

Nollenberger, Jeremiah

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Hands tied: Are some institutional arrangements more counter-cyclical?

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Hands tied. Are some institutional arrangements more counter-cyclical?

Jeremiah Nollenberger¹

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Abstract: Pro-cyclical fiscal policy is considered harmful. Nonetheless, pro-cyclicality is widespread and the cyclical policy is strongly heterogeneous in advanced economies. This paper investigates how differences in the cyclical policy can be understood through the lens of Varieties of Capitalism (VoC). The VoC-perspective argues for systematic differences between coordinated market economies (CMEs) and liberal market economies (LMEs). Because of consensus-based decision making and a wage bargaining system characterized by economy-wide large but non-encompassing wage setters, fiscal policy is reasoned to be less expansionary during downturns in CMEs and thus less counter-cyclical. During upswings, however, both channels may aid stronger fiscal retrenchment, making CMEs more fiscally conservative rather than less counter-cyclical overall. Thus far, the empirical literature has only investigated the overall differences in the cyclical policy between LMEs and CMEs, reporting contradictory results. Building and expanding on this literature, we analyze an unbalanced panel of 29 OECD countries from 1985 to 2021. We find LMEs to be consistently more counter-cyclical than CMEs, due to CMEs being less expansionary during downturns. During upswings, however, we do not identify a systematic difference between the archetypes. We furthermore find dependent market economies (DMEs) and mixed market economies (MMEs) to be more expansive during good times than the CME-group. Our results thus suggest that the capacity for counter-cyclical fiscal policy is deeply embedded in national institutional arrangements, rather than being merely a technical matter. Our findings aid in furthering our understanding of the institutional underpinnings of the export reliance in CMEs and interest rate differentials across Eurozone countries.

Keywords: Fiscal Policy, Comparative Political Economy, Business Cycle, Institutions, Varieties of Capitalism

JEL codes: E62, E32, H30 P51

¹ Jeremiah Nollenberger, International Max Planck Research School on the Social and Political Constitution of the Economy (IMPRS-SPCE)/ University of Duisburg-Essen. Email: jeremiah.nollenberger@momentum-institut.at

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1. Introduction

Smoothing the business cycle is considered one of the three crucial functions of government in the *Theory of Public Finance* by Richard Musgrave (1959). Modern economics underpins this insight to avoid pro-cyclicality across modelling paradigms with empirical results showing pro-cyclical fiscal policy to lead to lower growth rates, greater output volatility and higher inflation (McManus and Ozkan 2015). Nonetheless, pro-cyclical fiscal policy is widespread and countries show great heterogeneity in the cyclicity of their fiscal policy (e.g. Lane 2003; Fatás and Mihov 2012; Heimberger 2023b).

This paper investigates in how far the Varieties of Capitalism (VoC) paradigm (Hall and Soskice 2001) can help us understand the heterogeneity in the cyclicity of fiscal policy across advanced economies. The VoC-paradigm links fiscal policy to a country's overall economic underpinnings via institutional complementarities and contends that coordinated market economies (CMEs) limit their fiscal discretion and are therefore less capable of reacting to changes in the business cycle. Specifically, coalition governments are argued to face common pool issues, which they solve by following rules-based fiscal policy, limiting fiscal discretion. Furthermore, economy-wide large but non-encompassing wage setters (small-N setting) have an impact on the macroeconomic wage-level and can be incentivized to moderate wages by unaccommodating fiscal policy. Therefore, CMEs are expected to be less counter-cyclical than liberal market economies (LME) during downturns, as they expand less forcefully (Soskice 2007; Carlin and Soskice 2009). During upswings, however, both of these institutional channels can be argued to aid in reducing one's deficit. CMEs can thus also be conceived as more fiscally conservative, rather than less counter-cyclical overall. The notion that CMEs are less counter-cyclical than LMEs – without differentiating between up- and downswings – has been empirically investigated by Amable and Azizi (2014) and Kalinowski and Hlasny (2017), who report contradictory results. Kalinowski and Hlasny (2017) find LMEs to be more counter-cyclical than CMEs, as theorized. Whereas Amable and Azizi (2014) find the opposite with stronger counter-cyclicity in CMEs.

Building on these studies, we expand both the time frame - to include the Covid-19 recession - and the country base as well as differentiating between fiscal policy in good and bad times. We analyze an unbalanced panel consisting of 29 OECD countries from 1985 to 2021, discerning between CMEs, LMEs, mixed market economies (MMEs) and dependent market economies (DMEs). We find LMEs to be consistently more counter-cyclical than CMEs. This difference

is driven by CMEs being less expansive during bad times. The divergence of our findings from the literature - Amable and Azizi (2014) in particular – is, on the one hand, explained by the inclusion of the years after the Financial Crisis in our sample. During the Euro-Crisis, in particular, LMEs were more counter-cyclical than CMEs. On the other hand, our expanded country sample reveals that LMEs were already more counter-cyclical than CMEs in the period before 2009. Analyzing the institutional channels theorized to drive our results – as expected-, both consensus-based governance and the small-N wage bargaining setting are associated with less counter-cyclical fiscal policy during bad times. During good times, however, the coefficients for both institutional variables turn insignificant, as does the estimated difference in fiscal policy cyclicity between CMEs and LMEs. Thus, CMEs are less counter-cyclical in bad times, while they are found to retrench as strongly as LMEs in good times. Finally, we find that both DMEs and MMEs are more pro-cyclical than our CME baseline during upswings.

We structure the paper as follows: In section 2, we review the literature on the cyclicity of fiscal policy and connect it to the VoC paradigm. Section 3 presents our data and the empirical methods used in the results section 4. In the results section, we first provide descriptive insights into our data before moving on to the regression analysis. The first set of regressions investigates how the cyclicity of fiscal policy differs across VoC and contrasts our results with Amable and Azizi (2014), explaining the differences in the reported results. The further sub-chapters of section 4 move on to differentiate the cyclicity of fiscal policy between good and bad times, look into the institutional channels argued to drive our results and provide robustness tests for our main findings. Finally, section 5 concludes.

2. Literature Review

The literature analyzing the cyclicity of fiscal policy is vast. In his meta-analysis, Heimberger (2023a) summarizes the results from 154 primary studies, coming to the conclusion that, on average, fiscal policy is mildly counter-cyclical in advanced economies; the primary deficit is estimated to increase by 0.16% when the business cycle variable (e.g. the output gap) decreases by 1% (of potential GDP). Upon closer analysis, the deficit term can be subdivided into two categories: First, there are discretionary changes in the deficit brought on by policymakers and second, there are cyclical changes in the deficit due to so-called automatic stabilizers. For example, spending on unemployment benefits is dependent on the business cycle, as are tax revenues. When exclusively looking at the discretionary changes in the deficit - measured by the cyclically adjusted primary balance - the counter-cyclicity of fiscal policy decreases and the mean result becomes a-cyclical (Heimberger 2023a, p. 7).

In terms of heterogeneity in the cyclicity of fiscal policy across countries, developing countries are found to be less counter-cyclical than advanced economies (Heimberger 2023a). Advanced economies, however, show strong heterogeneity in the cyclicity of their fiscal policies (e.g. Lane 2003; Fatás and Mihov 2012; Heimberger 2023b) and the meta-analysis closes by pointing to investigating the systematic differences in fiscal policy cyclicity as an avenue for further research (Heimberger 2023a, p. 11). In following, we will analyze just this heterogeneity from the VoC-perspective, building on Amable and Azizi (2011, 2014) and Kalinowski and Hlasny (2017).

VoC generally differentiates between CMEs, such as Germany and Japan, on the one hand, and LMEs, such as the USA and the UK, on the other (Hall and Soskice 2001). This differentiation is based on the dominant form of coordination, with market-based coordination prevailing in LMEs and strategic coordination in CMEs. Both forms of coordination are upheld by a corresponding set of interconnected institutions. Besides the difference between CMEs and LMEs, the VoC-perspective also includes hybrids with both coordination mechanisms - dubbed mixed market economies (MME) -, primarily located in southern Europe. More recently, dependent market economies (DME) were introduced to capture developments in eastern Europe (Nölke and Vliegenthart 2009).

The VoC-perspective links aggregate demand management to the other institutions of a country's political economy through institutional complementarities. The argument linking the national institutional framework to fiscal policy in CMEs are the political and the wage bargaining systems: In CMEs, the political system is based on consensus decision making and coalition governments face a common pool problem, as every coalition partner has the incentive to direct resources towards their clientele. To solve this, fiscal policy is rules-based, codified in coalition agreements and monitored by the finance ministry. Thus, fiscal discretion is restricted. Furthermore, the CME wage bargaining system is characterized by economy-wide large but non-encompassing wage setters (small N-setting). In this setting, wage settlements of individual unions are expected to have an impact on the macroeconomic wage level and thus inflation and unemployment. If unions could expect accommodating fiscal policy in response to a rise in unemployment or inflation, they would have less incentive for wage moderation. Therefore, the government is expected to implement unaccommodating fiscal policy in small-N settings to discipline unions (Soskice 2007; Carlin and Soskice 2009). Thus, Amable and Azizi (2014) as well as Kalinowski and Hlasny (2017) argue CME to be more pro-cyclical than LMEs, as CME-governments lack the fiscal discretion to react to recessions and the small-N setting makes fiscal

policy less accommodating to the business cycle. Both channels lead governments to be less reactive to downturns.

H1a: LMEs are more counter-cyclical than CMEs.

Measuring the cyclicity of a country's fiscal policy stance in a single variable, however, may be too reductive. Counter-cyclicity implies both expanding during downswings and reducing one's deficit during upturns. Both of these changes in the fiscal stance may, however, follow distinct and asymmetric underlying institutional logics. In terms of the highlighted institutions differentiating LMEs and CMEs, we have laid out above that coalition governments are expected to have difficulties reacting to dips in the business cycle, as they have limited their discretionary spending by following the rules-based procedure agreed upon in a coalition agreement. On the flip side, however, this coalition agreement may also make it more difficult for coalition governments to distribute the growing tax revenues to their clientele during good times. As for wage bargaining, when individual competitive unions can expect their wage settlements to have an impact on unemployment and inflation, fiscal policy is likely to be unaccommodating to the business cycle in order to enforce wage moderation. In bad times, unions fear increasing unemployment. In good times, that wage-push inflation may lead to fiscal tightening. Arguably, keeping wages competitive is especially important in good times, whereas in bad times wage concessions can be enforced by employment guarantees and the overall cyclical decline in labor power. Therefore, we expect the stronger pro-cyclicity of CMEs - in contrast to LMEs - to be driven by bad times, as CME governments expand less in the face of a business cycle downturn. Whereas, during good times, both coalition governments and the small-N wage bargaining setting may aid in reducing one's deficit. Therefore, we also investigate the modified hypothesis that CMEs are more fiscally conservative than LMEs, rather than pro-cyclical.

H1b: CMEs are more fiscally conservative than LMEs

Moving on to the DME and MME varieties, from a theoretical perspective, the cyclicity of fiscal policy in MMEs should lay somewhere in between LMEs and CMEs, as they are a hybrid of these regimes. Empirically, Amable and Azizi (2014), however, find MMEs to be more pro-cyclical than both CMEs and LMEs. DMEs are argued to be strongly reliant on FDI and therefore show low rates of taxation limiting their fiscal capacity. Moreover, important goods are produced for export markets and corporate ownership is largely in the hands of international business owners who are less invested in the country's macroeconomic performance (Nölke and Vliegenthart 2009). Therefore, we reason fiscal policy to be rather pro-cyclical in DMEs.

Empirically, the cyclical policy in DMEs has not been analyzed from a comparative perspective.

H2: We expect the following order from most to least counter-cyclical: LME, MME, CME, DME

Hypothesis 1a investigating the overall differences in the cyclical policy has been investigated empirically by Amable and Azizi (2014) and Kalinowski and Hlasny (2017). The researchers, however, present contradictory results. Amable and Azizi (2014) investigate the cyclical policy for a sample of 18 OECD countries in the years from 1980 to 2009 and find that both CMEs and LMEs implement mildly counter-cyclical fiscal policy. Surprisingly, the counter-cyclical policy is stronger in CMEs, running counter to expectations. Kalinowski and Hlasny (2017) run a similar analysis for an expanded country sample and time period; including 31 countries from 1980 to 2013. Contrary to the results reported by Amable and Azizi (2014), they, however, find LMEs to be more counter-cyclical than CMEs. Kalinowski and Hlasny (2017) add to the literature by introducing the Asian-CME variety - consisting of Japan, Korea and China - which they find to be as counter-cyclical as LMEs. This addition, however, is unlikely to explain the discrepancies in the results, as only Japan is excluded from the original CME countries. Therefore, the differences are likely driven by either the extended time period or differences in the CME and LME grouping. Kalinowski and Hlasny (2017) add Israel and New Zealand to the LMEs and the Czech Republic, Estonia, Greece, Hungary, Iceland, Luxembourg, Poland, Slovenia and Switzerland to the CMEs. Another difference in the country grouping is that Italy, Spain and Portugal are considered CMEs by Kalinowski and Hlasny (2017), whereas they are classified as MMEs by Amable and Azizi (2014).

Building on this literature, we analyze the heterogeneity of fiscal policy across countries through the VoC-paradigm with a number of modifications. First, we differentiate between good and bad times in analyzing the cyclical policy, rather than merely looking at the overall cyclical policy. Second, we expand the analyzed time period to include the fiscal reactions to the Covid-19-Crisis, which were unprecedented in their overall counter-cyclical policy (Heimberger 2023b). Third, to achieve greater congruence with the VoC-literature, we do not only differentiate between CMEs and LMEs, but add the MME and DME groups. The latter are novel to the empirical literature. Fourth, we shed light on the contradictory findings in the literature by looking at different country and time sub-samples.

3. Data and Methods

We analyze an unbalanced panel of 29 countries² from 1985 to 2021. The data primarily originates from the OECD and we add further data sources for specific economic and political variables (see Table A1).

To investigate the cyclicity of fiscal policy, we estimate the standard *fiscal reaction function* pioneered by Bohn (1998):

$$(1) \Delta FP_{i,t} = \beta_1 \Delta FP_{i,t-1} + \beta_2 \Delta Cycle_{i,t} + \beta_3 VoC_{i,t} + \beta_4 \Delta Cycle * VoC_{i,t} + \beta_5 X_{i,t} + \eta_t + \varepsilon_{i,t}$$

$\Delta FP_{i,t}$ is our fiscal policy variable, which we primarily measure using the cyclically adjusted government primary balance (cagpb). The intuition behind the cagpb is that it captures only the discretionary part of fiscal policy with the business cycle dependent effects, such as automatic stabilizers, calculated out. Interest payments are also excluded, as they are not under the direct control of the sitting government. As a further fiscal policy variable, we also employ the government's primary balance to explicitly include the functioning of the automatic stabilizers in the analysis. This is in line with Afonso and Carvalho (2022) and Heimberger (2023b) who measure the size of the automatic stabilizers as the difference between the cagpb and the primary balance. The first lag of the dependent variable is included in some specification to capture the persistence of fiscal policy measures.

$\beta_2 \Delta Cycle_{i,t}$ is our measure of the business cycle, for which we use the output gap as an empirical proxy. To investigate the differences in the cyclicity of fiscal policy across the varieties of capitalism, we interact the output gap with the VoC-dummies. In the baseline estimation, we simply assign each country to one of the four varieties (CME, DME, LME, MME) following the typical assignments found in the literature (e.g. Hassel 2014). In later specifications, we also use institutional proxies for the political and wage bargaining channels described above instead of the Voc-dummies. A positive interaction term indicates stronger counter-cyclicity, as a fall in the output gap is met with an increase in the deficit and vice versa. Hence, negative interaction terms indicate stronger pro-cyclicity.

We measure both our fiscal policy and business cycle variables in their first differences, as we argue it is sensible to zoom in on the short-term fluctuations relevant for business cycle

² CME: Austria, Belgium, Denmark, Finland, France, Germany, Japan, Netherlands, Norway, Sweden, Iceland, Luxembourg, Switzerland.

DME: Czech Republic, Estonia, Hungary, Latvia, Poland, Slovenia.

LME: Australia, Canada, Ireland, UK, USA, New Zealand.

MME: Italy, Portugal, Spain, Greece.

stabilization through timely fiscal measures. Moreover, this specification limits the influence of time-constant heterogeneity across countries, time trends and dynamic effects (Kalinowski and Hlasny 2017, p. 387). This first-differences transformation is moreover, commonly found in the literature estimating *fiscal reaction functions* (e.g. Amable and Azizi 2011; Kalinowski and Hlasny 2017; Eyraud et al. 2017; Larch et al. 2021).

Our choice of control variables follows the seminal set-up in Amable and Azizi (2014) with some additional controls added in for further model specifications. Amable and Azizi (2014) control for the political business cycle with an election year dummy. To control for political partisanship, they add in a variable measuring the left/right wing composition of government. The (lagged) debt-to-GDP ratio accounts for fiscal space. Lastly, they add dummies for countries that signed the Maastricht 2 and 3 treaties to capture the dynamics of Eurozone convergence³. For example, Bénétrix and Lane (2013) show an increased counter-cyclicality in countries signing the Maastricht treaty, which reverted to stronger pro-cyclicality after Euro adoption. To account for the political dynamics during and after the Euro Crisis, we also add in a control dummy for Eurozone membership and for being in an IMF public debt program (Kalinowski and Hlasny 2017). Finally, to capture international political economy influences, we add in controls for the exchange rate (in relation to the \$) and central bank independence. η_t are time fixed effects and $\varepsilon_{i,t}$ the error term. We estimate our time-fixed-effects model via OLS using Beck and Katz (1995) panel corrected standard errors (PCSE).

4. Results

4.1 Descriptive Results

In the first step, we aim to get some descriptive insights into our data before moving on to the multivariate analysis. Figure 1 shows the distribution of the correlations between the first differenced output gap and *cagpb* by country in a boxplot. In the left boxplot, all countries are pooled and, on the right, they are subdivided by their VoC-categorization. The left plot confirms that the cyclicality of fiscal policy is strongly heterogenous in our sample, as the first quartile of the distribution is at around -0.1 and the third quartile around 0.4. The median at around 0.2 indicates that, on average, countries in our sample are mildly counter-cyclical. Moving on to the right-hand side of Figure 1, we see considerable differences across the varieties. In accordance with our theoretical expectations, the LME-group shows the strongest positive correlation and is clearly above the CME-group. CMEs show the second strongest positive

³ The dummy variable for German unification is omitted as Germany joins our panel only after reunification in 1991.

correlation. For DMEs and MMEs, the median correlation of the output gap and the cagpb is negative, indicating pro-cyclicality. While the variance in the DME group is large, MMEs show less variance, with all countries displaying a negative mean correlation. This notion that MMEs are the most pro-cyclical group goes counter to our stated theoretical expectations, however, it is in line with the empirical results reported by Amable and Azizi (2014).

In Figure 2, we subdivide the boxplots by good and bad times based on if the first-differenced output gap shows an improvement or deterioration in the business cycle. Overall, these plots again confirm the notion of large heterogeneity in the cyclicity of fiscal policy across the countries with sizeable VoC-group differences. On average, countries are mildly counter-cyclical in bad times, whereas the median correlation around 0 in good times indicates a-cyclicality. The order of the country groups remains unchanged across good and bad times, with LMEs being consistently the most counter-cyclical group followed by CMEs coming in second. DMEs and MMEs remain the least counter-cyclical. Furthermore, Figure 2 suggests that the difference between the cyclicity of LMEs and CMEs is larger in bad times, as the medians of the box plots are further apart in bad times. Finally, the plot also suggests that the weaker counter-cyclicity in the MME and DME sub-samples is driven by pro-cyclical fiscal policy in good times. The boxplots are, however, limited by the relatively small number of observations per VoC-group, as we only compare the mean correlations across the countries.

Therefore, we add in the time dimension to get a better intuition into the interplay between the cagpb and the output gap. Figure 3 plots the mean change in the output gap, in yellow, and the mean change in the cagpb, in blue, for each variety. Bars for the same year pointing in the same direction indicate counter-cyclicity; bars in opposing directions pro-cyclicity. If the two bars point in opposing directions and the absolute difference in their values is larger than 1% of potential GDP – as a differentiation from a-cyclicity –, we add a red frame around the bars to visualize a pro-cyclical period. Figure 3 strengthens our insights from above. LMEs have occasional disbursed red bars for individual years, whereas pro-cyclical years are more frequent for the other varieties. Visual inspection of the CMEs shows a cluster of pro-cyclical years in the late 2000s and early 2010s around the Financial Crisis. Strengthening this visual interpretation, LMEs are pro-cyclical in 29% of their country-year observations (45% during bad times), whereas CMEs are in 39% (43% during bad times). Again, both DMEs and MMEs are considerably more pro-cyclical with 53% (30% during bad times) and 56% (35% during bad times) of the country-year observations, respectively, being pro-cyclical. The DME plot suggests three pro-cyclical episodes. The first is in the late 1990s, the second before and around

the Financial Crisis and the third in the years after 2016. For MMEs, it is more difficult to discern a clear pattern. When looking at the countries plotted individually, however, the MMEs show uniform strong pro-cyclicality since the Euro Crisis, with red bars dominating as of 2011 (Figure A1). Before the Euro Crisis, we see considerable variance between the countries. This is best exemplified by contrasting Spain and Portugal. In Spain, fiscal policy was relatively counter-cyclical before the Euro Crisis; in contrast, Portugal is also strongly pro-cyclical as of 2011, but also has many pro-cyclical years in the 1990s.

All in all, our descriptive evidence underlines the large variance in the cyclicity of fiscal policy in our sample. On average, we find a weak positive correlation between fiscal policy and the business cycle, which can be interpreted as indicating mild counter-cyclicality. The disaggregated plots point to systematic differences between the VoC-groups. LMEs are shown to be the most counter-cyclical, whereas MMEs and DMEs are the least counter-cyclical. Differentiating between good and bad times reveals that countries are, on average, mildly counter-cyclical in bad times and, at the median, a-cyclical in good times. This differentiation reveals that the weaker counter-cyclicality in the MME and DME sub-samples is, in particular, due to pro-cyclicality in good times. This is indicated by the average correlations and the lower ratio of pro-cyclical episodes during bad times in these groups. As for CMEs being more fiscally conservative than LMEs, the differentiation between good and bad times suggests that the difference in the cyclicity between LMEs and CMEs is particularly large in bad times. This notion is, however, not supported by the ratio of pro-cyclical episodes during bad times. Moreover, we find LMEs to remain more counter-cyclical than CMEs during good times, running counter to H1b.

4.2 Baseline Regressions

We move on to analyzing the cyclicity of fiscal policy across VoC in a multivariate setting and estimate model (1). We add in additional control variables, as laid out above, step-by-step and report the results in Table 1 for the *cagpb* and the primary balance as the dependent variables. The coefficient of the output gap is significant for both dependent variables. It is negative for the *cagpb* and positive for the primary balance. This is in line with the notion that automatic stabilizers make fiscal policy more counter-cyclical. The discretionary part itself is negative in the multivariate setting. A 1% rise (fall) in the output gap is estimated to increase (decrease) the deficit by around 0.3%. Similar negative coefficients are reported in numerous other studies employing fixed effects and the OLS estimator (e.g. Eyraud et al. 2017; Larch et al. 2021; Gootjes and Haan 2022; Carnazza et al. 2023).

Looking at our main interaction terms, we see a positive and statistically significant interaction between the business cycle and the LME-dummy. This means that LMEs are estimated to be more counter-cyclical than CMEs (our baseline) across all models. Not only do LMEs react more strongly to the business cycle with discretionary measures, but this difference in the response still remains when taking the automatic stabilizers into account. Therefore, the objection that CMEs have more developed welfare states, whereby the automatic stabilizers cushion the business cycle to a larger extent, requiring less discretionary stabilization than in LMEs, does not hold. As to be expected, the coefficients of the interaction term for the primary balance are, nonetheless, smaller and only significant at the 5%-threshold. Looking further at the interaction terms of our two other VoC groups, MMEs show a consistent negative sign, as suggested by the descriptive evidence. The difference is, however, not statistically significant in the multivariate setting. The interaction term for DMEs is also negative and insignificant for discretionary fiscal measures. When looking at the overall primary balance, however, DMEs are estimated to be more pro-cyclical than CMEs. This result is likely explained by less welfare state provisioning as a counter-cyclical influence in DMEs. Thus, we find evidence supporting H1a and H2, however, with the exception that we do not find MMEs to be more counter-cyclical than CMEs, just as Amable and Azizi (2014).

Moving on to the control variables, it is remarkable how stable the results remain across the different specifications of the regression model and the control variables themselves show plausible signs. We consistently find countries with higher public debt to run smaller deficits in line with the notion that, at some level of debt, countries have limited fiscal space to increase their spending. Further, being part of an IMF public debt program and more central bank independence are associated with running a smaller deficit; whereas more right-wing governments as well as Eurozone membership are associated with slightly higher deficits. Finally, when adding the lagged dependent variable, it has a highly significant negative coefficient, speaking to the relevance of fiscal policy persistence. The negative sign indicates that governments will tend to decrease their deficit when the deficit increased in the previous year and vice versa.

The finding, both descriptive and multivariate, that LMEs are more counter-cyclical than CMEs, is in line with H1a. However, it runs counter to the results presented by Amable and Azizi (2014), who find CMEs to be equally or even more counter-cyclical than LMEs. To assess how this difference in the results can be explained, we explore how the expanded time frame and country base contribute to our findings. In Table 2, we run our fully specified regression

model for four sub-samples. The first sub-sample is restricted to the 18 countries originally analyzed by Amable and Azizi (2014) and we restrict the time frame to 2009, as in the reference paper. In the second regression, we investigate the years 2010-2021 for these 18 countries. In regressions 3 and 4, we keep the identical splits in the analyzed timeframes, but use our entire country sample. Table 2 shows that, when re-estimating our baseline equation for the Amable and Azizi (2014) country sample and time frame, we, as well, find no difference in the cyclicity of fiscal policy between CMEs and LMEs. This result is qualitatively close to the results reported by the authors. For us, however, the sign of the interaction term is positive instead of negative. A possible reason for this slight difference is that we analyze a marginally different time frame. Our analysis starts in 1985 instead of 1980. Another possibility is that data revisions drive the slight difference, as both the output gap and correspondingly the *cagpb* are known for strong ex-post revisions (Jong-A-Pin et al. 2012; Larch et al. 2021, p. 4; Carnazza et al. 2023). In equations 2-4, the interaction terms are positive and significant, just as in Table 1. Thus, on the one hand, the LMEs were significantly more counter-cyclical in the years after the Financial Crisis - compared to the CMEs - and the inclusion of these additional years drives the differences in the results. And, on the other hand, the positive coefficient in regression 3 shows that the finding that LMEs are more counter-cyclical than CMEs is also driven by the expansion of the analyzed country base. Specifically, we added New Zealand to the LME sample and Luxemburg, Switzerland, as well as Iceland to the CMEs. We are thus able to qualitatively recreate the Amable and Azizi (2014) results and find that both the expansion of the analyzed time frame as well as the expanded country sample explain the differences in our results.

4.3 Good v. bad times

In this section, we introduce the differentiation between good and bad times to the analysis of fiscal policy heterogeneity across VoC. As stated above, we expect CMEs to be more fiscally conservative than LMEs: less expansive in bad times and more restrictive in good times. To empirically differentiate good from bad times, we, again, simply use the direction of the change in the output gap. We separately interact both the positive and negative variation in the output gap with our VoC-dummies. This strategy is close to the convention used in the literature to analyze fiscal policy in good and bad times (e.g. Eyraud et al. 2017; Gootjes and Haan 2022). We, however, employ separate positive and negative output gap-terms to avoid a three-way interaction. We run the fully specified regression model for all four varieties and report the results in Table 3 with CMEs as our baseline variety. In line with CMEs being more fiscally conservative than LMEs, our results show a significant positive interaction between the output gap in bad times and the LME-dummy for both dependent variables. Thus, CMEs expand less

during bad times vis-à-vis LMEs. The LME-interaction term, in good times, is negative, however clearly insignificant. Suggesting, as the descriptive evidence above, that CMEs do not contract more strongly than LMEs during good times. The interaction terms for both MMEs and DMEs are insignificant during bad times, signaling no statistical difference in their fiscal expansion in comparison to CMEs. During good times, however, both MMEs and DMEs are estimated to expand more strongly than CMEs, leading to more pro-cyclical upswings. All in all, these findings partially support H1b. CMEs expand less strongly than LMEs during downturns, explaining their overall weaker counter-cyclicality. However, the regression table does not suggest that CMEs restrict their deficit more strongly than LMEs during upswings. Nonetheless, CMEs are overall the most fiscally conservative variety: More fiscally conservative than LMEs in bad times and more fiscally conservative than DMEs and MMEs in good times.

4.4 Institutional Channels

Up to this point, we have simply measured cross-country differences in the cyclical policy by assigning dummies to countries following their categorization in the VoC-typology. On the one hand, this holistic approach is theoretically justified, as the institutional arrangements at the level of the nation-state are conceived as systems that are not reducible to their individual parts. This is because the institutional complementarities lead the individual institutional channels to become larger than the sum of their parts. On the other hand, we do point to two specific channels to explain fiscal responses: Consensus-based decision making and economy-wide large but non-encompassing wage bargaining. To test for the influence of these two institutional channels, we replace the VoC-dummies with variables capturing these institutional arrangements. This strategy follows Amable and Azizi (2011), however, departs from it by introducing both institutional channels jointly, as we argue that both channels work simultaneously and adding the institutional channels individually may bias the estimation by omission of the other channel.

We measure the institutional channels as follows⁴: For the government channel, we simply differentiate between single-party and coalition governments using a binary variable. As laid out above, we expect coalition governments to be more fiscally conservative. To proxy the small-N wage bargaining setting, we use the level at which wage bargaining primarily takes place. Low centralization entails wage bargaining primarily at the company or enterprise level.

⁴ For the wage bargaining variables, our most current data is for 2019. As these variables show minimal variance over time, we simply imputed the value of the last observation for 2020 and 2021. The qualitative results remain unaffected by this imputation.

Medium centralization consists of wage bargaining primarily at the sectoral or industry level and highly centralized bargaining takes place, at least in part, on the level of the entire national economy. We expect a u-shaped relationship with the middle categories corresponding to the small-N setting. Here, in particular, we expect fiscal policy to be less pro-cyclical during good times when higher wage settlements may lead to inflation. In decentralized wage bargaining settings, individual unions have very little impact on the wage level and, henceforth, inflation. Therefore, an unaccommodating fiscal policy would not incentivize wage moderation. In highly centralized settings, competition between unions is not present or the fiscal response is already part of the negotiations. Only in the middle categories, we have large but competitive unions, which governments can incentivize to moderate wage demands via unaccommodating fiscal policy.

Before moving on to the regression results, we plot the average type of government and wage bargaining level by country to ensure that the institutional variables map on to the VoC-groups as expected. Figure 4 shows the expected clustering: LMEs are on the top left of the graph with primarily single-party governments and decentral wage bargaining. CMEs are at the opposite end of the graph, primarily governed by coalitions, and have more centralized wage bargaining systems. The MMEs are in between the CME and LME poles. DMEs are clustered on the bottom left of the graph with decentral wage bargaining and coalition governments. Figure 4 also shows that most varieties have clear outliers in terms of their institutional frameworks, such as Ireland or Japan, for instance. All in all, as the VoC-groups show clear clustering and the clusters are located in the expected areas of the graph, this strengthens our argument for using these variables as proxies for the theorized institutional channels.

We report the regression results using the institutional channels as our explanatory variables in the fully specified regression model in Table 4. The table shows mixed evidence regarding our expectations. Coalition governments are indeed estimated to be less expansive in bad times, whereas their positive interaction term in good times is insignificant. As for the wage bargaining channel, we find that the mid-tier is associated with less counter-cyclical fiscal policy in bad times. Whereas, in good times, we cannot identify an influence of the wage bargaining channel on fiscal policy. We also employ alternative measures for the institutional channels, using Rae's index to measure party fractionalization, following Amable and Azizi (2011), and wage coordination as a proxy for the small-N setting. The results remain qualitatively unchanged using these alternative institutional measures (Table A2). In sum, we thus find evidence in favor of these institutional channels restricting fiscal expansion in CMEs during bad times in line

with VoC. However – just as in Table 3 – we do not find these channels to lead to greater fiscal retrenchment during good times. In particular, finding no effect of the wage bargaining channel on fiscal policy during good times runs counter to H1b. A possible intuition explaining why we do not find differences in good times may be the asymmetric nature of business cycle shocks. Economic recoveries are, for the most part, gradual and follow a predictable pattern. Whereas negative – especially large negative – shocks are sudden and unexpected. Thus, coalition governments may have trouble in reacting to abrupt changes in the economy, whereas both modes of governance show quite similar behavior when managing foreseen economic developments.

4.5 Robustness

In short, our three main results are i) LMEs are more counter-cyclical than CMEs because ii) CMEs expand less in bad times. iii) we find DMEs and MMEs are more pro-cyclical than CMEs in good times. To ensure the soundness of these findings, we run a number of robustness checks. First off, the business cycle is arguably an endogenous variable, as an external fiscal shock affects both the business cycle and fiscal policy. This leads to a positive correlation between the business cycle variable with the error term and an upward bias in the OLS estimate (Heimberger 2023b, p. 3). Therefore, we rerun our estimation using the GMM-estimator following Amable and Azizi (2014). We instrument the change in the output gap by its second lag measured in both levels and first differences. Furthermore, this GMM-approach also addresses the Nickell's bias resulting from using a lagged dependent variable in combination with fixed effects in dynamic panels (Nickell 1981). The Nickell's bias is, however, expected to be rather small in our case, as our panel is relatively large in both its time and cross-sectional dimensions (Larch et al. 2021; Gootjes and Haan 2022; Carnazza et al. 2023). The results in Table 5 confirm the robustness of our main results: LMEs have a positive sign on their interaction with the output gap in total and during bad times. As for MMEs and DMEs, the sign on their interaction term with the output gap during good times remains negative. However, for DMEs, the term turns insignificant (at conventional levels) when estimated by GMM. A further robustness test performed in the third model of Table 5 is that we determine good and bad times, not by the sign of the change of the output gap, which only measures short-term up- and downswings in the business cycle. As an alternative measure, we take a bigger picture perspective on a country's position in the business cycle and differentiate good from bad times by using the level of the output gap. In good times, the output gap is positive. In bad times, the output gap is negative. The main results remain unchanged by the alternative measurement of good and bad times.

Finally, the assignment of countries to our VoC-groups is, in some cases, ambiguous. Especially, the assignment of the French case is contentious in the VoC-literature (Hall and Soskice 2001, p. 21; Schmidt 2016). Therefore, we run our regressions categorizing France as an MME (Table A3) and find no substantive changes in the estimation results. More generally, we want to ensure that our results are not driven by the inclusion of a specific country in our sample. Therefore, we run a checkmark test on our fully specified model, excluding one country at a time.⁵ This test shows that our qualitative results remain robust to this exercise, except for the negative DME interaction term during good times turning insignificant when excluding Hungary from the sample.

5. Conclusion

This paper demonstrates that the VoC-paradigm explains relevant differences in the cyclicity of fiscal policy across advanced economies. Our central finding is that LMEs are consistently more counter-cyclical than CMEs, driven by CMEs expanding less during downturns. During upswings, however, we cannot identify statistically significant differences between the archetypes. Furthermore, we find that DMEs and MMEs are more pro-cyclical during good times vis-à-vis CMEs. These findings are robust to multiple estimation techniques and model specifications as well as to accounting for the functioning of the automatic stabilizers, rather than analyzing discretionary changes in fiscal policy exclusively. Speaking in terms of our hypotheses, we find support for H1a, whereas H1b is only supported during bad times. Lastly, also H2 is mostly supported. LMEs are the most counter-cyclical variety and DMEs are found to be rather pro-cyclical. Their empirical inclusion in the analysis is novel to the literature. The exception are MMEs, which are found to be, if anything, less counter-cyclical than the CME-group. While this does not fit our stated theoretical expectations, it is consistent with the empirical literature (Amable and Azizi 2014).

Investigating the institutional channels, we argue to lead to the differences in the cyclicity of fiscal policy across the varieties – as expected - consensus-based decision making and economy-wide large but non-encompassing wage bargaining are associated with less counter-cyclical fiscal policy during bad times. However, during good times, both channels are not associated with any differences in the cyclicity of fiscal policy. This finding runs counter to our wage bargaining argument, where we reason the small-N setting to be especially important to keep wages competitive in good times. Thus, further disentangling of the institutional

⁵ Results available upon request.

underpinnings driving the cross-country differences in the cyclicity of fiscal policy is an avenue for further research.

Our results have important implications for understanding the influence of institutional frameworks on macroeconomic policies and the interplay between the VoC. First, the finding that CMEs are the most fiscally conservative variety speaks to fiscal policy restricting domestic demand in CMEs. This lengthens economic recoveries, during which firms are most likely to rethink business strategies and pressure is put on the currency to devalue, incentivizing firms to pursue export strategies. For example, to LMEs, where domestic demand is boosted via fiscal expansion. Furthermore, finding systematic differences in the cyclicity of fiscal policy across Eurozone countries contributes to explaining inflation rate differences within the Eurozone (Hall 2014; Höpner and Lutter 2018).

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Figures

Figure 1



Figure 2

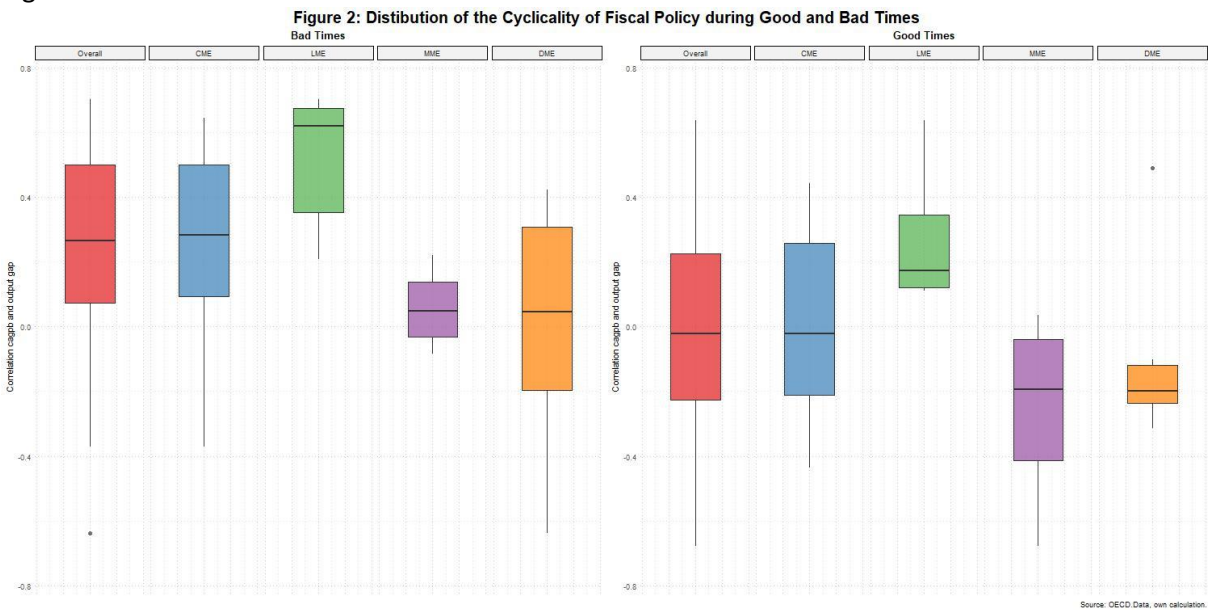


Figure 3

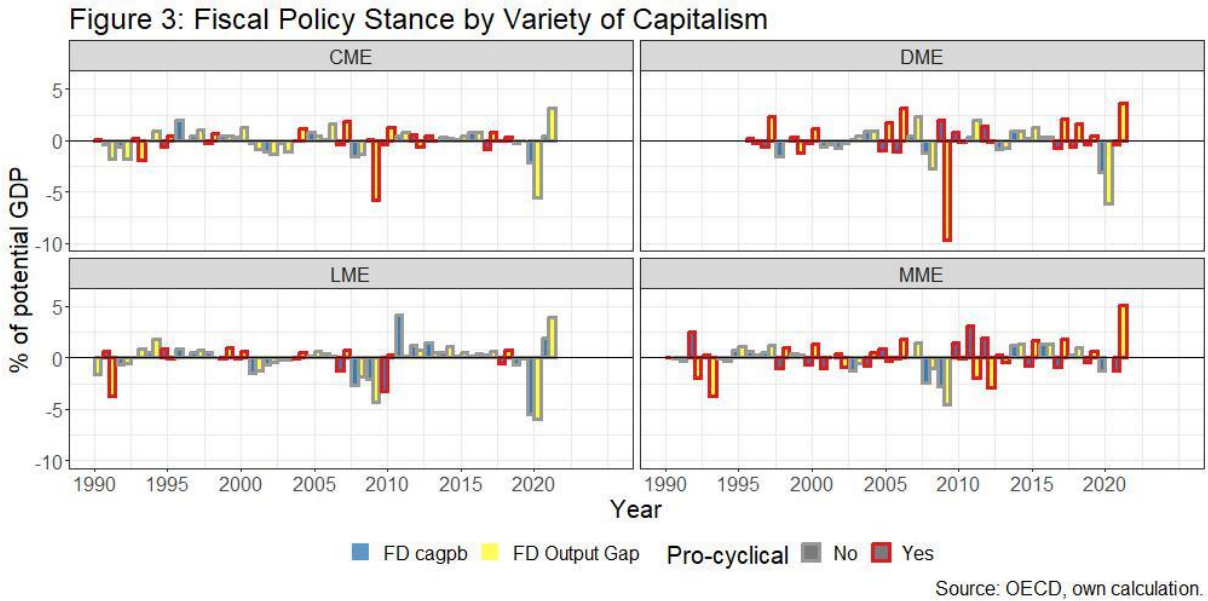
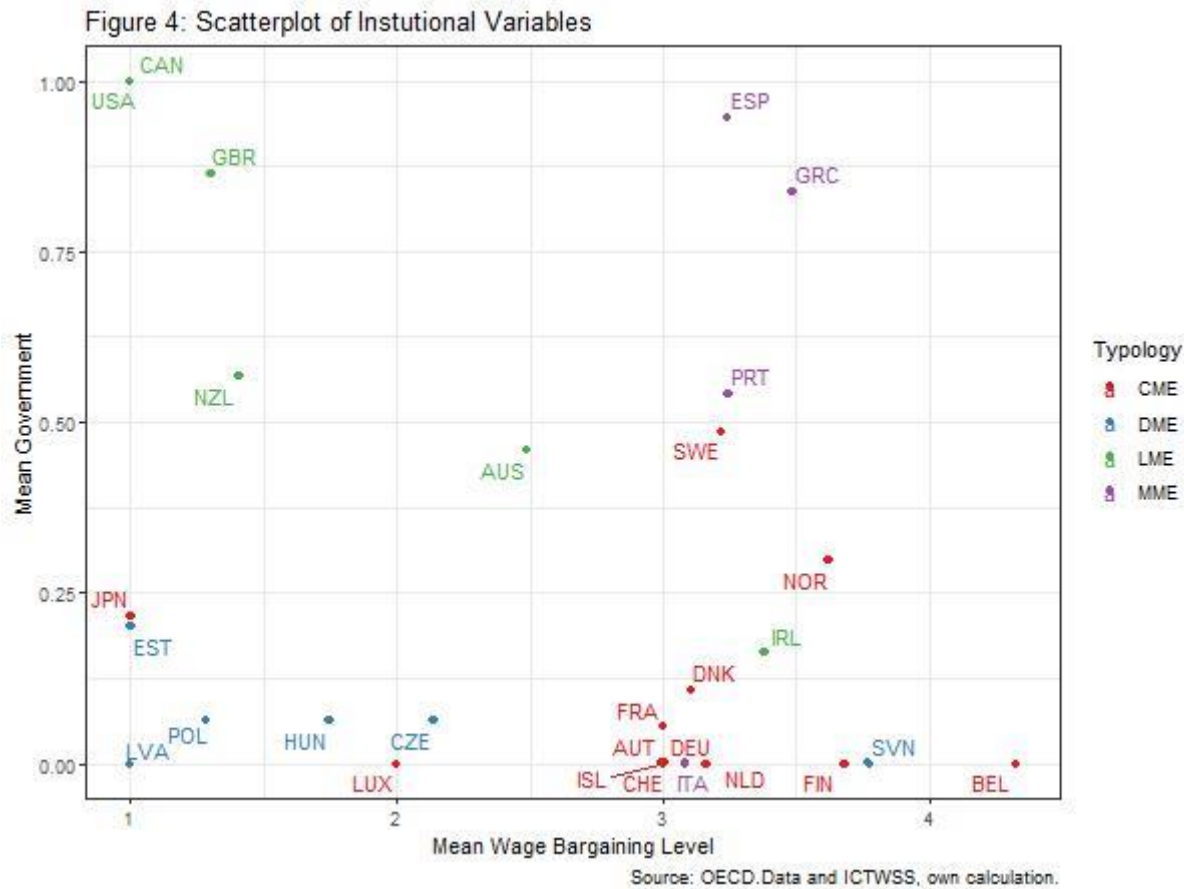


Figure 4



Tables

Table 1

Table 1: Baseline Results								
	Dependent variable:							
	FD cagpb				FD Primary Balance			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lag FD cagpb				-0.228*** (0.038)				
Lag FD Prim Bal								-0.215*** (0.035)
FD Output Gap	-0.300*** (0.061)	-0.287*** (0.062)	-0.287*** (0.062)	-0.268*** (0.061)	0.263*** (0.069)	0.277*** (0.069)	0.277*** (0.069)	0.332*** (0.069)
DME	0.150 (0.095)	0.077 (0.101)	0.015 (0.109)	0.023 (0.125)	0.126 (0.099)	0.052 (0.104)	0.009 (0.113)	0.034 (0.128)
LME	0.069 (0.075)	0.012 (0.079)	0.008 (0.104)	-0.035 (0.127)	0.062 (0.080)	-0.002 (0.083)	-0.003 (0.110)	-0.050 (0.127)
MME	-0.110 (0.079)	-0.091 (0.084)	-0.119 (0.088)	-0.159 (0.102)	-0.146* (0.082)	-0.126 (0.086)	-0.149* (0.090)	-0.181* (0.104)
Gov LR	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)	-0.003*** (0.001)
Election Year	-0.148 (0.147)	-0.153 (0.147)	-0.154 (0.147)	-0.142 (0.138)	-0.067 (0.158)	-0.074 (0.158)	-0.078 (0.158)	-0.077 (0.153)
Lag Debt2GDP	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.005*** (0.001)	0.004*** (0.001)	0.003*** (0.001)	0.004*** (0.001)	0.005*** (0.001)
Maastricht	-0.020 (0.265)	-0.049 (0.267)	-0.306 (0.299)	-0.345 (0.360)	-0.007 (0.269)	-0.055 (0.272)	-0.306 (0.311)	-0.454 (0.371)
Eurozone		-0.167* (0.096)	-0.430** (0.173)	-0.504** (0.206)		-0.181* (0.110)	-0.413** (0.195)	-0.462** (0.225)
IMF		0.705** (0.299)	0.664** (0.297)	0.857** (0.355)		0.806** (0.318)	0.768** (0.317)	0.834** (0.373)
Central Bank Independence			0.582** (0.291)	0.661* (0.341)			0.522* (0.305)	0.563 (0.355)
Exchange Rate			0.121 (0.098)	0.175 (0.121)			0.105 (0.105)	0.141 (0.123)
FD Output Gap:DME	-0.035 (0.082)	-0.032 (0.081)	-0.030 (0.081)	-0.048 (0.079)	-0.189** (0.087)	-0.184** (0.087)	-0.182** (0.087)	-0.208** (0.087)
FD Output Gap:LME	0.336*** (0.099)	0.328*** (0.099)	0.326*** (0.099)	0.334*** (0.093)	0.270** (0.122)	0.261** (0.122)	0.259** (0.121)	0.266** (0.117)
FD Output Gap:MME	-0.050 (0.076)	-0.052 (0.075)	-0.053 (0.075)	-0.083 (0.068)	-0.081 (0.098)	-0.083 (0.097)	-0.084 (0.097)	-0.136 (0.093)
Time Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	911	911	910	883	914	912	911	889
F Statistic	7.546*** (df = 11; 864)	6.658*** (df = 13; 862)	5.871*** (df = 15; 859)	8.818*** (df = 16; 832)	4.942*** (df = 11; 867)	4.462*** (df = 13; 863)	3.968*** (df = 15; 860)	6.479*** (df = 16; 838)

Note:

*p<0.1; **p<0.05; ***p<0.01

Table 2

Table 2: Comparison Amable and Azizi 2014				
	<i>Dependent variable:</i>			
	FD cagpb			
	(1)	(2)	(3)	(4)
FD Output Gap	-0.060 (0.064)	-0.516*** (0.116)	-0.264*** (0.082)	-0.296*** (0.104)
DME			-0.150 (0.225)	-0.054 (0.277)
LME	-0.242 (0.175)	0.717* (0.380)	-0.123 (0.166)	0.492 (0.364)
MME	-0.129 (0.131)	-0.254 (0.286)	-0.201 (0.136)	-0.414 (0.336)
FD Output Gap:DME			-0.167** (0.081)	0.050 (0.112)
FD Output Gap:LME	0.055 (0.093)	0.429*** (0.100)	0.268* (0.138)	0.341*** (0.109)
FD Output Gap:MME	-0.101 (0.093)	0.005 (0.094)	-0.004 (0.138)	-0.063 (0.101)
Full Controls	Yes	Yes	Yes	Yes
Restrictions	i=18, t=1985-2009	i=18, t=2010-2021	i=29, t=1985-2009	i=29, t=2010-2021
Observations	371	187	535	319
F Statistic	2.101** (df = 13; 335)	10.997*** (df = 13; 163)	5.729*** (df = 16; 496)	8.248*** (df = 15; 293)
<i>Note:</i>			* p<0.1; ** p<0.05; *** p<0.01	

Table 3

Table 3: Good vs Bad Times		
	Dependent variable:	
	FD cagpb (1)	FD Primary Balance (2)
FD Output Gap Negative	-0.421*** (0.100)	0.204* (0.107)
FD Output Gap Positive	-0.030 (0.097)	0.537*** (0.119)
DME	0.347 (0.223)	0.346 (0.226)
LME	0.332* (0.197)	0.275 (0.209)
MME	0.239 (0.185)	0.304 (0.209)
FD Output Gap Negative:DME	0.090 (0.099)	-0.081 (0.104)
FD Output Gap Negative:LME	0.495*** (0.115)	0.411*** (0.119)
FD Output Gap Negative:MME	0.097 (0.092)	0.065 (0.102)
FD Output Gap Positive:DME	-0.310* (0.161)	-0.456*** (0.174)
FD Output Gap Positive:LME	0.006 (0.148)	-0.032 (0.212)
FD Output Gap Positive:MME	-0.440*** (0.144)	-0.557*** (0.204)
Full Controls	Yes	Yes
Baseline Archetype	CME	CME
Observations	883	889
F Statistic	7.520*** (df = 20; 828) 5.581*** (df = 20; 834)	
<i>Note:</i> * p<0.1; ** p<0.05; *** p<0.01		

Table 4

Table 4: Institutional Channel		
	Dependent variable:	
	FD cagpb	
	(1)	(2)
FD Output Gap	-0.176** (0.069)	
FD Output Gap Negative		-0.132 (0.088)
FD Output Gap Positive		-0.278** (0.111)
Coalition Govt	0.087 (0.106)	-0.093 (0.166)
Bargain Level Mid	0.078 (0.107)	-0.126 (0.182)
Bargain Level High	-0.192 (0.166)	-0.042 (0.244)
FD Output Gap:Coalition Govt	-0.083 (0.067)	
FD Output Gap:Bargain Level Mid	-0.131* (0.068)	
FD Output Gap:Bargain Level High	0.048 (0.089)	
FD Output Gap Negative:Coalition Govt		-0.165* (0.085)
FD Output Gap Positive:Coalition Govt		0.078 (0.134)
FD Output Gap Negative:Bargain Level Mid		-0.216*** (0.080)
FD Output Gap Negative:Bargain Level High		0.126 (0.132)
FD Output Gap Poisitive:Bargain Level Mid		0.043 (0.142)
FD Output Gap Positive:Bargain Level High		-0.102 (0.160)
Full Controls	Yes	Yes
Observations	883	883
F Statistic	7.857*** (df = 16; 832) 6.683*** (df = 20; 828)	
Note:	* p<0.1; ** p<0.05; *** p<0.01	

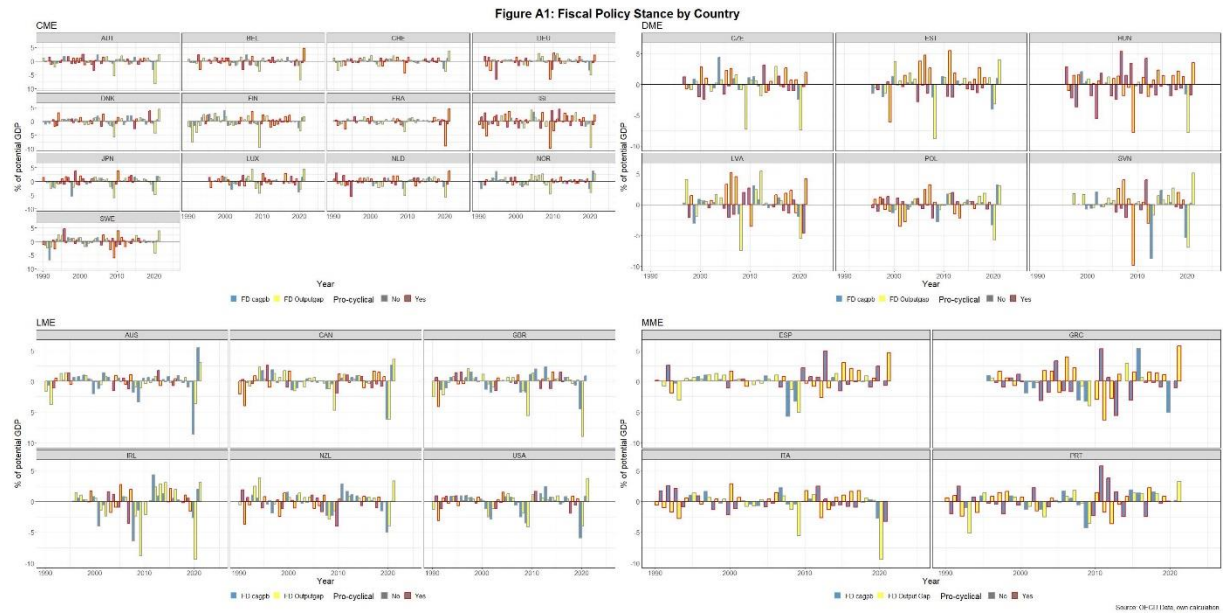
Table 5

Table 5: Specification Robustness			
	Dependent variable:		
	FD cagpb		
	panel GMM	panel linear	
FD Output Gap	0.069 (0.064)		
FD Output Gap Negative Level		-0.363*** (0.081)	
FD Output Gap Positive Level		-0.065 (0.084)	
FD Output Gap Negative	0.118 (0.137)		
FD Output Gap Positive	-0.018 (0.099)		
FD Output Gap:DME	-0.140 (0.096)		
FD Output Gap:LME	0.384*** (0.092)		
FD Output Gap:MME	-0.149** (0.062)		
FD Output Gap Negative:DME	-0.140 (0.174)		
FD Output Gap Negative:LME	0.525*** (0.167)		
FD Output Gap Negative:MME	-0.060 (0.138)		
FD Output Gap Positive:DME	-0.176 (0.140)		
FD Output Gap Positive:LME	0.050 (0.148)		
FD Output Gap Positive:MME	-0.386** (0.159)		
FD Output Gap Negative Level:DME		0.016 (0.096)	
FD Output Gap Negative Level:LME		0.429*** (0.109)	
FD Output Gap Negative Level:MME		-0.0002 (0.081)	
FD Output Gap Positive Level:DME		-0.224** (0.114)	
FD Output Gap Positive Level:LME		0.005 (0.166)	
FD Output Gap Positive Level:MME		-0.326** (0.142)	
Full Controls	Yes	Yes	Yes
Sargan (p-value)	0.114	0.2639	
Observations			883
F Statistic		7.485***	(df = 20; 828)
Note:	* p<0.1; ** p<0.05; *** p<0.01		

Appendix

Figures

Figure A1



Tables

Table A1: Data Sources

Variable	Source	Measurement
Cyclically-adjusted general government primary balance (cagpb)	OECD Data	metric [as % of potential GDP]
Output Gap	OECD Data	metric [as % of potential GDP]
Government Left/Right	Comparative Political Data Set by Klaus Armingeon, Sarah Engler, Lucas Leemann and David Weisstanner	metric [-100 - 100] as the percentage of cabinet posts of right/left-wing parties in percentage of total cabinet
Election Year	Comparative Political Data Set by Klaus Armingeon, Sarah Engler, Lucas Leemann and David Weisstanner	binary for years with elections of national parliaments (lower house)
Debt/GDP	IMF Data ⁶	metric [in %]

⁶ New Zealand is missing from IMF Data. Its Debt/GDP ratio is added from OECD Data for the years 2007-2021.

Maastricht	AUT, BEL, FIN, FRA, DEU, IRL, ITA, NLD, PRT, ESP, GRC, LUX, year > 1994	binary
Eurozone	AUT, BEL, FIN, FRA, DEU, IRL, ITA, NLD, PRT, ESP, GRC, LUX; years > 1998; GRC; year > 2000; EST; year > 2010; SVN; year > 2006; LVA; year > 2013.	binary
IMF Program	GRC; year 2010 -2016; IRL; year 2010-2013; PRT; year 2011- 2014; ISL; year 2008-2011; LVA; year 2008-2011.	binary
Central Bank Independence Index	Central Bank Independence - Extended (CBIE) index and associated data by Davide Romelli	metric [0-1]
Exchange rate, USD per national currency	OECD Data	US dollars per unit of national currency
Government: Single Party/Coalition	Political Parties, Presidents, Elections, and Governments (PPEG) by Werner Krause and Rober Stelzle	Binary based on the number of parties in government 1 or larger
Index of electoral fractionalization of the party system	Comparative Political Data Set by Klaus Armingeon, Sarah Engler, Lucas Leemann and David Weisstanner	metric [0-100]
General government primary balance	OECD Data	metric [as % of GDP]

Level of wage bargaining⁷	OECD/AIAS ICTWSS Database	Step coded: The predominant level at which wage bargaining takes place (in terms of coverage of employees) 1 = bargaining predominantly takes place at the company or enterprise level/ wage bargaining intermediates or alternates between the sector and enterprise level; 2 = wage bargaining predominantly takes place at the sector or industry level; 3 = = wage bargaining intermediates or alternates between the central and industry level/ wage bargaining predominantly takes place at the central or cross-industry level
Type of coordination of wage setting⁸	OECD/AIAS ICTWSS Database	Step coded: 1 = No specific mechanism identified/ Government sets signals (public sector wages, minimum wage/ Pattern bargaining 2 = Intra-associational (“informal centralization”)/ Inter-associational by peak associations 3 = Government-sponsored bargaining (this includes social pacts, provided they deal with wages)/ Government-imposed bargaining (incl. statutory controls in lieu of bargaining)

⁷ Variables only available up to 2019. 2020 and 2021 are imputed based on 2019 values.

⁸ Variables only available up to 2019. 2020 and 2021 are imputed based on 2019 values.

Table A2

Table A2: Institutional Channel Alternative Measures		
	Dependent variable:	
	FD cagpb	
	(1)	(2)
FD Output Gap	0.112 (0.326)	
FD Output Gap Negative		0.347 (0.425)
FD Output Gap Positive		-0.446 (0.555)
Rae Index	0.931* (0.537)	-0.007 (0.907)
Wage Coordination Mid	-0.107 (0.102)	-0.229 (0.182)
Wage Coordination High	-0.190 (0.181)	0.150 (0.278)
FD Output Gap:Rae Index	-0.466 (0.423)	
FD Output Gap:Wage Coordination Mid	-0.127* (0.067)	
FD Output Gap:Wage Coordination High	0.198** (0.099)	
FD Output Gap Negative:Rae Index		-0.807 (0.549)
FD Output Gap Positive:Rae Index		0.320 (0.722)
FD Output Gap Negative:Wage Coordination Mid		-0.171* (0.088)
FD Output Gap Negative:Wage Coordination High		0.363** (0.168)
FD Output Gap Poisitive:Wage Coordination Mid		-0.036 (0.138)
FD Output Gap Positive:Wage Coordination High		-0.079 (0.166)
Full Controls	Yes	Yes
Observations	883	883
F Statistic	7.910*** (df = 16; 832) 6.557*** (df = 20; 828)	
Note: * p<0.1; ** p<0.05; *** p<0.01		

Table A3

Table A3: Grouping Robustness		
	<i>Dependent variable:</i>	
	FD cagpb	
FD Output Gap	-0.255*** (0.063)	
FD Output Gap Negative		-0.409*** (0.104)
FD Output Gap Positive		-0.020 (0.099)
FD Output Gap:DME	-0.061 (0.080)	
FD Output Gap:LME	0.321*** (0.094)	
FD Output Gap:MME	-0.104 (0.066)	
FD Output Gap Negative:DME		0.081 (0.103)
FD Output Gap Negative:LME		0.487*** (0.119)
FD Output Gap Negative:MME		0.063 (0.093)
FD Output Gap Positive:DME		-0.322** (0.163)
FD Output Gap Positive:LME		-0.009 (0.149)
FD Output Gap Positive:MME		-0.427*** (0.137)
Full Controls	Yes	Yes
Addition	FRA = MME	FRA = MME
Observations	883	883
F Statistic	8.875*** (df = 16; 832)	7.520*** (df = 20; 828)
<i>Note:</i> * p<0.1; ** p<0.05; *** p<0.01		



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UNIVERSITÄT
DUISBURG
ESSEN

Open-Minded



Institute for Socio-Economics
University of Duisburg-Essen

Lotharstr. 65
47057 Duisburg
Germany

uni-due.de/soziooekonomie
wp.ifso@uni-due.de



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