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Understanding wage restraint in the German public sector: does the pattern bargaining hypothesis really hold water?

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ABSTRACT

German public sector wage restraint has been explained through the presence of a specific type of inter-sectoral wage coordination in the industrial relations system—that is, export sector-led pattern bargaining. First, as a literature-assessing exercise, this paper reviews the literature in industrial relations and comparative political economy (CPE) and finds that (i) the origins and mechanics of inter-sectoral wage coordination through pattern bargaining have never been laid out clearly; (ii) that the mechanisms of the pattern bargaining thesis have never been tested empirically; and (iii) that the CPE literature reveals an export-sector bias. Second, as a theory-testing exercise, hoop tests are performed to verify the pattern bargaining hypothesis. The key finding is that Germany cannot be considered a case of export sector-driven pattern bargaining, opening a new research agenda for the study of public sector wage setting centred on public sector employment relations, public finance, public administrations and the politics of fiscal policy.

1 SETTING THE SCENE

This paper has both a literature-assessing and a theory-testing ambition. It deals with the study of export sector-led pattern bargaining as a specific type of inter-sectoral wage coordination institution. The ultimate contribution the paper provides is an empirical falsification of the widespread belief according to which wage restraint in the German public sector[1] can be explained through the features of this structure for the coordination of collective bargaining.

Germany is famously championed for featuring an export sector-led pattern-bargaining type of wage coordination across different bargaining units in the various sectors of its economy.[2] This pattern bargaining system has long been acclaimed in industrial relations and comparative political economy (CPE) scholarship for its alleged capacity to ensure the transmission of wage restraint from the export-oriented industries to those sheltered from competition in international markets. In this sense, the pattern bargaining thesis has been exploited to account for the trajectory of wage restraint observable in the German public sector over the last thirty years. Furthermore, the structural characteristics of wage setting in Germany have also been at the heart of recent debates on the institutional causes of the *divergence* of wage and

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price inflation among the members of the European Economic and Monetary Union (EMU).

Thus, in this paper, I ask whether the pattern bargaining thesis really explains wage restraint in the German public sector. In trying to answer this question, I present empirical evidence related to the post-reunification period up until the financial crisis: 1991–2010. For reasons which will soon become clear, I have not been able to reconstruct the origins of inter-sectoral pattern bargaining in Germany. Hence, I simply assume here that this institution existed before German reunification in 1990.

The paper develops the following two-tiered argument: (i) empirical evidence points to the fact that, as of the mid-1990s, Germany is *not* a case of export sector-led pattern bargaining wage coordination. Hence, (ii) we *cannot* maintain that wage restraint in the German public sector ensues from this specific type of inter-sectoral wage coordination. The implication of (i) and (ii) is that we currently do not possess an understanding of either what the relevant institutional constellation is or the processes within it that ensure wage restraint in the German public sector. The paper shows that pattern bargaining cannot be the primary driver for it and suggests that this is more likely to be a case of *functional equivalence*: other features of the German institutional structure, so far unaccounted for, must concur to produce this pattern of restraint.

The remainder of the paper is organised as follows. Section 2 begins with descriptive statistics on wage restraint in Germany inside the EMU. Section 3 presents the accepted CPE explanation for wage restraint in the German public sector. Section 4 endeavours to test empirically the validity of the pattern bargaining thesis in relation to the phenomenon of wage restraint in the German public sector. Section 5 attempts to reconstruct the intellectual origins of the pattern bargaining thesis to try to understand why and how such a prominent thesis has failed. Lastly, the concluding section wraps up the findings and discusses elements for an alternative research agenda on public sector wage setting.

2 WAGE RESTRAINT IN THE GERMAN PUBLIC SECTOR UNDER THE EMU

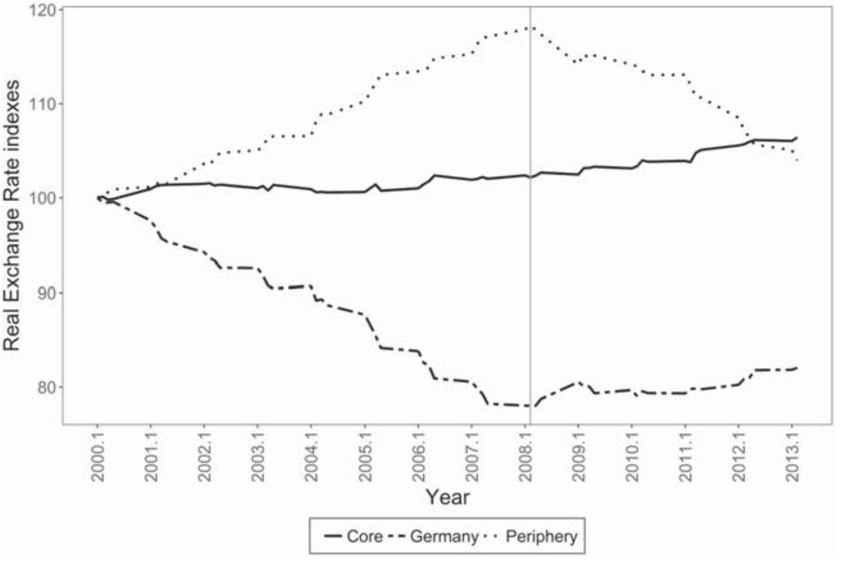
This section presents data aimed at showing the peculiar trajectory of wage restraint in the German political economy. Since the launch of the EMU in 1999, restraint has occurred in both the manufacturing sector and in the ‘sheltered’ public services. The deflationary wage dynamics have added up to be drivers behind the remarkable downward trajectory of unit labour costs (ULCs), which many scholars have identified as the root cause of macroeconomic imbalances in the EMU crisis (Collignon, 2009; Scharpf, 2011; Flassbeck and Lapavitsas, 2013; Hall, 2014; Höpner and Lutter, 2014; Johnston et al., 2014; Johnston and Regan, 2014; Iversen et al., 2016).

From the perspective of the EMU—an economic system rooted in price stability—relatively stable ULC inflation is required in order to avoid structural divergence of members’ price inflation in the medium to long run. This divergence, in fact, can no longer be absorbed through adjustable exchange rates (Carlin and Soskice, 2014, ch. 12). Given the absence of pan-European wage coordination, the European Commission adopted what is known as the *Golden Rule of Wage Bargaining*[3] as the formal policy guideline for national social partners: wage setting shall be based on the European Central Bank’s (ECB) inflation target plus average productivity in the economy.

This was meant to engineer a virtuous interaction between national wage policies and supranational monetary policy and at the same time avoid inflation differentials and the rise of macroeconomic imbalances.

How reality has fallen short of expectations is a known story. Figure 1 makes explicit the divergent trajectories of EMU participants since 2000. It also shows the post-crisis downward adjustment, through internal devaluation, of the overly inflated countries since the spring of 2008 (vertical grey line). During the early 2000s, countries at the periphery of EMU have seen their REERs inflate stubbornly. Germany has experienced a remarkable downward adjustment through its REER. Countries at the core of EMU have had rather stable developments. Most importantly, the graph highlights the lack of upward adjustment, through internal revaluation, in the German political economy. Given its very peculiar model of capitalism, Germany has been a *sui generis* outlier in the history of monetary integration in Europe (Scharpf, 2018).

This distinctiveness is amplified by the fact that marked wage restraint (nominal wages adjusted for total productivity which grow more slowly than price inflation) in Germany has occurred both in the manufacturing sector and in the public sector, which in 2000 accounted for 11.1 per cent of total employment (OECD, *Government at a Glance*). Figure 2 shows the extent of this restraint as pitted against the ECB's inflation target: *below but close to 2 per cent*. Ever since 1999, nominal wages—discounted for average productivity in the economy—grew much more slowly than would have been expected according to the recommendations of the golden rule. If wages had developed in a 'healthy' fashion in Germany, we would have observed

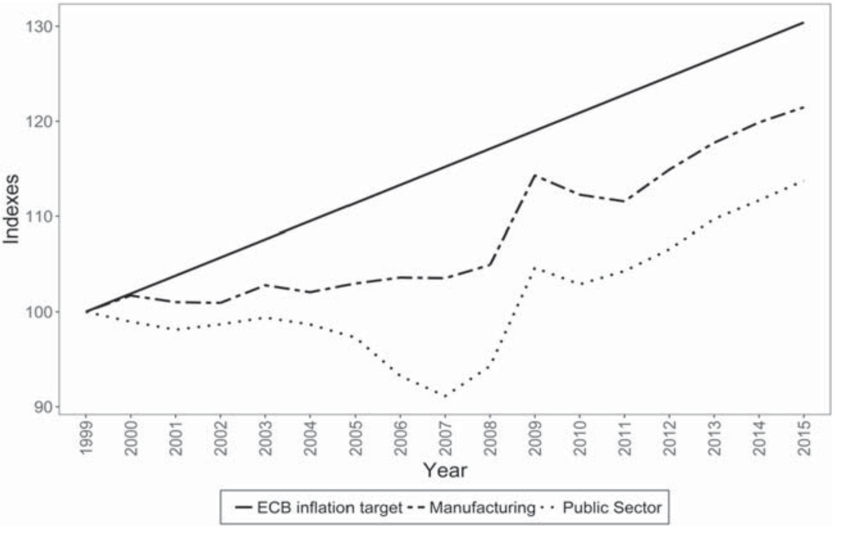


Source: Bruegel Datasets, REER for 178 countries, a new database (Latest update: June 6,2017).

EMU Core = Austria, Belgium, Finland, France, Netherlands.

EMU Periphery = Spain, Greece, Ireland, Italy, Portugal.

Figure 1: Real effective exchange rates (REER) of EMU members (2000–2013), based on unit labour costs (ULCs), weighted against 14 EU trading partners. Quarterly data (.1 = 1st quarter)



Source: EU KLEMS Growth and Productivity Accounts, September 2017 release.

**Hourly labor compensation by sector, discounted by hourly labor productivity in the economy (1999=100).*

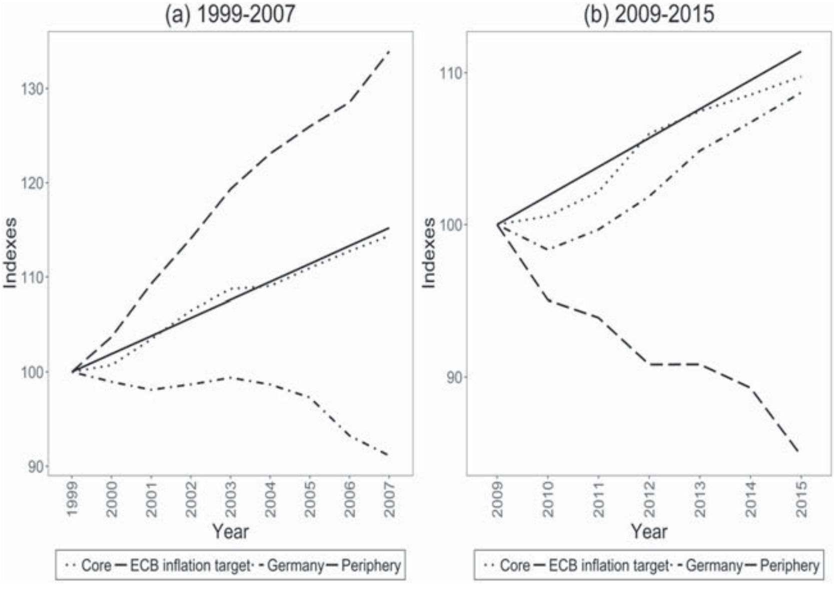
Figure 2: Indexes of sectoral wage trajectories in Germany vis-à-vis the inflation target of the ECB (1999–2015)*

the two trajectories growing more or less following the straight black line in Figure 2. Instead, in the period 1999–2007, a severe downward adjustment occurred. Restraint was even more remarkable in the public sector than in manufacturing.

Figure 3a is meant to show the differentials of wage inflation in the public sectors of EMU participants before the financial crisis. Interestingly, these trajectories quite faithfully mirror the developments of ULC divergence shown above. Three clusters can be discerned: Germany experienced remarkable *below-golden-rule* wage developments in the public sector. EMU core countries have public sector wage developments perfectly in line with the ECB inflation target. EMU peripheral countries experienced wage inflation in their public sectors. Overall, far from converging, wage developments in the public sectors diverged substantially during the first decade of the single currency, contributing to REERs divergence.

Figure 3b) shows the post-crisis adjustment of the countries which had experienced public sector wage inflation during the first decade of the EMU (dashed line). The graph reveals the pattern of marked internal devaluation through public sector wage restraint which the peripheral economies of EMU have undergone. Noticeably, again, Germany shows no sign of internal revaluation (dot-dash line).

Taken together, Figures 3a and 3b indicate the pro-cyclical nature of public sector wage setting in the EMU's peripheral economies. Above-golden-rule public sector wage increases contributed to relatively higher inflation rates in the GIIPS' overheated economies before the crisis. In the aftermath of the crisis, freezes and cuts in public sector wages added a contractionary element to governments' severe austerity measures. Core countries of EMU, in which public sector wages had grown relatively in line with the golden rule, continued to experience relatively balanced public sector wage increases. Germany has remained *sui generis*, lacking an upward adjustment through above-golden-rule wage increases in the public sector.



Source: EU KLEMS Growth and Productivity Accounts, September 2017 release.

*Indexes are discounted by labor productivity in the total economy. In 3(a), 1999=100. In 3(b), 2009=100.

EMU Core = Austria, Belgium, Finland, France, Netherlands.

EMU Periphery = Spain, Greece, Ireland, Italy, Portugal.

Figure 3: (a,b) Indexes of hourly wages in the public sectors of EMU countries (1999–2015)*

3 THE COMPARATIVE POLITICAL ECONOMY EXPLANATION FOR WAGE RESTRAINT IN THE GERMAN PUBLIC SECTOR

The accepted explanation for wage restraint in the German public sector finds its roots in the CPE scholarship that flourished in the 1990s. To understand it fully, it is therefore necessary to hark back to key intellectual junctions in the discipline.

A notable contribution of the CPE scholarship was, in the 1990s, to connect wage setting and monetary policy domains in relation to the role of independent and conservative central banks, acting as gatekeepers to help governments repress wage-push inflation (Scharpf, 1991; Hall, 1994; Hall and Franzese, 1998; Soskice and Iversen, 1998). When monetary policy is delegated to an independent and conservative central bank, the argument went, the very act of signalling non-accommodating policies by the central bank would cause unions to become self-interested in wage moderation in order to avoid losses from higher unemployment derived from the tightening of monetary policy.

The model example around which the argument was built is Germany. Yet the general logic runs through the following elements: independence enhances the credibility of the central bank—the *Bundesbank*—by freeing macroeconomic adjustment from electoral considerations. Conservatism is required so that the central bank reacts directly and decisively to deviations from its statutory inflation target. Signalling is necessary to communicate the intended strategy and is made more effective in interaction with inter-sectorally coordinated wage bargaining—*pattern bargaining*—because the central bank engages in interactions with just one economy-wide coordinated wage settlement to which the other wage setters in the economy are subdued.

Given that the wage settlement applies to the whole economy, wage setters are not left in much doubt that, in case of inflationary wage setting, the independent and conservative central bank will act as a gatekeeper and react by tightening monetary policy, prompting higher unemployment and the appreciation of the exchange rate. Since export-oriented wage setters are particularly damaged by such a reaction, by conducting the pilot agreement in the economy—*Pilot-Abschlüsse*[4]—they act to internalise the effects of an inflationary behaviour and frame their wage requests in such a way as to avoid the reaction of the central bank. This is usually carried out, it is maintained, via exchange of information on the fundamentals of the domestic and international economy among the principal negotiators and with the central bank.

Following the logic of the argument, the main preoccupation among scholars facing the prospects of EMU entry, at the end of the 1990s, became that by replacing national central banks with the ECB, the signalling game would become ineffective since it would be based on two levels: monetary policy would be transferred to the supranational level, targeting weighted averages of members' national inflation rates, while wage setting would remain within domestic domains. With such an asymmetric institutional construction in place, and with the incapability of central banks to punish domestic wage setters, the expectation arose that in the EMU, two likely scenarios would ensue. On the one hand, countries would opt for structural reforms that enhance the flexibility of their labour markets and decentralise wage bargaining so as to ensure nominal wage flexibility as a substitute for the coordination game (Calmfors, 2001, 24). On the other hand, in the absence of these structural reforms, the *neither-centralised-nor-decentralised*[5] wage setting structures would free the hands of wage setters to engage in rent-seeking behaviour, leading to across-the-board inflationary developments. In other words, given the lack of a readily available pan-European wage coordination, commentators were expecting either the decentralisation of collective bargaining or wage inflation (Hall, 1994; Johnston and Hancké, 2009, 601–603; Soskice and Iversen, 1998).

However, as shown in Section 1, Germany experienced wage restraint in both the manufacturing and the public sector. Furthermore, industrial-level collective bargaining was not dismantled *in toto*. So stricken by the fact that neither of the two expected scenarios occurred during the first decade of the EMU, various CPE works have engaged with the study of the remarkable wage restraint in the German political economy, also linking it to structural explanations for the sovereign *cum* debt crisis of the EMU.

In all, Hancké (2013) can be considered the most representative work and the high point of this line of research.[6] Hancké stresses that two different logics are at stake in the exporting and sheltered sectors. In the former, wage setters are prevented from opting for inflationary wage setting by concerns about competitiveness in the international markets. In the public sector, such pressures are absent, paving the way for unrestrained claims on wage settlements. Since the creation of the EMU, countries which have successfully managed to tame wage inflation in the public services have also prevented negative spillovers onto their exposed industries and enjoyed more advantageous REERs and trade surpluses. The contrary has happened to those countries that have been incapable of preventing public sector wage inflation. Thus, the key intervening variable becomes the capacity to transmit wage moderation from the exposed to the sheltered sectors of the economy. In other words, it is the type of inter-sectoral wage coordination present in the industrial relations system that makes a difference for national developments: core countries of the EMU that feature coordinated wage bargaining systems enjoy an *institutional comparative advantage* in the reproduction of wage restraint.

Overall, three different mechanisms are identified for the production of wage restraint in the public sector. One is *state-led coordination*: either through state-imposed wage laws like those in Belgium or a scenario like that in France, where legislators take the export industry's concerns about competitiveness into consideration. Another mechanism for restraint is *time-regular incomes policies* like those in Finland. The third mechanism—which interests us here, and for which Germany is thought to be ideal-typical—is inter-sectoral wage coordination through pattern bargaining led by the export industries. Thus, the argument goes, once the *Bundesbank*'s gatekeeper role is taken out of the picture, pattern bargaining remains as the sole driver for wage restraint in the public sector in Germany. Here, unions in the export industries—usually the metalworking sector or the chemical sector—act as the first negotiators in the yearly bargaining season. Their wage settlements take concerns for export competitiveness into consideration and are usually set so as to equal the increase in the labour productivity of the total economy plus projected inflation (Johnston and Hancké, 2009, 617). Once this responsible wage norm has been established, the pattern is then transferred to the other bargaining units in the German economy, ensuring across-the-board wage restraint.

This is how a pattern of wage restraint comes to be transferred *exogenously* into the wage setting of public employees. A social coalition of export-oriented firms and core manufacturing workers is thus seemingly capable of imposing its narrow interests upon the rest of the German political economy (Baccaro and Benassi 2016; Hassel 2014; Thelen, 2014).

4 DOES PATTERN BARGAINING EXPLAIN WAGE RESTRAINT IN THE GERMAN PUBLIC SECTOR?

The aim of this section is to test empirically whether the pattern bargaining explanation can really account for the observed wage restraint in the German public sector during the post-reunification period. In order to purposefully simplify the logic of the pattern bargaining explanation, the following syllogism can be introduced:

(a) Export-sector-driven pattern bargaining induces wage restraint in the public sector;
(b) Germany is a case of public sector wage restraint;
(c) Ergo, German public sector restraint is a by-product of export-sector-driven pattern bargaining.

In terms of deductive logic, even if we assumed that the conjunction of *(a)* and *(b)* were true, it by no means logically follows that the conclusion *(c)* must necessarily be true:

(c = True) and (c = False) are both logically possible options.

In the following section, in fact, I show that Germany *cannot* be considered a case of pattern bargaining: *(c) is false*, at least from 1996 onwards. To empirically substantiate my argument, I perform a battery of basic hoop tests to verify the validity of the pattern bargaining explanation.

In the social sciences, hoop tests belong to the realm of testing theories through observation and case studies. The investigator infers predictions from a theory. She then observes the data and asks whether observations are congruent with predictions (Evera and Stephen, 1997, 28). Hoop tests are particularly suited to verifying the validity of theories, given that they consist of predictions of necessary conditions with high certitude: if the predictions fail the test of empirical evidence, the theory should be rejected (Bennett, 2010). I construct the battery of tests in such a way that each test taken alone is meant to be necessary but not sufficient to reject the thesis. Instead, all the tests taken together should give us the high degree of confidence sufficient to reject it.

4.1 Sequenciality of bargains (the timing of the contracts) is a necessary condition

Prediction 1: If, as prescribed by the export-sector-driven pattern bargaining explanation, the contracts of the export industries act as the pilot agreement (the pacesetter), we should expect to see that, during yearly negotiations, the metalworking or the chemical wage contracts are signed before the public sector contract, which they are supposed to influence.

In order to perform the most adequate observation for Prediction 1, I have collected[7] the exact dates of the signatures of the wage agreements in three key sectors of the German economy: the public sector *(öffentlicher Dienst)*, the metalworking industry *(Metallindustrie)* and the chemical industry *(chemische Industrie)*. Unions in these sectors are the actors who have the capacity to be independent wage bargainers (Streeck, 1994, 125) in the German industrial relations system. Also, taken together, these three sectors constitute the core of the export industry and of the sheltered services. The period analysed is 1991–2016. Data come from the *WSI-Tarifarchiv* and is organised in Table 1 (shown in the Appendix).

What emerges from the observation is that empirical evidence is incongruent with the predictions from the pattern bargaining explanation. During the period 1991–2016, for 11 years out of 26 the public sector contract is, in fact, the first negotiated contract in the wage bargaining season. This leaves us with the chemical sector having been the first five times and the metalworking sector eight times. Additionally, a more careful analysis centred on the effects of export-sector pattern bargaining on the public sector contracts should even discount the years 1997, 2002, 2004 and 2007. During these years, no public sector contracts were signed. Hence, the other two sectors clearly could not possibly influence the public sector. Furthermore, in 2001, no wage agreements were negotiated at all given the longer terms agreed to in the 2000 contracts. Once we have taken all this into account, the net years in which other contracts have preceded and possibly influenced the public sector contracts are three for the chemical contracts and six for the metalworking contracts: slightly too few instances out of the 26 years analysed to maintain that pattern bargaining is at work.

All in all, this observation contrasts with the pattern bargaining thesis and leads me to make the following summary statement: since 1991, more often than not, it has been the public sector which has signed the first wage contract of the yearly negotiating season in Germany. It is thus very doubtful that the public sector wage contract, whenever it was signed before the wage contracts in the export sector, could be directly influenced by them.[8]

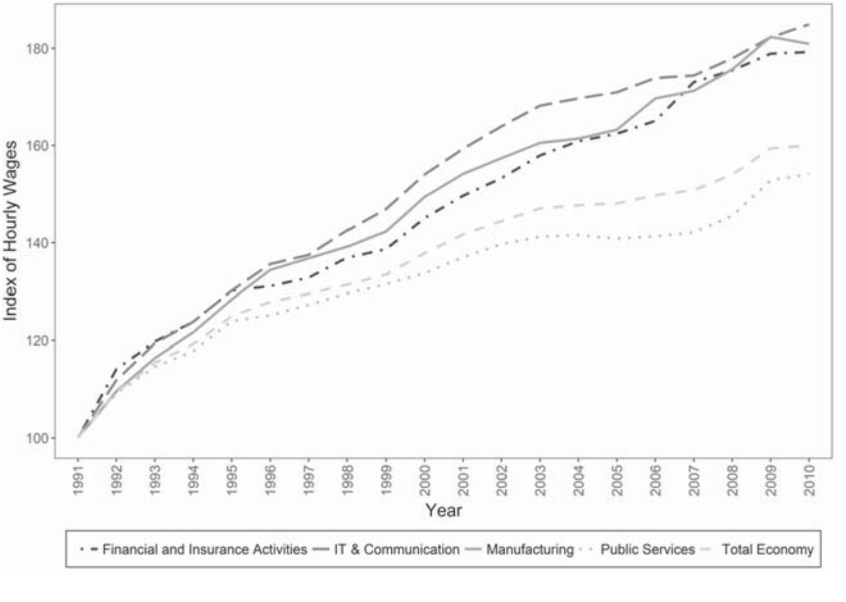
4.2 Heterogeneous sectoral wage increases should aim at nominal wage compression

Prediction 2: If pattern bargaining were present in Germany and aimed at equalising nominal wage levels (wage compression) across the different sectors of the economy, we should expect to see higher percentage wage increases in the less productive sectors of the economy, so as to provide for nominal wage convergence with the more productive ones.

In order to perform a suitable observation for Prediction 2, I look at the development of sectoral hourly wages in the German economy since 1991. This can be carried out by referring to EU KLEMS data.

What emerges very clearly from Figure 4 is that the sectors in which nominal wages are higher in nominal terms—manufacturing, financial services and IT—are also those in which workers saw their wages grow substantially faster than others. By 2010, wage dispersion across different sectors of the German economy widened massively, producing ever more unequal trajectories of wage growth. I observe a notable increase in inter-sectoral wage differentials, where these sectors has enjoyed substantially higher wage increases than other sectors of the economy (Figure 5).[9] What should be highlighted here is that there is no sign of upward wage pressures on the public sector side (dotted line).

Cumulative wage gains in different sectors from 1991 to 2010, shown in Figure 5, indicate that workers in hospitality and restaurants have not even been compensated



Source: EU KLEMS Growth and Productivity Accounts, September 2017 Release.

Figure 4: Indexes (1991 = 100) of nominal hourly wages in selected macro-sectors of the German economy (1991–2010)

Source: Author's elaboration from EU KLEMS Growth and Productivity Accounts, September 2017 release.

*Gains expressed as cumulative percentage wage increases as of 2010 vis-à-vis 1991.

Figure 5: Cumulative wage gains of workers in selected macro-sectors of the German economy vis-à-vis price inflation (1991–2010)*

for the rate of inflation (vertical grey line), while workers in construction and the public sector barely so.

4.3 There should be concatenation of wage increases in the export sector and the public sector

Prediction 3: If pattern bargaining were present in Germany and followed the logic of similar percentage increases, we should expect to find the concatenation of the wage agreements in the export and public sectors.

The easiest way to operationalise such a test is to expect co-variation, over time, in the percentage change in export and public sector wage setting. We observe that co-variation of wages in the manufacturing and public sectors—in terms of similar percentage increases—has weakened decisively in Germany. Interestingly, Figure 6a shows that over the long run—the period 1971–2007—the correlation holds ($r^2 = 0.85$). The colour gradation of the dots in Figure 6a, shading from darker grey to lighter grey, also makes visible the gradual shift over time from a regime of high wage increases (1970s and 1980s) to a regime of very modest ones through the 1990s and early 2000s (bottom left side of the quarter).

However, a more careful look at the decade 1997–2007, shown in Figure 6b, indicates the collapse of pattern bargaining in Germany (from $r^2 = 0.85$ to $r^2 = 0.18$). In fact, the correlation breaks apart in 1996. This suggests a more attentive analysis in order to understand in a more nuanced fashion what has happened during those years.

Most importantly, since pattern bargaining unravels right before the start of the EMU, and correlations are extremely weak during the first decade of the EMU, I

Source: Author's elaboration from EU KLEMS Growth and Productivity Accounts, September 2017 release.

Figure 6: (a,b) Correlation between wage increases (% change) in manufacturing and public services in Germany (1971–2007)

arrive at the following summary statement: pattern bargaining, as a specific type of inter-sectoral wage coordination observable through similar patterns of wage increases in manufacturing and the public services, was not present. Hence, it cannot possibly account for wage restraint in the German public sector during the first decade of the EMU.

4.4 There should be a visible upward trend in the trajectory of public sector wage setting

Prediction 4: If pattern bargaining were to tame inflationary pressures from the public sector, we would expect to observe, over a two-decade time horizon, that the trajectory of wage increases in the public sector tends to outstrip—or at least closely follow—that of the manufacturing sector. This damaging dynamic is exactly what the pattern bargaining type of inter-sectoral wage setting institution is allegedly supposed to repress.

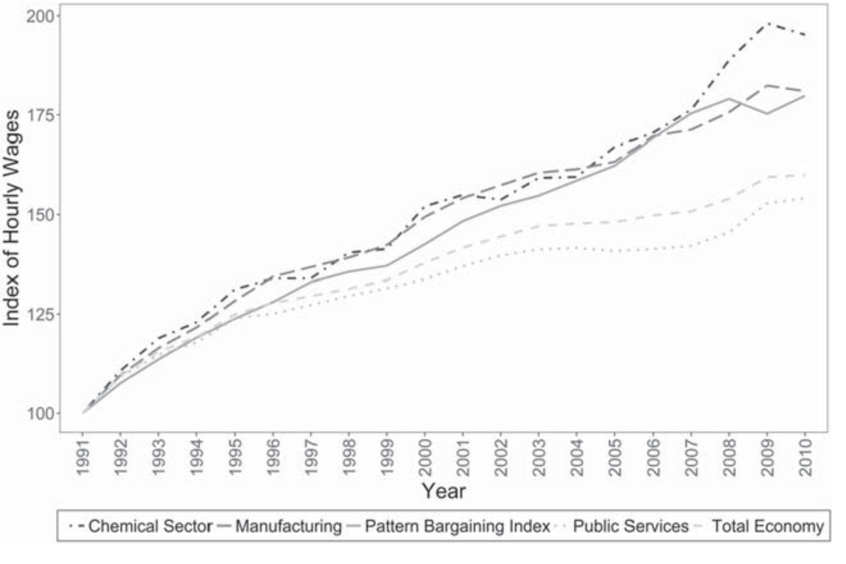
To observe this dynamic, I draw indexes of the trajectories of wage increases in manufacturing, the chemical sector and public services. I plot them against a so-called pattern bargaining benchmark. I also add the trajectory of wage growth in the total economy. As explained in the literature, wage setters in the export industry would opt for a wage request calculated on the basis of labour productivity in the total economy plus projected inflation. Thus, I construct the pattern bargaining benchmark through a composite index of labour productivity in the whole economy (from EU KLEMS data) and the consumer price index (from World Bank data).

If the pattern bargaining story were true in the way it has been told to us, we should observe that the three wage trajectories 'shadow' the pattern bargaining index—that is, they should grow more or less in line with the pattern bargaining index in Figure 7.

What I find, instead, is that wages in manufacturing and the chemical sector consistently outstrip the pattern bargaining index. Industrial wages were not so much anchored to average productivity in the economy but, most likely, rather benchmarked to their own higher industrial productivity gains. Growth in public sector wages, on the other hand, is severely penalised—even more than the average wage growth in the total economy. There is, in other words, a marked and steady compression in the growth of public sector wages.

Public sector wage restraint occurs at two junctures. First, the graph shows the clear-cut decoupling of the two trajectories as beginning approximately in the year 1996. Then, inside the EMU, restraint is continued in the period 2003–2007, as the flattening of the index points out.[10] This indicates that rather than a pattern-bargaining-induced wage ceiling, there were other forces that engineered what, from the data, looks like a remarkable downward adjustment.

The following statement summarises the findings related to Predictions 2, 3 and 4. Pattern bargaining in Germany, from the perspective of the theoretical outcomes it is supposed to produce, starts to unravel in 1996, when public sector wage setting starts lagging behind those of manufacturing and the chemical sector. By 1998–1999, the trends of wage setting outcomes (similar percentage increases) decouple decisively, to the point that in 2010, cumulative wage settlements in manufacturing have reached something like a 30 per cent higher increase than those in public services. Furthermore, the fact that wages have grown faster in sectors which already feature higher nominal wages has led to increased sectoral differentials across the German economy.



Source: Author's elaboration from EU KLEMS Growth and Productivity Accounts, September 2017 release.

Figure 7: Indexes (1991 = 100) of nominal hourly wages in Germany in the export industries, the total economy and the public sector, vis-à-vis the pattern bargaining index (1991–2010)

5 ON THE DUBIOUS ORIGINS OF PATTERN BARGAINING IN POST-WWII GERMANY

How can it possibly be that such a prominent thesis, which has been at the core of CPE for three decades, falls short of its explanatory power? A critical review of the intellectual origins of the pattern bargaining thesis suggests two shortcomings: (1) to the best of my knowledge, it remains unclear in the available literature how the institution of pattern bargaining originated in Germany, when it did so and how it functions in specific terms. Surprisingly enough, a clear-cut understanding of the *origins* and *processes* of export sector-led pattern bargaining in Germany seems to be missing. (2) The CPE literature comes with an 'export-sector bias,' whereby the institutions proper of public sector wage setting have never been taken seriously. This opacity may be the root cause of why this thesis fails upon closer scrutiny. The bias may help to explain why several developments in the German public sector have gone unnoticed. This is the substance of this section.

One of the most widely cited papers on the origins of pattern bargaining in Germany is by Manow (2000). A careful read of the paper reveals, however, that it traces the origins of intra-sectoral wage setting and not of inter-sectoral wage setting in Germany. Manow's paper accounts for how intra-industry wage coordination emerged in the late 1950s and 1960s in the German political economy as a necessity to coordinate the interests of actors in the exporting iron, steel and metalworking sectors. It is a very fascinating story, yet it is a different one. The paper deals with horizontal inter-sectoral wage coordination only in a footnote (Manow, 2000, 27; footnote 8), in which the author redirects us to Soskice (1990), which can surely be regarded as the founding work in CPE on the subject of pattern bargaining in Germany.

Soskice is among the most accredited experts on the subject, and his works are cornerstones. One caveat shall be discussed here notwithstanding. From the reading of this and other pieces on the subject, it is not possible to trace the sources which underpin the pattern bargaining thesis for the German case. When describing pattern bargaining in Germany, the paper does not cite other academic works, nor empirical studies or interviews. The only reference I could find is a footnote in Soskice's chapter on the Federal Republic of Germany in Flanagan, Soskice and Ulman (1983, 243, footnote 59). Thus, the reference on which the pattern bargaining argument seems to be built is Reichel (1971). Hans Reichel was ministerial counsellor and chief of the collective labour law section of the German Federal Ministry of labour and Social Affairs—a very authoritative source, especially considering that the text was part of an ILO collection of legal studies.

When reading Reichel, one takes note of the fact that the author mentions the metalworking and chemical industries as pacesetters for other branches of the economy in the field of collective agreements (Reichel, 1971, 264). Yet Reichel describes this practice as an informal one and provides the reader with no further elaboration on how this actually occurs and, most importantly, why. Similarly, Thelen (1991, 38–41), another key reference on the topic, describes the fact that 'wage negotiations are conducted separately by each of the sixteen unions, but in most cases, the other unions wait for a settlement by the IG Metall, which serves as a benchmark for subsequent negotiations in the other industries'. Again, she describes the leadership of the IG Metall as informal. She also admits that there are exceptions to this process of benchmarking (Thelen, 1991, 40; footnote 17) and tells us that IG Metall, while it is the most important voice inside the German Trade Union Confederation (DGB),[11] does *not* command a majority within it.

At any rate, in the German political economy, the peak organisations cannot impose their will on their affiliates[12] (Streeck, 1994, 125). It is Reichel himself who highlights that 'neither on the employers' side nor on the trade union side are the central organizations empowered to dictate policy to their member associations' (Reichel, 1971, 260). The author describes the role of central organisations—DGB and BDA[13]—in influencing their affiliates as working through the 'rendering of substantial services' (such as radio and television publicity campaigns or organising polls and surveys) or the provision of strike funds. Yet he describes their meetings as 'occasional top-level meetings at which representatives of both sides have come together to exchange views on matters of topical concerns' (Reichel, 1971, 255). In this light, it remains difficult to understand how 'occasional meetings to exchange views' may be considered processes which institutionalise a comparative advantage for the reproduction of wage restraint.

Similar to Reichel, Soskice (1990) argued that unions in the sheltered sector are brought in line with the pilot export-sector agreement via the role of the DGB (presumably captured by IG Metall) which could threaten to terminate the provision of infrastructural services upon which smaller unions depended (e.g., legal services, strike funds, etc.). Here, the DGB was conceivably in a position to exercise indirect structural power *vis-à-vis* smaller unions. Yet it was the big and powerful ÖTV[14] that mostly represented public workers. In the 1990s, Streeck (1994, 124) described the ÖTV as being one of the few leading unions with the capacity to be a significant and independent wage bargainer in German industrial relations.

A significant real world example supports this description. In 1992, massive strikes by public workers took place all over Germany for eleven consecutive days. These resulted from tense wage negotiations in the public sector (*Financial* Times, 1992) which had revolved around public unions' request for a 9.5 per cent wage increase and an extra 550 DM in holiday bonus pay (Parkes, 1992). As a matter of fact, during one of the hardest disputes in public sector wage setting in Germany, the ÖTV was capable of autonomously financing massive, prolonged and diffuse strikes through its own internal strike fund, reported then to be 600 million DM (Peel, 1992). This information is also confirmed by internal ÖTV documents,[15] which additionally tell us that for the 1992 strike action, the ÖTV had to pay a total of 120 million DM. The ÖTV went on strike for the sake of its own members, not for IG Metall's export competitiveness. Given that the DGB has, by law, no say in collective bargaining and that the ÖTV was powerful and financially well endowed, it remains unclear how this indirect structural power may have been exercised upon the ÖTV. At any rate, there seems to be no research in this regard.

Arguably, in the absence of a mechanism for coercion, why should unions that represent public sector workers content themselves with a wage norm tailored to the needs of the export industry? This is particularly problematic when we consider that trade unions are democratic organisations bound to carefully weighing issues of legitimation *vis-à-vis* their social base[16]—what has been called the *logic of membership* (Pizzorno, 1980; Streeck and Kenworthy, 2005).

Reichel's text acknowledges this issue and the fact that unions' internal committees cannot—and do not—blindly impose a wage request on their base which is 'imported' from another sector. Union leaders cannot ignore the unions' democratic internal procedures *(throughput legitimacy)* aimed at incorporating both territorial subunits and sectoral departments into the decision-making process. Most importantly, union leaders, in complying with their mandate, surely do not wish to fall short of the aspirations of their members, who constitute their social base *(output legitimacy)*. After all, members pay the membership fees that keep the organisation going. As a matter of fact, inside unions, the internal commissions in charge of setting wage policies and handling negotiations are usually required to cast internal ballots in order to formulate and eventually accept the wage norms. Approval often requires solid majorities —if anything, to preserve unity of purpose and, in more extreme cases, unity behind strike actions. It is not clear from this point of view why accountable members of the internal commissions should vote in favour of wage norms which may threaten their individual careers and even the credibility of the organisation as a whole.

Returning to the public employees, the question remains as to why public employees, whose jobs are not necessarily threatened by lost export competitiveness, should accept a pattern of wage restraint modelled on the needs of IG Metall. Under the plausible assumption that public workers long for wage increases just like every other normal worker, this whole story sounds unrealistic without a mechanism of coercion. If anything—and given relatively safer jobs—workers in the sheltered sectors may even benefit in terms of international purchasing power from an eventual appreciation of the currency.

Therefore, a major critique which seems to arise from the review of the literature is that the process of pattern bargaining in Germany is never studied explicitly. How did this *informality* work out in real historical situations? The mechanics of the informal inter-sectoral spillover mechanism through which the social coalition in the export sector is allegedly able to tame the inflationary pressures in the wage settlements of the public sector are missing. No evidence shows the presence nor tests the functioning of pattern bargaining in the specific historical situations at stake—although understanding the mechanisms of pattern bargaining should be an integral step of every such explanation (Traxler et al., 2008, Sections 2–3).

A counter-example helps to illustrate the point. Ibsen (2015a) has analysed the functioning of pattern bargaining in Denmark and Sweden by looking at the role of mediation institutions. He traces the mechanisms through which pattern bargaining comes to produce wage restraint. The argument proposed here is that mediation institutions—such as conciliatory bodies or decision forums—play a crucial role not only in sustaining but actually in making pattern bargaining effective, albeit through different mechanisms. Ibsen shows that in these two countries it is through these institutions that the sheltered sectors are disciplined and brought into line with the exposed ones. In Denmark, it is a formal capacity to concatenate agreement areas into one *compulsory* majoritarian union ballot in which the unions of the exposed sector have the capacity to outvote other participants. In this case, then, the spillover mechanism is a structural advantage of which the export sector takes advantage at every ballot and whose outcomes are enforced by law to constrain public sector wage setters. The mechanism there is underpinned by coercion. In Sweden, the mediation process is based more on persuasion. Naming and shaming and public scapegoating are exploited as sticks to bring potential defectors back in line (Ibsen, 2015b, 22). Here, the mechanism appears to be a softer and subtle one, yet apparently effective.

No formal mediation institutions (such as conciliatory bodies with compulsory powers) have existed in Germany since the Collective Bargaining Act of April 1949. This juncture marked a return to a bargaining system similar to the one in the Weimar Republic, with the notable difference of a lack of any element of compulsory arbitration which would make inter-sectoral wage coordination unavoidable (Paqué et al., 1993, 212).

The analysis conducted so far reveals that public sector wage setting has always been treated as a mere function of the interests and needs of the actors in the key export industries. The result of this export sector bias is that industrial relations systems in the public sectors have been *misunderestimated*[17] and, if examined at all, they have been treated as rather homogeneous entities which are *frozen* in time. In CPE, proper own life was never accorded to public sector structures, practices and outcomes. Most of the time, the functioning of the public sector seems to be conceded[18] only insofar as the public sector is an entity more or less capable of serving the interests of the powerful cross-class coalition in the export sector. When reading other literatures, however, one cannot help noticing shortcomings of different sorts. There was much more in the picture than has met CPE eyes so far.

In fact, the literature specialising in public sector employment relations (Bach and Bordogna, 2016, 2011; Beaumont 1992; Bordogna, 2007, 2003) has been substantively interested in looking at public sector wage setting in itself and not necessarily in terms of comparison with the export sector. With regard to the German case of interest here, Keller (2011) informs us that uniform and standardised wage agreements in the public sector are a phenomenon which lasted until the early 2000s. A great deal of institutional change has occurred with regard to the dualization of collective agreements. There has also been an increased differentiation of employment conditions on the one hand and of wage bargaining resources among administrative levels (federal, state, municipal) and among states (richer states and poorer states) on the other. As a matter of fact, in 2005 and 2006, the whole German public sector wage bargaining system was reformed, and after more than forty years of unity in negotiations *(Tarifgemeinschaft)*, the system now features two levels.[19] The so-called *TVöD* contract regulates federal and municipal employees, and the *TV-L/TV-H* contract applies to states' employees.[20] The two contracts are negotiated and signed every two years and in alternation of one year from the other: *TVöD* started in 2005; *TV-L* in 2006.

Employment relations in the German public sector, moreover, are legally divided into the positions of *Beamte* and *Tarifbeschäftigte*. The former, the civil servants, are subject to public law, excluded from collective bargaining rights, and have no formal right to strike—that is, no *deterrence power*—but have the prerogatives of a lobby group (Schmidt and Müller, 2018). The latter, public employees, respond to private law and have the right to join unions, bargain collectively and go on strike. Wage setting for civil servants occurs unilaterally, with legislation drafted by the Minister of the Interior (after having received a green light from the finance ministry[21]), scrutinised by officials from the DGB and dbb,[22] and eventually approved by parliament(s). Here, too, a great deal of institutional change has occurred since the reform of the German federal system in 2006 attributed to the states the competence to legislate the employment conditions and pay of their own civil servants. This has led to ever-increasing wage dispersion across richer and poorer states, with Berlin and Bavaria located at the two opposite extremes (DGB, 2016). Increased heterogeneity in the wage setting of states' civil servants suggests an element of *competitive federalism*, which brought with it a trend of horizontal diversification across the *Länder*. Additionally, given that most of the time, legislators try to extend the conditions negotiated for *Tarifbeschäftigte* to the provisions for the civil servants through collective bargaining, one might actually consider this a dynamic of *intra-sectoral* pattern bargaining inside the German public sector—one which has gone unnoticed.

Institutional change has occurred also on the trade union side. The creation of the services union ver.di, in 2001, resulted in a big service sector union representing workers in the public and private service sectors of the German economy (Keller, 2005). ver.di is financially well endowed and capable in itself of providing legal and infrastructural services to its members. ver.di—and the dbb, for that matter—have in-house lawyers capable of providing state-of-the-art legal consulting to their members and, most importantly, have their own strike funds at their disposal.[23]

Additionally, CPE works have neglected wage equalisation between the West and the East in the aftermath of reunification. For almost twenty years, in Germany, trade unions have pushed strongly for wage setting aimed at equalising nominal wages in similar professions across the old and the new states in order to prevent wage dumping.[24] To gradually achieve uniformity in West–East wage levels, over the period 1991–2010, public workers in the East have obtained constant higher nominal wage increases than those in the West.

6 CONCLUSIONS

The writing of this paper ensued from a literature-assessing and a theory-testing ambition. The question posed at the beginning was whether export sector-led pattern bargaining, understood as a specific type of inter-sectoral wage coordination, can convincingly account for the puzzle of wage restraint in the German public sector since German reunification. The findings are as follows.

First, Test 1 showed that, contrary to what is usually believed, more often than not during the period 1991–2016, it was the public sector that signed the first contract of the yearly bargaining seasons. As a consequence, for all the years (11 to be precise) in which the public sector signed the first contract, it is hard to believe that unions in the export sector could impose upon public sector unions and their members a not-yet-existing wage norm favourable to its export-related interests.

Second, Test 2 indicates that over the period 1991–2010, wage increases have been higher in sectors that already featured higher nominal wages—for example, the metalworking and chemical sectors, IT and financial services. Wage increases in low-value-added private services (e.g., retail, construction and hospitality), and the public services have lagged behind, reinforcing inter-sectoral wage differentials. The fact that wages grew faster where they were already higher in nominal terms leads us to the conclusion that there could be no pattern bargaining processes aimed at producing nominal wage compression across sectors—via dissimilar percentage increases. For this to happen, wages in less productive sectors should have grown faster than those in more productive ones so as to deliver nominal convergence. What happened was the opposite.

Third, Test 3 reveals that the correlation between wage increases in manufacturing and public services holds only over the period 1971–1996. During the decade 1997–2007, the correlation breaks apart. Test 4 reveals, moreover, that the reason for this divergence in the two wage trajectories is a marked restraint in public sector wages. Restraint starts in 1996 and is prolonged over the period 2003–2007. Thus, in this respect, restraint in the German public sector both predates and follows the entry into the single currency and the assignment of monetary policy to the ECB.

Overall, the literature-assessing exercise has also shown that very little knowledge is available on the supposed mechanisms of pattern bargaining in Germany. Most importantly, CPE studies have tended to study the wage bargaining institutions of the public sector merely as a function of the export sector's necessities. Those works that have studied public sector employment relations proper point to a new collective bargaining structure in the public sector, based on two levels. Horizontal diversification of wage settlements for civil servants across the German states is also a more recent phenomenon. In the literature, no attention has been paid to the study of the origins and functioning of pattern bargaining in Germany. To the best of my knowledge, the mechanisms ascribed to the pattern bargaining hypothesis had never been verified before in the literature. Thus, the apparently novel discovery that Germany cannot be considered a case of pattern bargaining may be considered the main contribution of this paper: scholarship in CPE and industrial relations has treated Germany as a paradigmatic case of pattern bargaining. This is true to the extent that Germany is also coded as a pattern bargaining system in the *ICTWSS Database*. Showing that Germany is not a case of pattern bargaining inter-sectoral coordination runs against common knowledge and countless studies of the German political economy and its industrial relations system.

All these findings have two major implications. First, they constitute fertile soil for future research. Social scientists could take a cue from the conclusion of this paper and attempt to ask whether pattern bargaining has ever existed in post-WWII Germany. A limitation of my research so far is that I have not been able to explore the period before 1990. Therefore, I leave this issue open for future research. Second, these findings cast doubts on the categorization of Germany in the *ICTWSS Database* and invite a reconsideration. The same applies to all those works which have relied on the assumption that Germany is a case of export sector-led pattern bargaining.

The paper raises more questions than it answers: if it is not export sector-led pattern bargaining, how do we account for the marked trajectory of restraint observed before and after EMU entrance? Answering this question goes beyond the scope of the paper. I wish to conclude, however, by indicating elements for alternative hypotheses.

A likely starting point would be to accept a Copernican revolution in the way in which CPE looks at the public sector. This means taking the public sector seriously. This paper has revealed that for too long, this discipline has assumed that all the public sector does is to revolve around the export sector. Future research could take off from the simple intuition that the conduct of wage policies in the public sector—insofar as public wages are paid out of tax revenues—necessarily coincides with fiscal policy. In essence, this is rather a matter of public finance: public sector wage policy and fiscal policy are one and the same thing, the former being a subset of the latter.

Researchers should move beyond the excessive attention paid so far to the social coalition of export-oriented firms and core manufacturing workers. The public sector has its own peculiarities. Public sector wage setting is fundamentally different from the private sector's in the very fact that what we are studying is a *sovereign employer* (Traxler, 1999) with ultimate access to the legitimate use of coercion as structured by the constitutional and administrative system effective *in loco*. In this respect, the public employer, by *occupying two seats* at the bargaining table (Hyman, 2008), maintains multiple—political and economic—interests, which may very well amplify the tensions between (politically) responsive and (fiscally) responsible governments (Mair, 2009). This may especially be the case given the macroeconomic governance regime of the EMU and times of fiscal austerity. This opens up an exciting research agenda in which the study of public finance, fiscal federalism and public administration are brought in to understand the institutional constellation relevant to the processes of public sector wage setting.

As a consequence, studies should also take into account the politics of fiscal policy: in Germany, in April 1996, Kohl's coalition government agreed to a savings package of 50 billion DM in order to push through consolidation needed to comply with the 3 per cent fiscal *vincolo esterno* as of the beginning of EMU Stage Three: the fiscal year 1997. The mastermind behind the plan was the German finance minister Theo Waigel, whose strategy aspired to obtain 23 billion DM in savings (almost half of the entire savings package) through a public sector pay freeze (Norman, 1996). After tense collective bargaining negotiations in May and June, the parties representing public employers and employees settled on the arbitrators' proposal[25] that centred on a lump-sum (300 DM) for 1996 and a very moderate wage increase of 1.3 per cent, valid for one year beginning January 1, 1997. This ushered in the season of public sector wage restraint in Germany. The unions came to accept such a penitential agreement as a compromise in order to avoid the threat of cuts in sick pay, the extension of working hours and a pay freeze forcefully backed by public employers (Fisher, 1996). These developments have been a by-product of public employers' fiscal considerations rather than inter-sectoral wage coordination and concerns for export competitiveness imposed by the export-sector cross-class coalition: the finance ministers presiding over fiscal policy were moved by preoccupations regarding the *leeren öffentlichen Kassen*[26] (empty public coffers).

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ENDNOTES

1. I use the term 'public sector' to mean the aggregation of an economy's *community*, *social* and *personal services*—that is, public administration and defence, education, health and social work (categories L, M and N in the EU KLEMS database). Notwithstanding privatisations, it is generally accepted that these sectors constitute the bulk of an economy's non-tradable sector. For EU KLEMS data, see http://www.euklems.net/index.html.
2. Germany is generally (although not every year) classified as having a pattern-bargaining type of inter-sectoral coordination (coded as 2) in the *Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts in 51 countries between 1960 and 2014 (ICTWSS)*, see: http://www.uva-aias.net/nl/ictwss.
3. For a more detailed description, see Collignon (2009).
4. *Nota bene:* no translation exists in German for the concept of pattern bargaining. *Pilot-Abschluss* is the closest German term with which German policymakers refer to pattern

bargaining. This term, however, is understood with regard to intra-sectoral coordination inside the metalworking industry and not inter-sectoral coordination: IG Metall would usually negotiate the first contract of the bargaining season in the state in which it is strongest and more endowed—generally in Baden-Württemberg—and the wage norm obtained there would then be extended to all the other bargaining units *inside* the metalworking industry (interview with a decision maker in the top echelon of TdL [*Tarifgemeinschaft deutscher Länder*] in Munich, 3 July 2017).

5. Delegating monetary policy to the ECB would create an institutional constellation in which monetary policy is set at the supranational level while wage bargaining coordination takes place at the national level. In this sense, the result would be to set wages at an intermediate level—neither fully decentralised at the firm level nor fully centralised (Calmfors and Driffill, 1988) or coordinated (Soskice, 1990) at the European level. This structure is said to erode the incentives for unions to internalise the negative effects of their would-be inflationary wage-setting behaviour.
6. Works which develop similar arguments are Johnston and Hancké (2009); Johnston (2012); Johnston and Regan (2014); and Johnston et al. (2014).
7. I am indebted to Reinhard Bispinck, head of the *Tarifarchiv* (collective bargaining archive) of the *Wirtschaftliches- und Sozialwissenschaftliches Institut* (WSI) for having provided me with the data and fruitful insights during a seminar held at the *Hans-Böckler-Stiftung* in Düsseldorf *in* December 2016.
8. A caveat applies here: the bargaining season may very well not coincide with the calendar year, and it may be the case that a contract signed in late autumn influences negotiations occurring in the spring of the subsequent calendar year. The quantitative studies on the subject have relied on pair-wise correlations of yearly nominal wage increases (or NULCs) or regression analyses with entry points based on yearly data. This strategy does not allow one to capture these year-to-year dynamics. The table in the appendix takes into proper consideration instances in which a contract signed just before the end of the calendar year did influence another contract in the spring of the following year (e.g. in 2008–2009).
9. This is also confirmed when we look at the development of collectively agreed wages across the German economy. These data are provided in the form of indexes by the *WSI-Tarifarchiv* and has been analysed in Bispinck and Schulten (2014, 12).
10. Work done at the European Trade Union Institute (ETUI) using Eurostat data arrives at the same observation of wage restraint in the German public sector (Müller and Schulten, 2015, 39).
11. The *Deutsche Gewerkschaftsbund* (DGB) is the umbrella organisation for eight German trade unions. Together, the DGB member unions represent the interests of over six million people. This makes the DGB by far the largest confederation of trade unions in Germany and one of the largest national confederations of trade unions worldwide. http://en.dgb.de/.
12. A decision maker in the top echelon of the DGB in charge of wage policies and often present in the related talks with DGB affiliates has explained to me that during these meetings he "sits silent with no right whatsoever to speak at all" (Interview in Berlin, 4/1/2017).
13. BDA—Missions of Confederation of German Employers' Associations *(Bundesvereinigung der deutschen Arbeitgeberverbände;* http://www.arbeitgeber.de/www/arbeitgeber.nsf/id/EN_Mis sions_of_BDA).
14. ÖTV *(Gewerkschaft Öffentliche Dienste, Transport und Verkehr)* was the trade union representing workers in the public services and transport. It was replaced in 2001 by the creation of ver.di *(Vereinte Dienstleistungsgewerkschaft)*, which resulted from the merger of five trade unions (Keller, 2005). Unlike the ÖTV, ver.di represents the whole service sector.
15. These documents can be consulted upon request at the Social Democracy Archive in Bonn, where all archival material related to the ÖTV is stored, inside the *Friedrich-Ebert-Stiftung*.
16. All employees in the top echelons of German trade unions (dbb, ver.di, GEW) who I interviewed during the winter/spring of 2017 adamantly stressed this fundamental aspect of their work.
17. Misunderstood and underestimated: a neologism popularised as a Bushism—that is, an unconventional statement made by George W. Bush.

18. A notable exception is Martin and Thelen (2007).
19. http://oeffentlicher-dienst.info/tv-l/.
20. Given the nature of the German Basic Law, which assigns most of the administrative competencies to subnational governments in Germany, states and municipal employers bear the bulk of the costs for personnel. In 2011, personnel expenditures at the state level amounted to more than 35 per cent of total expenditures, as compared to 25 per cent for the municipal employers and 9 per cent for the federal level (data from Destatis).
21. Expenditures for public sector wage-setting have to be incorporated into budget laws, drafted by the finance ministry and approved by parliaments.
22. dbb: *Deutscher Beamtenbund* is the German Civil Servants' federation. It is the second biggest German trade union confederation, representing mostly—although not only—civil servants in Germany. http://www.dbb.de/der-dbb.html.
23. Also confirmed to me during an interview with a decision maker in the top echelon of the dbb (Berlin, March 15, 2017).
24. Interview with a decision maker in the top echelon of ver.di (Berlin, February 3, 2017).
25. *WSI-Tarifarchiv*, Tarifrunde Öffentlicher Dienst West und Ost, 1996. https://www.boeckler.de/wsi-tarifarchiv_3171.htm.
26. *WSI-Tarifarchiv*, Tarifrunde 1995. https://www.boeckler.de/wsi-tarifarchiv_3194.htm.

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APPENDIX

Table 1: Germany, 1991–2016: dates of the signature of selected sectoral collective bargaining agreements

Year	Public sector	Metalworking sector	Chemical sector	Pilot agreement
1991	March 16	May 5	June 20	Public sector
1992	May 7	May 17	June 24	Public sector
1993	February 4	–	–	Public sector
1994	March 11	March 5	January 11	Chemical sector
1995	May 3	March 7	March 9	Metalworking sector
1996	June 13		March 29	Chemical sector
1997	–	December 15, 1996	December 9, 1996	Metalworking sector
1998	March 27	–	May 9	Public sector
1999	February 27	February 18	May 31	Metalworking sector
2000	June 23	March 28	March 22	Chemical sector
2001	–	–	–	–
2002	–	May 18	April 18	Chemical sector
2003	January 10	–	May 8	Public sector
2004	–	February 12	May 14	Metalworking sector
2005	TVöD—February 9	–	June 16	Public sector
2006	TV-L—May 9	April 22	–	Metalworking sector
2007	–	May 4	March 4	Chemical sector
2008	TVöD—March 31	–	April 16	Public sector
2009	TV-L—March 1	November 12, 2008	–	Metalworking sector
2010	TVöD—February 27	February 18	March 21	Metalworking sector
2011	TV-L—March 10	–	March 31	Public sector
2012	TVöD—March 31	May 19	May 24	Public sector
2013	TV-L—March 9	May 14	–	Public sector
2014	TVöD—April 1	–	February 5	Chemical sector
2015	TV-L—March 28	February 24	–	Metalworking sector
2016	TVöD—April 29	May 13	June 23	Public sector

Source: Author's elaboration, data from the WSI-Tarifarchiv.