,47	0,38	0,47	0,62	0,85	0,88	0,63	0,52	0,23	0,88	0,23
BE	0,22	0,03	0,22	0,22	0,02	0,22	0,96	0,85	0,85	0,30	0,80	0,04	0,85	0,04
DE	1,00	0,62	1,00	0,14	0,23	0,23	0,22	0,77	0,63	0,99	0,95	0,01	0,99	0,01
DK	0,60	0,04	0,60	0,64	0,04	0,64	0,64	0,85	0,92	0,99	0,06	0,04	0,99	0,04
ES	0,05	0,00	0,05	0,10	0,62	0,62	0,10	0,77	0,02	0,61	0,18	0,99	0,61	0,61
FI	0,46	0,90	0,90	0,43	0,47	0,47	0,49	0,85	0,51	0,84	0,81	0,58	0,84	0,58
FR	0,46	0,41	0,46	0,21	0,36	0,36	0,20	0,34	0,89	0,23	0,62	0,52	0,89	0,52
IE	0,00	0,19	0,19	0,97	0,47	0,97	0,91	0,09	0,87	0,01	0,07	0,98	0,87	0,87
IT	0,03	0,85	0,85	0,13	0,98	0,98	0,23	0,34	0,18	0,91	0,96	0,97	0,96	0,96
NL	0,54	0,06	0,54	0,32	0,01	0,32	0,94	0,85	0,95	0,10	0,80	0,16	0,95	0,16
PT	0,15	0,30	0,30	0,05	0,97	0,97	0,36	0,34	0,01	0,05	0,00	1,00	0,05	0,05
SE	1,00	0,97	1,00	0,09	0,69	0,69	0,52	0,85	1,00	0,69	0,64	0,04	1,00	0,04
UK	0,40	0,05	0,40	0,99	0,40	0,99	0,45	0,34	0,91	0,01	0,96	0,53	0,96	0,53

Period 2: original country scores

country	urate	uchange	epl	ubrr	CWB	open	auto-stab	counter-fisc	counter-money	gminusr
AS	8,53	0,42	1,01	24,54	0,60	16,01	33,77	0,99	0,56	-4,40
AT	3,19	0,21	2,19	28,45	1,00	34,47	48,47	-0,11	0,28	-1,34
BE	8,94	-0,07	2,88	42,39	0,90	64,38	49,38	-0,46	0,71	-3,69
CA	9,99	0,31	0,80	19,20	0,00	26,32	42,28	0,13	0,84	-3,63
DE	6,38	0,28	3,15	28,18	0,90	24,06	42,01	-0,48	0,55	-1,21
DK	7,27	0,14	1,93	52,35	0,90	35,06	53,93	0,42	-0,08	-4,92
ES	16,58	0,49	3,45	32,37	0,40	18,67	39,77	-0,03	0,13	-3,75
FI	6,34	0,95	2,28	32,84	0,90	26,21	48,49	0,20	0,60	-5,92
FR	8,63	0,34	2,91	35,54	0,40	22,13	47,19	-0,34	0,75	-4,05
IE	15,18	0,40	0,91	29,46	0,60	53,69	42,86	-0,53	0,54	-3,85
IT	8,78	0,19	3,25	3,19	0,60	19,77	42,75	-0,07	0,58	-4,14
JP	2,47	0,03	2,11	9,80	0,60	10,35	29,15	0,01	0,31	-0,71
NL	6,61	-0,18	2,56	52,85	0,90	54,33	51,89	-0,22	0,84	-2,80
NO	3,91	0,33	2,80	36,78	0,90	36,30	55,32	0,40	0,37	-5,61
NZ	6,50	0,53	1,01	31,23	0,40	28,10	48,68	0,28	0,31	-5,66
PT	6,58	-0,15	3,90	25,71	0,40	30,50	32,22	-0,32	0,30	0,81
SE	3,41	0,55	3,38	28,43	0,60	31,58	62,60	0,22	0,49	-3,59
SZ	1,10	0,28	1,10	20,93	0,60	35,10	30,34	-0,76	-0,09	-6,28
UK	9,63	0,12	0,62	19,40	0,00	25,61	41,55	0,44	0,69	-3,05
US	7,03	-0,07	0,20	12,48	0,00	9,56	31,87	0,48	0,80	-0,77

Period 2: fuzzy set calculations, specification 1

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AS	0,15	0,12	0,15	0,96	0,61	0,96	0,11	0,60	0,06	1,00	0,92	0,00	1,00	0,00
AT	0,94	0,35	0,94	0,46	0,46	0,46	0,63	1,00	0,93	0,24	0,24	0,05	0,93	0,05
BE	0,11	0,78	0,78	0,21	0,12	0,21	0,99	0,90	0,95	0,01	0,99	0,00	0,99	0,00
CA	0,05	0,22	0,22	0,98	0,80	0,98	0,34	0,00	0,58	0,80	1,00	0,00	1,00	0,00
DE	0,53	0,26	0,53	0,15	0,47	0,47	0,27	0,90	0,56	0,01	0,91	0,06	0,91	0,06
DK	0,34	0,47	0,47	0,62	0,04	0,62	0,66	0,90	0,99	0,99	0,00	0,00	0,99	0,00
ES	0,00	0,08	0,08	0,09	0,33	0,33	0,15	0,40	0,36	0,42	0,04	0,00	0,42	0,00
FI	0,53	0,00	0,53	0,42	0,32	0,42	0,34	0,90	0,93	0,89	0,95	0,00	0,95	0,00
FR	0,14	0,19	0,19	0,20	0,25	0,25	0,22	0,40	0,89	0,03	0,99	0,00	0,99	0,00
IE	0,00	0,13	0,13	0,97	0,42	0,97	0,97	0,60	0,63	0,00	0,90	0,00	0,90	0,00
IT	0,12	0,39	0,39	0,13	0,99	0,99	0,17	0,60	0,62	0,33	0,94	0,00	0,94	0,00
JP	0,97	0,65	0,97	0,49	0,95	0,95	0,05	0,60	0,01	0,53	0,31	0,14	0,53	0,14
NL	0,48	0,88	0,88	0,31	0,03	0,31	0,98	0,90	0,98	0,09	1,00	0,00	1,00	0,00
NO	0,90	0,20	0,90	0,23	0,22	0,23	0,70	0,90	0,99	0,99	0,50	0,00	0,99	0,00
NZ	0,50	0,06	0,50	0,96	0,37	0,96	0,40	0,40	0,93	0,95	0,31	0,00	0,95	0,00
PT	0,48	0,86	0,86	0,05	0,56	0,56	0,48	0,40	0,03	0,04	0,29	0,69	0,29	0,29
SE	0,93	0,05	0,93	0,10	0,46	0,46	0,52	0,60	1,00	0,91	0,83	0,00	1,00	0,00
SZ	0,99	0,26	0,99	0,95	0,75	0,95	0,66	0,60	0,02	0,00	0,00	0,00	0,02	0,00
UK	0,06	0,50	0,50	0,99	0,79	0,99	0,32	0,00	0,51	0,99	0,98	0,00	0,99	0,00
US	0,39	0,78	0,78	1,00	0,93	1,00	0,04	0,00	0,03	0,99	1,00	0,12	1,00	0,12

Period 2: fuzzy set calculations, specification 2

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AS	0,21	0,13	0,21	0,96	0,67	0,96	0,11	0,64	0,03	1,00	0,72	0,18	1,00	0,18
AT	0,97	0,61	0,97	0,47	0,49	0,49	0,66	1,00	0,83	0,30	0,11	0,97	0,83	0,83
BE	0,14	0,98	0,98	0,22	0,03	0,22	0,99	0,96	0,87	0,04	0,93	0,40	0,93	0,40
CA	0,05	0,34	0,34	0,98	0,85	0,98	0,36	0,00	0,38	0,70	0,98	0,42	0,98	0,42
DE	0,69	0,42	0,69	0,15	0,51	0,51	0,29	0,96	0,36	0,03	0,70	0,97	0,70	0,70
DK	0,52	0,78	0,78	0,64	0,00	0,64	0,68	0,96	0,97	0,95	0,00	0,08	0,97	0,08
ES	0,00	0,06	0,06	0,09	0,26	0,26	0,15	0,43	0,21	0,43	0,02	0,38	0,43	0,38
FI	0,69	0,00	0,69	0,43	0,24	0,43	0,36	0,96	0,83	0,79	0,80	0,02	0,83	0,02
FR	0,19	0,27	0,27	0,21	0,14	0,21	0,23	0,43	0,76	0,08	0,95	0,27	0,95	0,27
IE	0,00	0,16	0,16	0,97	0,43	0,97	0,97	0,64	0,43	0,02	0,68	0,34	0,68	0,34
IT	0,17	0,67	0,67	0,13	0,99	0,99	0,18	0,64	0,42	0,36	0,76	0,24	0,76	0,24
JP	0,98	0,93	0,98	0,51	0,97	0,97	0,05	0,64	0,01	0,50	0,14	0,99	0,50	0,50
NL	0,64	0,99	0,99	0,32	0,00	0,32	0,97	0,96	0,94	0,17	0,98	0,73	0,98	0,73
NO	0,94	0,29	0,94	0,24	0,10	0,24	0,72	0,96	0,98	0,94	0,25	0,03	0,98	0,03
NZ	0,66	0,04	0,66	0,96	0,32	0,96	0,43	0,43	0,84	0,87	0,14	0,03	0,87	0,03
PT	0,65	0,99	0,99	0,05	0,62	0,62	0,51	0,43	0,02	0,09	0,13	1,00	0,13	0,13
SE	0,96	0,03	0,96	0,11	0,49	0,49	0,56	0,64	1,00	0,81	0,55	0,44	1,00	0,44
SZ	0,99	0,42	0,99	0,95	0,80	0,95	0,68	0,64	0,01	0,00	0,00	0,01	0,01	0,01
UK	0,07	0,82	0,82	0,99	0,84	0,99	0,34	0,00	0,32	0,95	0,91	0,65	0,95	0,65
US	0,56	0,98	0,98	1,00	0,95	1,00	0,04	0,00	0,02	0,96	0,97	0,99	0,97	0,97

Period 3: original country scores

country	urate	uchange	epl	ubrr	cwb	open	auto-stab	counter-fisc	counter-money	gminusr
AS	7,14	-0,49	1,01	25,31	0,00	19,59	35,00	-0,28	-0,15	1,07
AT	4,22	0,10	2,19	31,92	1,00	42,82	49,62	0,09	0,57	0,26
BE	8,51	-0,01	2,88	39,52	0,90	70,05	47,94	-0,15	0,82	0,44
CA	8,14	-0,38	0,80	16,18	0,00	38,08	40,32	-0,73	0,06	1,16
DE	9,13	0,29	2,66	26,75	0,60	30,25	44,66	-0,37	0,26	-1,25
DK	5,43	-0,40	1,93	57,87	0,90	40,11	54,65	0,51	0,74	0,37
ES	14,37	-0,91	3,45	37,12	0,60	26,61	36,99	-0,25	0,46	2,81
FI	11,26	-0,66	2,09	34,92	0,90	35,47	52,02	0,22	0,69	1,82
FR	9,82	-0,11	2,91	38,68	0,40	25,17	49,32	-0,67	0,51	-0,01
IE	7,28	-0,93	0,91	31,29	1,00	77,97	33,22	-0,10	0,51	7,43
IT	9,83	-0,17	3,25	27,07	0,40	24,14	44,73	-0,31	0,53	-0,57
JP	4,26	0,16	2,11	10,12	0,60	10,25	31,37	0,41	-0,17	-0,32
NL	4,69	-0,02	2,56	52,37	0,90	60,80	44,67	-0,35	0,57	1,93
NO	4,03	-0,13	2,80	40,54	0,90	35,88	49,48	-0,08	0,57	2,85
NZ	5,90	-0,48	1,01	28,04	0,00	29,71	40,66	0,01	0,38	-1,30
PT	6,38	0,26	3,90	39,04	0,40	31,84	37,40	-0,10	0,26	0,89
SE	7,64	-0,12	2,30	25,43	0,90	39,76	56,26	-0,31	0,47	0,26
SZ	3,35	0,06	1,10	34,05	0,60	38,72	30,61	0,30	0,61	0,62
UK	6,21	-0,45	0,62	17,23	0,00	27,78	38,92	-0,24	0,14	-0,05
US	5,16	-0,14	0,20	13,22	0,00	12,03	30,96	0,15	0,15	1,18

Period 3: fuzzy set calculations, specification 1

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AS	0,37	0,98	0,98	0,96	0,58	0,96	0,16	0,00	0,09	0,05	0,00	0,78	0,09	0,09
AT	0,88	0,53	0,53	0,46	0,35	0,46	0,87	1,00	0,95	0,72	0,93	0,46	0,95	0,46
BE	0,15	0,70	0,85	0,21	0,16	0,21	1,00	0,90	0,92	0,17	1,00	0,54	1,00	0,54
CA	0,20	0,96	0,96	0,98	0,87	0,98	0,75	0,00	0,40	0,00	0,02	0,81	0,40	0,40
DE	0,09	0,24	0,91	0,28	0,52	0,52	0,47	0,60	0,77	0,02	0,19	0,06	0,77	0,06
DK	0,71	0,97	0,97	0,62	0,02	0,62	0,81	0,90	0,99	1,00	0,99	0,51	1,00	0,51
ES	0,00	1,00	1,00	0,09	0,21	0,21	0,35	0,60	0,17	0,07	0,76	0,99	0,76	0,76
FI	0,02	0,99	0,99	0,50	0,26	0,50	0,67	0,90	0,98	0,91	0,98	0,93	0,98	0,93
FR	0,05	0,82	0,95	0,20	0,18	0,20	0,30	0,40	0,95	0,00	0,86	0,35	0,95	0,35
IE	0,34	1,00	1,00	0,97	0,37	0,97	1,00	1,00	0,05	0,26	0,86	1,00	0,86	0,86
IT	0,05	0,87	0,95	0,13	0,50	0,50	0,27	0,40	0,77	0,04	0,89	0,17	0,89	0,17
JP	0,87	0,43	0,43	0,49	0,95	0,95	0,05	0,60	0,02	0,99	0,00	0,24	0,99	0,24
NL	0,83	0,71	0,71	0,31	0,04	0,31	0,99	0,90	0,77	0,03	0,93	0,94	0,93	0,93
NO	0,89	0,84	0,84	0,23	0,15	0,23	0,68	0,90	0,95	0,30	0,93	0,99	0,95	0,95
NZ	0,63	0,98	0,98	0,96	0,47	0,96	0,46	0,00	0,43	0,53	0,53	0,05	0,53	0,05
PT	0,53	0,28	0,47	0,05	0,17	0,17	0,53	0,40	0,19	0,26	0,19	0,72	0,26	0,26
SE	0,27	0,83	0,83	0,41	0,57	0,57	0,80	0,90	1,00	0,04	0,79	0,46	1,00	0,46
SZ	0,94	0,59	0,59	0,95	0,29	0,95	0,77	0,60	0,02	0,96	0,96	0,62	0,96	0,62
UK	0,56	0,98	0,98	0,99	0,85	0,99	0,39	0,00	0,29	0,08	0,05	0,33	0,29	0,29
US	0,76	0,85	0,85	1,00	0,92	1,00	0,06	0,00	0,02	0,83	0,05	0,81	0,83	0,81

Period 3: fuzzy set calculations, specification 2

country	ur	uc	uperf	emppl	repr	lflex	open-ness	cwb	astab	ccfp	ccmp	eomp	macro-stab	macro-emp
AS	0,50	0,91	0,91	0,96	0,78	0,96	0,13	0,00	0,06	0,17	0,00	0,54	0,17	0,17
AT	0,96	0,06	0,96	0,44	0,48	0,48	0,81	1,00	0,94	0,87	0,87	0,24	0,94	0,24
BE	0,18	0,13	0,18	0,20	0,21	0,21	1,00	1,00	0,89	0,41	0,99	0,29	0,99	0,29
CA	0,25	0,79	0,79	0,98	0,96	0,98	0,62	0,00	0,31	0,00	0,02	0,57	0,31	0,31
DE	0,10	0,01	0,10	0,27	0,73	0,73	0,34	0,68	0,70	0,08	0,17	0,03	0,70	0,03
DK	0,87	0,82	0,87	0,58	0,01	0,58	0,71	1,00	0,99	1,00	0,98	0,27	1,00	0,27
ES	0,00	1,00	1,00	0,09	0,28	0,28	0,25	0,68	0,11	0,21	0,66	0,95	0,66	0,66
FI	0,01	0,98	0,98	0,48	0,36	0,48	0,49	1,00	0,97	0,96	0,96	0,80	0,97	0,80
FR	0,05	0,26	0,26	0,19	0,23	0,23	0,22	0,45	0,93	0,01	0,77	0,17	0,93	0,17
IE	0,46	1,00	1,00	0,97	0,50	0,97	1,00	1,00	0,03	0,52	0,77	1,00	0,77	0,77
IT	0,05	0,37	0,37	0,12	0,71	0,71	0,20	0,45	0,71	0,13	0,81	0,07	0,81	0,07
JP	0,96	0,03	0,96	0,47	0,99	0,99	0,05	0,68	0,01	0,99	0,00	0,11	0,99	0,11
NL	0,94	0,14	0,94	0,30	0,03	0,30	0,99	1,00	0,70	0,10	0,87	0,82	0,87	0,82
NO	0,97	0,30	0,97	0,22	0,19	0,22	0,50	1,00	0,94	0,57	0,87	0,95	0,94	0,94
NZ	0,80	0,90	0,90	0,96	0,67	0,96	0,33	0,00	0,34	0,75	0,44	0,02	0,75	0,02
PT	0,70	0,01	0,70	0,05	0,22	0,22	0,39	0,45	0,13	0,52	0,17	0,46	0,52	0,46
SE	0,37	0,28	0,37	0,39	0,78	0,78	0,70	1,00	0,99	0,13	0,69	0,24	0,99	0,24
SZ	0,98	0,08	0,98	0,95	0,39	0,95	0,65	0,68	0,01	0,98	0,91	0,36	0,98	0,36
UK	0,74	0,87	0,87	0,99	0,95	0,99	0,28	0,00	0,21	0,23	0,05	0,16	0,23	0,16
US	0,90	0,32	0,90	1,00	0,98	1,00	0,06	0,00	0,01	0,92	0,06	0,58	0,92	0,58

A.2 Descriptive statistics of the fuzzy sets for the three periods and two specifications

p1s1

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.8061538	0.205484	0.24	0.99	13	0
uc	0.24	0.2381015	0	0.77	13	0
uperf	0.8061538	0.205484	0.24	0.99	13	0
emppl	0.3592308	0.309204	0.05	0.99	13	0
repr	0.5784615	0.3049047	0.06	0.99	13	0
lflex	0.6938462	0.2546049	0.21	0.99	13	0
openness	0.44	0.2967776	0.09	0.97	13	0
cwb	0.7307692	0.3195781	0.1	1	13	0
astab	0.5015385	0.3214593	0	0.99	13	0
ccfp	0.4692308	0.3892885	0	1	13	0
ccmp	0.5938462	0.3992211	0	0.99	13	0
eomp	0.89	0.1852649	0.36	1	13	0
macrostab	0.7907692	0.2665582	0.02	1	13	0
macroemp	0.6923077	0.2564297	0.02	0.99	13	0

p2s1

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.4305	0.3455355	0	0.99	20	0
uc	0.3615	0.2818382	0	0.88	20	0
uperf	0.586	0.3088268	0.08	0.99	20	0
emppl	0.5135	0.3646269	0.05	1	20	0
repr	0.4935	0.2902977	0.03	0.99	20	0
lflex	0.6535	0.3042577	0.21	1	20	0
openness	0.45	0.2977247	0.04	0.99	20	0
cwb	0.58	0.3108054	0	1	20	0
astab	0.6	0.3766165	0.01	1	20	0
ccfp	0.5105	0.4186583	0	1	20	0
ccmp	0.655	0.3798092	0	1	20	0
eomp	0.053	0.1516608	0	0.69	20	0
macrostab	0.8395	0.2773711	0.02	1	20	0
macroemp	0.033	0.07156116	0	0.29	20	0

p3s1

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.457	0.3311661	0	0.94	20	0
uc	0.7775	0.2370628	0.24	1	20	0
uperf	0.8385	0.1835286	0.43	1	20	0
emppl	0.5395	0.3463448	0.05	1	20	0
repr	0.4215	0.2867277	0.02	0.95	20	0
lflex	0.613	0.3171451	0.17	1	20	0
openness	0.569	0.3005977	0.05	1	20	0
cwb	0.55	0.3694591	0	1	20	0
astab	0.5365	0.3887322	0.02	1	20	0
ccfp	0.363	0.377824	0	1	20	0
ccmp	0.5955	0.3997434	0	1	20	0
eomp	0.588	0.3095254	0.05	1	20	0
macrostab	0.7695	0.2813979	0.09	1	20	0
macroemp	0.487	0.2963461	0.05	0.95	20	0

p1s2

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.4546154	0.3532621	0	1	13	0
uc	0.4161538	0.3812235	0	0.99	13	0
uperf	0.5776923	0.3274882	0.05	1	13	0
emppl	0.3661538	0.3095291	0.05	0.99	13	0
repr	0.4338462	0.309554	0.01	0.98	13	0
lflex	0.61	0.2815069	0.22	0.99	13	0
openness	0.5107692	0.2814376	0.1	0.96	13	0
cwb	0.6211538	0.2716414	0.085	0.85	13	0
astab	0.6630769	0.3505026	0.01	1	13	0
ccfp	0.4892308	0.3703525	0.01	0.99	13	0
ccmp	0.5669231	0.3517951	0	0.96	13	0
eomp	0.4684615	0.39219	0.01	1	13	0
macrostab	0.8338462	0.2469986	0.05	1	13	0
macroemp	0.3569231	0.324402	0.01	0.96	13	0

p2s2

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.504	0.3568109	0	0.99	20	0
uc	0.4955	0.3613374	0	0.99	20	0
uperf	0.7065	0.3133732	0.06	0.99	20	0
emppl	0.519	0.3626279	0.05	1	20	0
repr	0.485	0.3319413	0	0.99	20	0
lflex	0.66	0.3062189	0.21	1	20	0
openness	0.464	0.2980168	0.04	0.99	20	0
cwb	0.6171	0.3281528	0	1	20	0
astab	0.5115	0.3710697	0.01	1	20	0
ccfp	0.4995	0.3773655	0	1	20	0
ccmp	0.536	0.3763828	0	0.98	20	0
eomp	0.457	0.3593063	0.01	1	20	0
macrostab	0.7725	0.2841105	0.01	1	20	0
macroemp	0.3675	0.2830702	0.01	0.97	20	0

p3s2

Variable	Mean	Std. Dev.	Minimum	Maximum	N Cases	Missing
ur	0.5395	0.3714764	0	0.98	20	0
uc	0.463	0.3799618	0.01	1	20	0
uperf	0.7505	0.2986047	0.1	1	20	0
emppl	0.5305	0.3495923	0.05	1	20	0
repr	0.5225	0.3186044	0.01	0.99	20	0
lflex	0.651	0.3111254	0.21	1	20	0
openness	0.486	0.302678	0.05	1	20	0
cwb	0.6034	0.3981091	0	1	20	0
astab	0.499	0.3949038	0.01	0.99	20	0
ccfp	0.4775	0.3659081	0	1	20	0
ccmp	0.553	0.3779034	0	0.99	20	0
eomp	0.4315	0.3187989	0.02	1	20	0
macrostab	0.772	0.2591062	0.17	1	20	0
macroemp	0.3735	0.2812521	0.02	0.94	20	0

A.3 Analysis of necessary conditions

p1s1; outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.705153	0.819290
openness	0.466603	0.854895
cwb	0.833015	0.918947
astab	0.582061	0.935583
ccfp	0.537214	0.922951
ccmp	0.676527	0.918394
eomp	0.896947	0.812446
macrostab	0.872137	0.889105

p2s1; outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.765389	0.504208
openness	0.638792	0.611111
cwb	0.794425	0.589655
astab	0.670151	0.480833
ccfp	0.569106	0.479922
ccmp	0.585366	0.384733
eomp	0.098722	0.801887
macrostab	0.813008	0.416915

p3s1; outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.775711	0.578303
openness	0.730853	0.586995
cwb	0.643326	0.534545
astab	0.567834	0.483691
ccfp	0.632385	0.796143
ccmp	0.663020	0.508816
eomp	0.736324	0.572279
macrostab	0.899344	0.534113

p1s2; Outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.673435	0.501892
openness	0.678511	0.603916
cwb	0.879019	0.643344
astab	0.888325	0.609049
ccfp	0.686971	0.638365
ccmp	0.732656	0.587517
eomp	0.350254	0.339901
macrostab	0.961083	0.523985

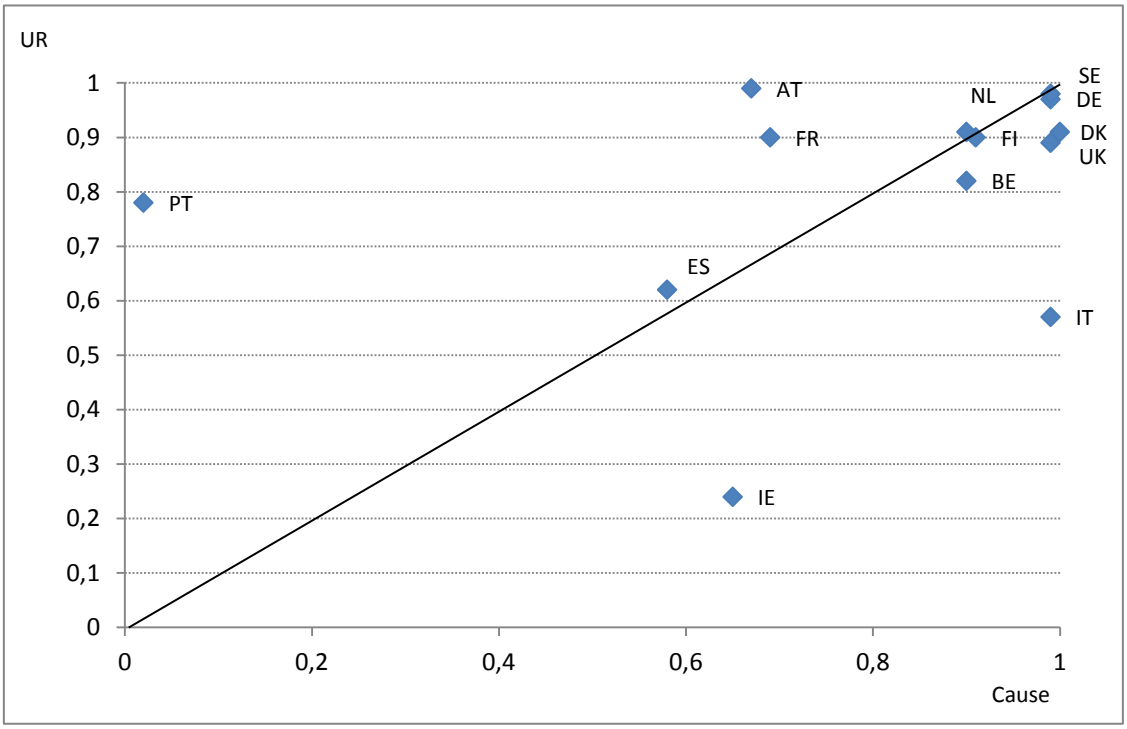
p2s2, Outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.752976	0.575000
openness	0.614087	0.667026
cwb	0.787897	0.643494
astab	0.625992	0.616813
ccfp	0.584325	0.589590
ccmp	0.469246	0.441231
eomp	0.585317	0.645514
macrostab	0.789683	0.515210

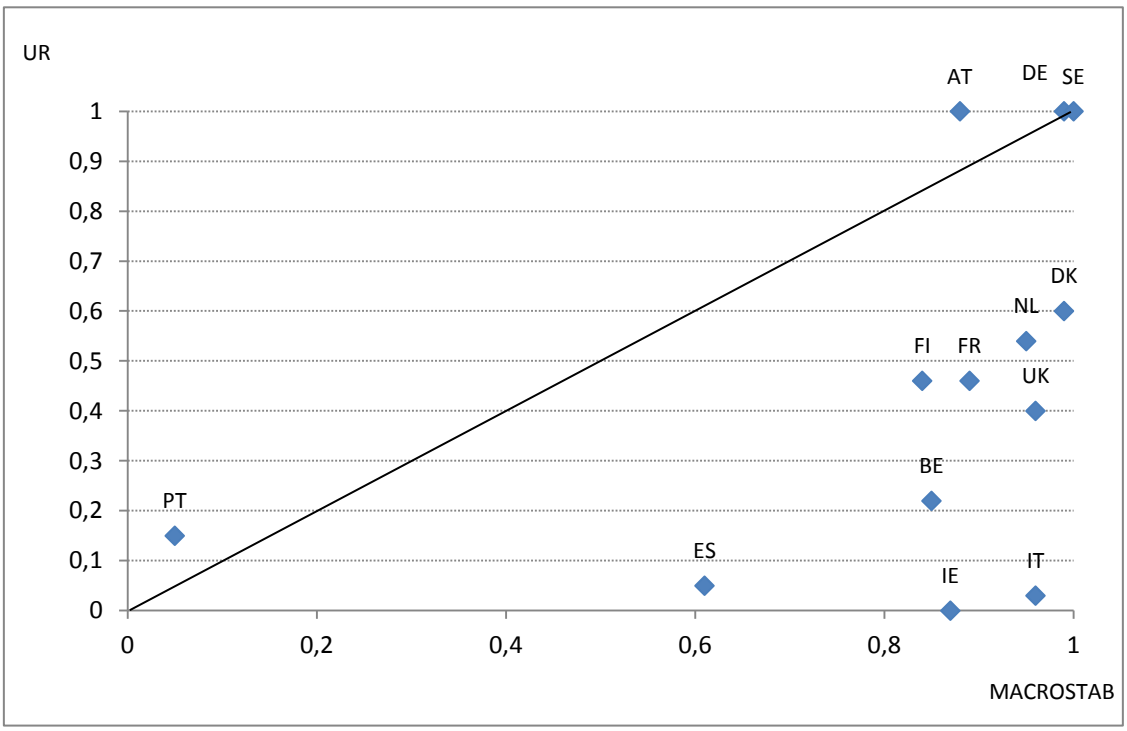
p3s2, Outcome variable: ur; Conditions tested:

	Consistency	Coverage
lflex	0.752549	0.623656
openness	0.585728	0.650206
cwb	0.627248	0.560822
astab	0.487488	0.527054
ccfp	0.726599	0.820942
ccmp	0.588508	0.574141
eomp	0.531974	0.665122
macrostab	0.889713	0.621762

Annex Fig. 1: X-Y plot MACROSTAB against UR, P1S1



Annex Fig. 2: X-Y plot MACROSTAB against UR, P1S2



A4 Intermediate solutions

Period 1: P1s1, a-c

P1s1a

consistency cutoff: 0.968085

	raw coverage	unique coverage	consistency
eomp*~openness*lflex	0.572519	0.220420	0.931677
ccmp*ccfp*cwb*~openness	0.317748	0.044847	1.000000
eomp*ccmp*astab*cwb*openness	0.312977	0.109733	1.000000
eomp*ccfp*astab*cwb*lflex	0.281489	0.028626	1.000000

solution coverage: 0.772901

solution consistency: 0.948478

P1s1b

consistency cutoff: 0.985714

	raw coverage	unique coverage	consistency
macrostab*cwb*~openness	0.484733	0.044847	1.000000
eomp*~openness*lflex	0.572519	0.132634	0.931677
macrostab*eomp*cwb	0.665076	0.225191	0.998567

solution coverage: 0.842557

solution consistency: 0.951509

P1s1c

consistency cutoff: 0.985714

	raw coverage	unique coverage	consistency
cwb*~openness	0.524809	0.038168	0.951557
~openness*lflex	0.579198	0.092557	0.932412
macroemp*cwb	0.665076	0.225191	0.998567

solution coverage: 0.842557

solution consistency: 0.941365

Period 1: p1s2, a-c

P1s2a

consistency cutoff: 0.915094

	raw coverage	unique coverage	consistency
ccmp*ccfp*astab*cwb	0.494078	0.098139	0.909657
eomp*ccmp*astab*~openness*~lflex	0.235195	0.038917	0.908497
ccfp*astab*cwb*openness*lflex	0.483925	0.093063	0.931596

solution coverage: 0.626058

solution consistency: 0.900243

P1s2b hi

consistency cutoff: 0.982405

	raw coverage	unique coverage	consistency
macrostab*~eomp*cwb*~openness	0.545685	0.115905	0.993837
macrostab*cwb*openness*lflex	0.588832	0.159052	0.900388

solution coverage: 0.704738

solution consistency: 0.915385

P1s2b lo

consistency cutoff: 0.764368

	raw coverage	unique coverage	consistency
macrostab*~eomp*cwb	0.826565	0.173435	0.802794
macrostab*cwb*openness	0.651438	0.003384	0.741097
macrostab*eomp*~openness*~lflex	0.245347	0.020305	0.755208

solution coverage: 0.868866

solution consistency: 0.728369

P1s2c hi

consistency cutoff: 0.885533

	raw coverage	unique coverage	consistency
~macroemp*cwb*~openness	0.577834	0.115905	0.845297
cwb*openness*lflex	0.605753	0.143824	0.861613

solution coverage: 0.721658

solution consistency: 0.831384

P1s2c lo

consistency cutoff: 0.764368

	raw coverage	unique coverage	consistency
~macroemp*cwb	0.858714	0.173435	0.737645
cwb*openness	0.668359	-0.000000	0.720146
macroemp*~openness*~lflex	0.245347	0.020305	0.755208

solution coverage: 0.885787

solution consistency: 0.712245

Period 2: p2s1, a-c

P2s1a

```
consistency cutoff:   0.944444

                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
eomp*~openness*lflex               0.098722    0.087108    0.955056
ccmp*ccfp*astab*cwb                0.295006    0.283391    0.806349
solution coverage:    0.382114
solution consistency: 0.835025
```

P2s1b

```
consistency cutoff:   0.810742
                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
macrostab*cwb*~openness*~lflex     0.368176    0.291521    0.810742
~macrostab*eomp*~openness*lflex    0.084785    0.019744    0.948052
~macrostab*cwb*openness*lflex      0.163763    0.074332    0.849398
solution coverage:    0.475029
solution consistency: 0.827935
```

P2s1c

Minimisation analysis not performed/meaningless

Period 2: p2s2, a-c

P2s2a (HI consistency)

consistency cutoff: 0.974522

	raw coverage	unique coverage	consistency
ccmp*ccfp*astab*cwb	0.227183	0.227183	0.874046

solution coverage: 0.227183

solution consistency: 0.874046

P2s2a (LO consistency)

consistency cutoff: 0.879195

	raw coverage	unique coverage	consistency
ccmp*ccfp*astab*cwb	0.227183	0.032738	0.874046
ccfp*astab*cwb*openness	0.341071	0.119841	0.910005
eomp*~ccmp*astab*cwb*openness	0.191468	0.039683	0.800830
eomp*ccmp*cwb*~openness*lflex	0.197421	0.071429	0.934272

solution coverage: 0.510714

solution consistency: 0.845598

P2s2b

consistency cutoff: 0.800000

	raw coverage	unique coverage	consistency
macrostab*cwb*openness*~lflex	0.394841	0.228175	0.815574
macrostab*eomp*cwb*~openness*lflex	0.264881	0.098214	0.875410

solution coverage: 0.493056

solution consistency: 0.821488

P2s2c

consistency cutoff: 0.804274

	raw coverage	unique coverage	consistency
cwb*~lflex	0.468254	0.024802	0.774278
macroemp*cwb	0.404762	0.088294	0.768362
cwb*openness	0.586111	0.122817	0.733366

solution coverage: 0.719048

solution consistency: 0.729028

Period 3: p3s1, a-c

P3s1a

```
consistency cutoff:   0.887931
here choices of PI were necessary to reduce complexity: THERE ARE 8 SOLUTION
 SETS IF NO PI IS CHOSEN. THIS SEEMED TO BE THE MOST PLAUSIBLE

                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
ccfp*~astab*~openness*lflex       0.316193    0.120350    0.929260
~eomp*~ccmp*~cwb*~openness*lflex  0.282276    0.112691    0.832258
eomp*ccmp*ccfp*~astab*cwb*lflex   0.145514    0.068928    0.950000
~eomp*ccmp*ccfp*astab*cwb*
openness*~lflex                   0.157549    0.103939    0.947368
solution coverage:    0.617068
solution consistency: 0.875776
```

P3s1b hi

```
consistency cutoff:   0.887931
                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
~macrostab*~eomp*~openness*lflex  0.230853    0.230853    0.890295
solution coverage:    0.230853
solution consistency: 0.890295
```

P3s1b lo

```
consistency cutoff:   0.792453
                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
~macrostab*~eomp*~openness*lflex  0.230853    0.092998    0.890295
macrostab*eomp*~openness*lflex    0.324945    0.187090    0.769430
solution coverage:    0.417943
solution consistency: 0.779592
```

P3s1c

No country makes an 0.8 cut-off

Period 3: p3s2, a.-c

P3s2a hi

consistency cutoff: 0.894958

	raw coverage	unique coverage	consistency
~eomp*ccfp*~astab*~openness*lflex	0.299351	0.224282	0.955621
~eomp*ccmp*ccfp*~astab*cwb*lflex	0.120482	0.045412	0.896552

solution coverage: 0.344764

solution consistency: 0.961240

p3s2a lo

consistency cutoff: 0.803636

	raw coverage	unique coverage	consistency
ccfp*~openness*lflex	0.415199	0.050973	0.851711
~eomp*ccfp*~astab*~openness	0.327155	0.027804	0.959239
~eomp*~astab*~openness*lflex	0.400371	0.097312	0.867470
ccmp*ccfp*cwb*lflex	0.291752	0.119370	0.787394
eomp*ccmp*astab*cwb*openness	0.226135	0.091752	0.743903

solution coverage: 0.787581

solution consistency: 0.844060

P3s2b

consistency cutoff: 0.803440

	raw coverage	unique coverage	consistency
~macrostab*~eomp*~openness*lflex	0.217794	0.106580	0.807560
macrostab*eomp*~openness*lflex	0.271548	0.160334	0.755155

solution coverage: 0.378128

solution consistency: 0.752768

P3s2c

consistency cutoff: 0.803440

	raw coverage	unique coverage	consistency
macroemp*~openness*lflex	0.271548	0.271548	0.755155

solution coverage: 0.271548

solution consistency: 0.755155

With ~UR as outcome variable for S1

Period 1: P1s1, a-c neg

P1s1aneg

```
consistency cutoff:   0.929412

                                    raw        unique
                                  coverage    coverage   consistency
                                 ----------  ----------  ----------
~ccmp*~ccfp*~cwb*openness         0.476191    0.476191    0.833333
solution coverage:    0.476191
solution consistency: 0.833333
```

P1s1b, p1s1c neg

No case makes consistency threshold

Period 2: p2s1, a-c

p2s1aneg hi

```
consistency cutoff:   0.952381

                                    raw        unique
                                  coverage    coverage   consistency
                                 ---------  ----------  ----------
~eomp*~ccfp*~cwb*~openness*~lflex 0.172081    0.172081    0.960784
solution coverage:    0.172081
solution consistency: 0.960784
```

P2s1aneg lo (0.81 but cases are speread extremely thinly)

```
consistency cutoff:   0.819876

                                    raw       unique
                                  coverage   coverage   consistency
                                 ----------  ----------  ----------
~eomp*~cwb*~openness              0.467954    0.093064    0.791976
~eomp*ccmp*~ccfp                  0.455663    0.247586    0.773472
~ccmp*~ccfp*~astab*~cwb*~openness 0.129061    0.018437    0.677419
~eomp*ccmp*~astab*~openness*lflex 0.345040    0.039508    0.867550
solution coverage:    0.808604
solution consistency: 0.775906
```

P2s1bneg

Hi consistency

consistency cutoff: 0.952381

	raw coverage	unique coverage	consistency
~macrostab*~eomp*~cwb*~openness*~lflex	0.105356	0.105356	0.952381

solution coverage: 0.105356

solution consistency: 0.952381

P2s1bneg

Lo consistency

consistency cutoff: 0.806517

	raw coverage	unique coverage	consistency
~eomp*~cwb*~openness	0.467954	0.199298	0.791976
~macrostab*~cwb*~openness	0.129061	0.018437	0.677419
macrostab*~eomp*openness*lflex	0.435470	0.206321	0.839256

solution coverage: 0.692713

solution consistency: 0.798583

P2s1cneg

consistency cutoff: 0.856618

	raw coverage	unique coverage	consistency
~macroemp*~cwb*~openness*~lflex	0.204565	0.204565	0.856618

solution coverage: 0.204565

solution consistency: 0.856618

Period 3: p3s1, a-c neg

P3s1aneg

consistency cutoff: 0.883621

	raw coverage	unique coverage	consistency
~ccfp*~astab*~lflex	0.214549	0.040516	0.875940
~eomp*~ccmp*~ccfp	0.290976	0.031308	0.905444
~ccfp*~astab*openness	0.367403	0.058011	0.932243
~eomp*~ccfp*openness	0.350829	0.068140	0.938424
~ccmp*~ccfp*~astab*~cwb	0.322284	0.037753	0.817757
~eomp*~ccfp*~cwb*~lflex	0.210866	0.048803	1.000000

solution coverage: 0.690608

solution consistency: 0.860092

P3s1bneg

consistency cutoff: 0.828080

	raw coverage	unique coverage	consistency
~openness*~lflex	0.365562	0.071823	0.947494
~eomp*~lflex	0.328729	0.072744	0.875000
~macrostab*~cwb	0.322284	0.076427	0.817757
~eomp*~cwb*~openness	0.348066	0.019337	0.828947

solution coverage: 0.656538

solution consistency: 0.780088

P3s1cneg
Hi consistency
consistency cutoff: 0.975410

	raw coverage	unique coverage	consistency
~macroemp*~cwb*~lflex	0.267956	0.267956	0.957237

solution coverage: 0.267956
solution consistency: 0.957237

P3s1cneg
Hi consistency
consistency cutoff: 0.866142

	raw coverage	unique coverage	consistency
~openness*~lflex	0.365562	0.071823	0.947494
~macroemp*~lflex	0.374770	0.066298	0.839175
~macroemp*~cwb*openness	0.355433	0.136280	0.891455

solution coverage: 0.582873
solution consistency: 0.818887

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