Comparative Institutional Advantage in the European Sovereign Debt Crisis

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Abstract

Excessive fiscal spending is commonly cited as a root of the current European debt crisis. This article suggests, like others, that the rise of competitiveness imbalances contributing to national imbalances in total borrowing is a better explanation for systemic differences toward Economic and Monetary Union (EMU) countries' exposure to market speculation. We identify one driver of this divergence: a country's capacity to limit sheltered sector wage growth, relative to wage growth in the manufacturing sector. Corporatist institutions that linked sectoral wage developments together in the surplus countries provided those with a comparative wage advantage vis-à-vis EMU's debtor nations, which helps explain why the EMU core has emerged relatively unscathed from market speculation during the crisis despite the poor fiscal performance of some of the core countries during EMU's early years. Using a panel regression analysis, we demonstrate that rising differentials between public and manufacturing sector wage growth, and wage-governance institutions that weakly coordinate exposed and sheltered sectors, are significantly correlated with export decline. We also find that weak-governance institutions are significantly associated with more prominent export decline inside as opposed to outside a monetary union.

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What systemic factors explain why some sovereigns in Europe's Economic and Monetary Union (EMU) have fallen victim to heavy market speculation amid the current crisis, while others have remained unscathed? While many acknowledge the role of the 2008 financial crisis as the catalyst that initiated Europe's debt crisis, recent debate has questioned whether roots of the crisis were established before this event. Among various European political leaders and policy makers, the fiscal recklessness hypothesis (the crises within the EMU periphery were driven by unsustainable public borrowing prior to the crisis) has gained significant traction. Although this hypothesis explains why financial markets doubt Greece and Italy's capacity to repay debts, it fails to travel to other EMU cases. Spain and Ireland, with better fiscal positions than Germany up until the crisis, were subject to harsh market speculation. Belgium, in contrast, with persistent high public debt, has seen little shift in its bond yields over the past 3 years. Indeed, once Greece, a unique outlier whose poor fiscal performance is tied to endemic corruption and tax evasion, is removed from the EMU landscape, fiscal performance prior to the crisis becomes a poor predictor of the variation in current nominal interest rates on long-term government bonds, a common indicator used to gauge a country's default risk. Rather, indicators tied to *competitiveness*—export share growth and the average current account balance prior to the crisis—fare better in explaining current diversity in bond yields across EMU.

In this article, we provide an institutional hypothesis to explain variation in the exposure of EMU member-states to the current crisis. Extending recent insights on divergences in current accounts as a source of variation in crisis exposure, we argue that countries with corporatist institutions that tie wage growth in sheltered sectors to sectors exposed to trade have encountered little speculative pressure, despite their pre-2008 fiscal condition, as these institutions helped them maintain competitiveness, producing positive trade balances and current account surpluses, and hence reducing the need for significant international borrowing. Countries without such institutions that tie wages in sheltered sectors to those in exposed sectors lost competitiveness vis-à-vis their corporatist neighbors, incurred trade/current account deficits, and hence had to rely more heavily on international borrowing. In failing to integrate sectoral and national labor markets alongside monetary policy, the EMU project has created an asymmetric union not only between monetary and fiscal integration, but also between monetary and labor market

adjustment. The lack of labor market integration across EMU member-states has forced countries to rely upon national corporatist institutions to adjust. In other words, corporatism is a crucial institutional advantage which differentiates EMU's creditors from its debtors.

The next section reviews the debate on the origins of the European debt crisis. After outlining the arguments of the two major camps—those that attribute variation in speculative exposure to fiscal divergence and those that attribute it to competitive/current account divergence—we provide rudimentary bivariate analyses that test the robustness of both. These preliminary analyses largely support the competitiveness hypothesis. We depart from the competitiveness hypothesis, however, by offering an institutional account of how differences in labor market organization and governance within EMU's member-states may explain divergences in the real exchange rate (RER) in the early years of EMU. We then test our hypothesis via a panel regression analysis, examining the influence of exposed and sheltered wage differentials, as well as a sectoral wage-governance dummy, on export share growth in 17 Organisation for Economic Co-operation and Development (OECD) economies. We find that countries with high inter-sectoral governance, minimizing gaps between sheltered sector and manufacturing sector wage growth, witnessed more prominent growth within their export shares, and that, when controlling for interactions with monetary regime, such growth was conditional on monetary union. The article concludes with a discussion on corporatism and optimal currency area (OCA) theory, highlighting the irony that the more "rigid," centralized, and coordinated wage bargaining regimes have best weathered adjustment in a monetary union.

Making Sense of Europe's Sovereign Debt Crisis

Within the (young) debate about the origins of the European debt crisis, two camps have emerged that seek to explain speculative divergence across E(M)U's sovereigns. The "fiscal" position (Buiter & Rahbari, 2010; Lane, 2012), which dominates thinking in the "troika" (the EU Commission, European Central Bank [ECB], and International Monetary Fund) and among some German policy makers, has identified the Euro-crisis as a consequence of fiscal excesses prior to the 2008 financial crisis. Buiter and Rahbari (2010) argue that excessive fiscal spending and pro-cyclical behavior by national authorities prior to 2008 further exacerbated deficit problems within EMU's southern rim after serious financial bail-outs. Others supporting this argument have attributed the current fiscal crisis not so much to reckless behavior of governments, but to the low real (and nominal) interest rates in the early years of the single currency, which provided sovereigns, particularly in

peripheral economies that did not have access to such low rates in the early and mid-1990s, with cheap credit (Lane, 2012). While membership in the Euro-zone provided low exchange rate and interest rate premiums that encouraged government borrowing, in the design of EMU, excessive government borrowing would be checked through the restraints imposed by the Stability and Growth Pact (SGP) and the "no bail-out" clause, which stipulates that the ECB or other member-states would not bail out erring governments. However, some doubted whether the SGP possessed the credible threat against over-borrowing of its predecessor because, in contrast to the Maastricht criteria, failure to comply with the SGP would not result in EMU exclusion (Johnston, 2012). Moreover, relaxation of the SGP's fiscal rules by France and Germany led to soft budget constraints after 2004, and further enabled the high-deficit nations to succumb to "binge" borrowing, as markets discounted for the best-case scenario for convergence even when some nations were showing signs of fiscal deterioration (Baskaran & Hessami, 2012).

The "competitiveness" position provides a more encompassing explanation for the tragedy of EMU, focusing on the rise of persistent imbalances among the current accounts of the Euro-zone's member-states: Current account and trade deficits of a country are symmetrically mirrored by the *total* external borrowing (both public *and private*) in the capital account by the balance of payment identity (Belke & Dreger, 2011; Bibow, 2012; Wihlborg, Willett, & Zang, 2010). According to this argument, divergence in speculation by financial markets was not tied to a country's fiscal, but total solvency, which was reflected in the size and persistence of a country's current account deficit during EMU's first decade (see Giavazzi & Spaventa, 2011). Current account deficits can be sustainable if external borrowing is used to enhance productivity in the export sector. If a country is able to transform enhanced productivity into export growth in future periods, future current account surpluses imply that the inter-temporal solvency constraint will hold (external borrowing under current account deficits are repaid once current account surpluses emerge). However, if foreign borrowing primarily goes into non-tradable sectors, which are not capable of producing a significant export surplus necessary to correct current account deficits, in times of crisis markets will view these persistent imbalances as unsustainable and a signal of possible solvency problems. In considering both public and private elements of borrowing, this argument highlights why the fiscal camp offers neither a necessary nor a sufficient condition for speculative attacks; countries with public debt can avoid speculative attacks if they produce significant private savings (i.e., Germany) in the capital account, while countries with

public savings can be subject to aggressive speculation if they produce significant (external) private dissavings (Ireland and Spain).

Divergences in current accounts in the Euro-area between the North and South, which grew persistently since EMU's introduction in 1999 (Eurostat Statistical Database, 2013),[1] can be explained by divergent trade balances and national competitiveness. Because monetary union removes nominal exchange rates between Euro-zone member-states, RER competitiveness is solely determined by relative inflation: Countries with lower inflation hold more advantageous RERs, and hence greater propensities for trade surpluses, than those with higher inflation. Under a fixed monetary system, where the majority of trade is intra-regional,[2] wage moderation pursued by one group of countries (the North), serves as a "beggar-thy-neighbor" policy vis-à-vis those (the South) that have not pursued such wage moderation (Bibow, 2012; Perez-Caldentey & Vernengo, 2012). Current account balances, however, are zero-sum games under a beggar-thy-neighbor approach: For surplus nations to hold a trade surplus vis-à-vis deficit nations,[3] the former must lend money to the latter via the capital account. Assuming a balance of payments equilibrium (and a negligible balance item), nations with trade deficits must finance these deficits via borrowing from surplus countries, hence realizing a positive capital account balance. Under EMU, savings in the countries with a trade surplus were invested in capital and consumption projects (most notably in real estate, which further fueled wage spirals) in countries with trade deficits (Giavazzi & Spaventa, 2011; Gros, 2012; Holinski, Kool, & Muysken, 2012). Gros (2012) outlines that banking systems within Europe possessed a heavy home bias, and hence the excess savings in the North were predominantly invested in the Euro-zone itself. As peripheral countries witnessed a consumption (and real estate) boom, their competitiveness further deteriorated vis-à-vis the core where wage moderation was strictly enforced. Although such imbalances could easily be rectified outside of monetary union via a depreciation of the exchange rate, a common currency removes this option, pushing the burden of adjustment onto labor costs. The South's failure to adjust its labor costs, and hence its public *and* private borrowing imbalances, vis-à-vis the North preceding the crisis, prompted markets to doubt its solvency, attaching higher interest rate premiums to its sovereign bonds once the crisis was in full swing.

A simple bivariate analysis allows a preliminary assessment of the fiscal and competitiveness hypotheses. As government bond yields in EMU member-states failed to diverge until 2010, a more comprehensive panel analysis would be difficult.[4] Even though bivariate analysis leaves out statistical controls,[5] it presents a liberal estimate to assess the fiscal and competitive hypothesis; if the correlates for either of these are weak, it is unlikely that
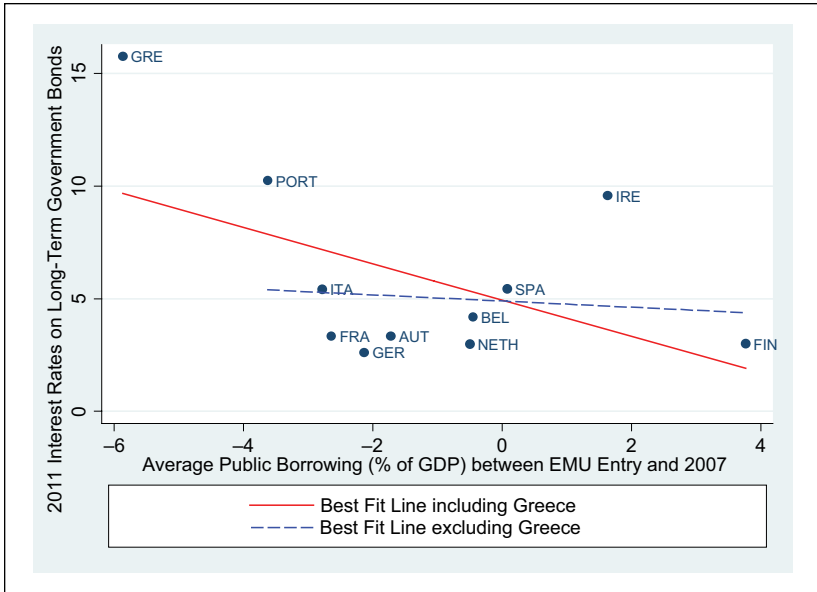
Figure 1. Year 2011 interest rates and pre-crisis deficit performance.
Best fit line (including Greece): $y = -0.81x + 4.94$ ($R^2 = .257$). Best fit line (excluding Greece):
$y = -0.14x + 4.90$ ($R^2 = .012$). EMU = Economic and Monetary Union.

they would become stronger with the inclusion of more variables. We selected 2011 long-term nominal interest rates as our (dependent) indicator of proxy market confidence in an EMU member-state's capacity to repay its existing government debt (greater default risk carries a higher interest rate premium). For proxies of fiscal performance, we apply two indicators, average net government borrowing and average government debt, both as percentages of GDP, between EMU entry (1999 for all countries except Greece, whose entry year was 2001) and 2007, the year before the crisis. Year 2007 provides a convenient cutoff point in avoiding endogeneity problems, as spreads in long-term nominal interest rates between EMU member-states were highly contained. Figures 1 and 2 present basic scatterplots between Euro member-states' 2011 long-term government bond yield and their pre-crisis average deficit and debt levels, respectively. Best fit line estimates (including and excluding Greece) are included below.

According to the fiscal hypothesis, we should expect a significant negative relationship between pre-crisis net government lending and crisis bond yields (countries with negative government balances should have higher
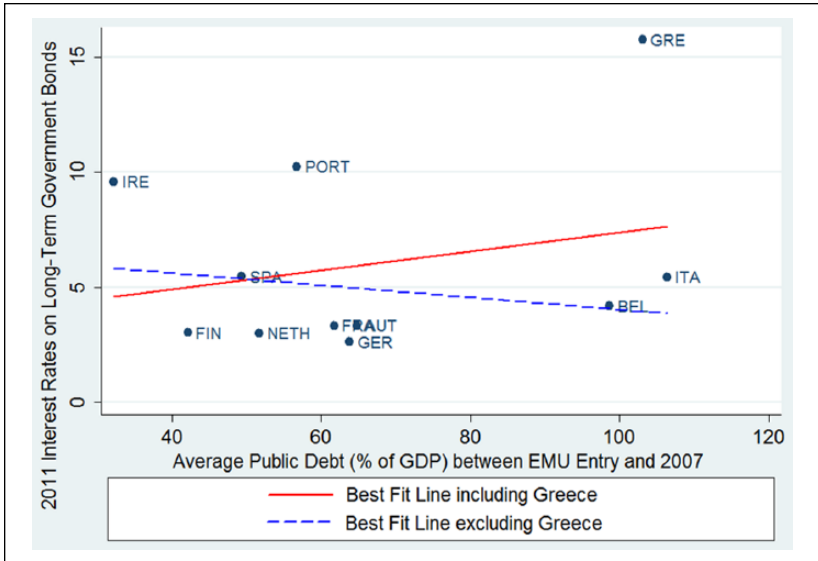
Figure 2. Year 2011 interest rates and pre-crisis debt performance.
Best fit line (including Greece): $y = 0.04x + 3.23$ ($R^2 = .063$). Best fit line (excluding Greece): $y = -0.03x + 6.67$ ($R^2 = .050$). EMU = Economic and Monetary Union.

bond yields and vice versa), and a significant positive relationship between pre-crisis debt values and crisis bond yields. None of the slope estimates for the fiscal indicators (including or excluding Greece), however, are significant at a 90% confidence level. While the average fiscal deficit prior to the crisis on its own explains roughly one quarter of the variation in the 2011 interest rates among EMU member-states, this figure is highly dependent upon the inclusion of Greece, EMU's fiscal outlier. If Greece is excluded, prior fiscal performance explains roughly 1% of the variation in 2011 bond yields. An even starker contrast emerges when examining the influence of average pre-crisis debt levels on 2011 bond yields. When Greece is included, prior debt performance has a positive, but insignificant, association with 2011 bond yields. When it is excluded, prior debt performance has a *negative* association with 2011 bond yields, largely the result of Ireland's and Portugal's low pre-crisis debt levels.

Although Figures 1 and 2 exclude other controls, one fact is evident: Fiscal performance prior to the crisis is not a robust explanation for the sovereign debt crisis, as it is highly dependent on the inclusion of Greece, EMU's notorious case of fiscal excess. Turning to the competitiveness hypotheses,
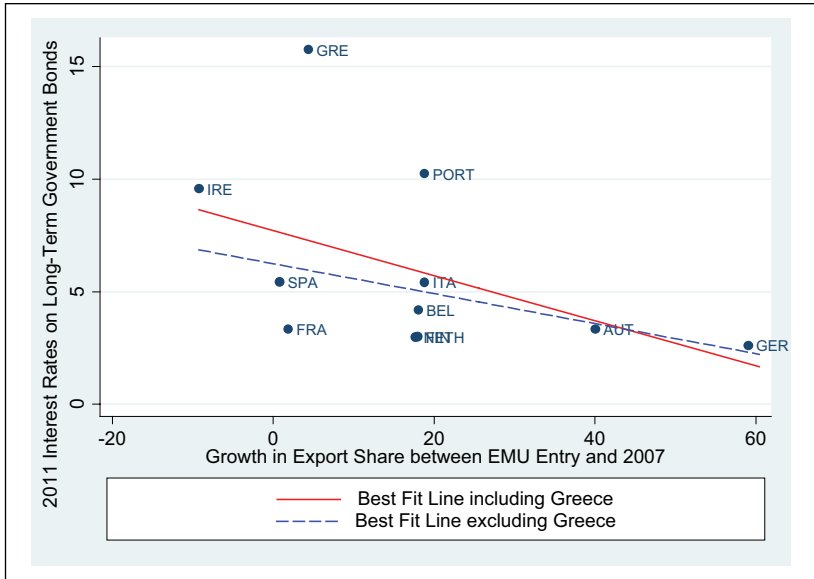
Figure 3. Year 2011 interest rate and pre-crisis export growth.
EMU = Economic and Monetary Union. Best fit line (including Greece): $y = -0.10x + 7.71$ ($R^2 = .217$). Best fit line (excluding Greece): $y = -0.07x + 6.25$ ($R^2 = .230$).

we selected two proxies of competitiveness to gauge whether variation in pre-crisis competitive performance is associated with variation in 2011 bond yields: growth in export shares and average current account balances (as a percentage of GDP) between EMU entry and 2007. Figures 3 and 4 present similar bivariate analyses that examine the relationship between these two indicators and 2011 long-term government bond yields.

The competitiveness hypothesis suggests significant negative relationships between (pre-crisis) export and current account performances and crisis bond yields. While we urge caution in drawing definitive conclusions about the relationships between the indicators above given the absence of controls, the two competitiveness indicators appear to offer a more robust explanation for the variation in 2011 interest premium within EMU member-states than the fiscal indicators. Slope coefficients are significant at a 90% confidence level or higher, regardless of whether Greece is included. Moreover, the exclusion of Greece does not significantly alter the sign or significance of the slope estimates or the R^2 values of the bivariate model. Export growth between EMU entry and 2007, on its own, explains over 20% of the variation in 2011 interest premiums, while current account balances alone account for
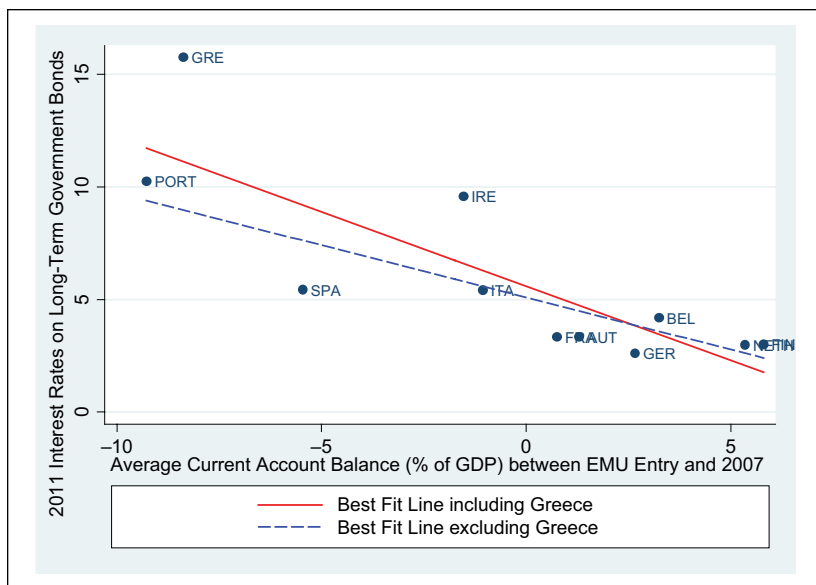
Figure 4. Year 2011 interest rates and pre-crisis current account performance.
EMU = Economic and Monetary Union. Best fit line (including Greece): $y = -0.66x + 5.59$ (R^2 = .670). Best fit line (excluding Greece): $y = -0.46x + 5.09$ (R^2 = .628).

over two thirds of the variation in 2011 interest rates. Rather than merely explaining Greece and Italy, the competitive argument also helps generalize the experiences of Ireland, Spain, and Portugal, which witnessed stagnant export growth, larger current account deficits, and higher interest premium in 2011, as well as those of Germany and Belgium, which witnessed current account surpluses, despite their high debt balances.

The competitiveness argument raises an important point in the debate on the origins of the European debt crisis. It is rather weak, however, in providing specific explanations as to what fostered internal adjustment, and hence current account surpluses, within the EMU core (Austria, Belgium, Finland, France, Germany, and the Netherlands) which were largely absent within the EMU periphery (Greece, Ireland, Italy, Portugal, and Spain), even though many within this camp acknowledge that adjustment lies predominantly within the realm of labor markets (Holinski et al., 2012; Stockhammer, 2011). Given the multitude of data (and theoretical) arguments that emphasize how corporatist institutions can promote comparative advantage via wage restraint, this lack of analysis into the institutional determinants of competitiveness divergence in the Euro-area is extremely puzzling.

The balance of this article explores whether corporatist institutions facilitated export performance in the North, and whether these institutions intensified any comparative advantages under monetary union. Our argument rests on the analysis of how wage dynamics between sectors, specifically those exposed to and sheltered from trade, influence national inflation and hence competitive developments, which we assume is an important determinant of member-states' exposure to the crisis. The EMU core possessed corporatist collective bargaining institutions that tied wage developments in sheltered sectors to those in the exposed, thus limiting the inflationary potential of the sheltered sector and enhancing national competitiveness. The EMU periphery, on the other hand, lacked these institutional links between the sheltered and exposed sector—consequently wage setters in sheltered sectors in the EMU periphery, not subject to a competitive constraint like their exposed sector counterparts nor to an institutional constraint like their sheltered sector counterparts in the EMU core, were able to push for inflationary wage increases that produced adverse consequences for national inflation and hence relative price competitiveness.

A Corporatist Comparative Advantage: Explaining the Core's Success and the Periphery's Failure

We begin our analysis with several assumptions. First, we assume two sectors in each country: an exposed sector, whose wage setters are under competitive pressure to constrain wage growth given high exposure to trade, and a sheltered sector whose wage setters face a lax competitiveness constraint, given the relative absence of competitors. While these two sectors may not embody the entirety of a country's labor force, we assume that their combined weight in the economy, both in terms of employment and output, is significant enough that wage developments would influence national inflation either directly via the influence of wages on price mark-up strategies, or indirectly via the influence of wages on demand. The RER, which is a function of a country's nominal exchange rate, e, multiplied by the ratio of the domestic to foreign price level $\left(RER = e \dfrac{P_d}{P_f} \right)$, indicates the relative competitiveness of a country vis-à-vis their trading partners (the nominal exchange rate for regions that share a common currency is equivalent to 1, meaning that the RER between members of a currency union is purely a function of relative prices). If a country is successful in keeping its inflation rate low relative to its trading partners, it realizes a competitive depreciation in the RER that should improve its trade balance. If a country's national inflation rate exceeds that of its

trading partner, the result is, all other things being equal, an appreciation in the RER, which worsens its trade balance.

We assume that wage setters within the exposed sector face strong incentives to pursue wage moderation (i.e., real wage growth below or at least on par with productivity growth) because their employment status is heavily tied to competitiveness: If wages are too high, this will lead to a reduction in employment via one of two employer strategies. If employers pass wage increases onto prices, their products become more expensive vis-à-vis their trading partners, yielding a lower demand from international buyers, leading ultimately to a reduction in production. Likewise, if employers do not translate wage increases into rising prices, they compensate for an increased wage bill by shedding employment. Regardless of which strategy is chosen, the end result is the same—reduced employment—thus providing exposed sector wage setters the incentive to limit their wage demands.

Wage developments within the sheltered sector, in contrast, are not directly influenced by trade, and wage setters in this sector therefore face a considerably less restrictive competitiveness constraint, if they face one at all (in the case of some public services). Despite the fact that wage setters within sheltered sectors do not face similar incentives to enforce wage moderation as those in the exposed, wage developments within the sheltered sector can influence a country's trade developments given its weight within national inflation: The aggregate national inflation rate is the weighted average of the two separate inflation rates in the exposed and in the sheltered sectors. Re-writing a country's RER as a composite of sectoral prices

$$\left(\text{RER} = e \frac{\left[\alpha P_{d,e} + (1-\alpha) P_{d,s} \right]}{\left[\beta P_{f,e} + (1-\beta) P_{f,s} \right]} \right), \text{ where } \alpha/\beta \text{ and } (1-\alpha)/(1-\beta) \text{ are the}$$

weights associated with the exposed and sheltered sector prices in the domestic and foreign inflation rate, respectively), sheltered sector wage growth becomes an important determinant of the RER via its impact on sheltered sector prices. The presence of a competitiveness constraint limits the mark-up power of employers in the exposed sector, keeping price developments relatively similar across countries. Hence, RER developments are crucially linked to a country's capacity to limit wage inflationary pressures within the sheltered sector. This places wage setters in the exposed sector in a precarious position vis-à-vis their counterparts in the sheltered sector: While the former have incentives to moderate wages to remain (price) competitive, the latter do not but are able to influence the employment status in the former if they price wages high enough to influence national inflation.

Because external competitiveness imposes a hard constraint on the export sector, the exposed sector will set wages taking into account relative wage inflation rates in the main trading partners (if it does not, in this analysis, it simply exacerbates the inflationary pressures arising from the sheltered sector). There are, therefore, three logically possible worlds. In the first one, inflation in the sheltered sector is kept under control through legal, political, and institutional means. In this world, the aggregate wage inflation rate will not rise, and almost certainly not faster than elsewhere, and relative competitiveness is likely to be reasonably stable or improving. If such institutions allow governments to manage public sector wages, these competitiveness considerations can even produce beneficial fiscal effects. The second scenario combines high wage inflation in the sheltered sector, and high productivity and moderate wage growth in the exposed sector, proportionate to the relative sizes of both sectors. Aggregate inflation remains modest, and the country's export sector does not price itself out of export markets. The third possible world, finally—a variation on the second, but with very different outcomes—combines a sheltered sector with inflationary wages and an exposed sector, which, hard as it may try, is unable to bridge the relative inflation gap. Aggregate inflation thus increases, the RER appreciates, and export prices rise, with the concomitant negative effect on competitiveness.

The dualistic nature of wage moderation objectives by sector is not a novel idea (see Franzese, 2001; Garrett & Way, 1999; Iversen, 1999; Johnston & Hancké, 2009). Many in this literature have analyzed how wage bargaining institutions can bridge these diverging incentives by tying wage determination in non-tradable sectors to tradable ones (Baccaro & Simoni, 2007; Franzese, 2001; Traxler & Brandl, 2010). Traxler and Brandl (2010) and Brandl (2012) offer perhaps the most empirically sophisticated analyses. They outline how bargaining regimes that constrain the public sector—the key "sheltered" sector, with strong trade unions and collective bargaining systems set against a background of employment security—influence national wage outcomes. Collective bargaining systems that transfer significant trend-setting power to employers and unions in the exposed sector are particularly effective at limiting wage growth in sheltered sectors. Building on these insightful analyses, we identify how bargaining systems influence wage differentials between exposed and sheltered sectors and how these wage differentials produce divergent competitive performances within EMU. Wage-setting regimes that discipline wages in the sheltered sector should, all else equal, witness lower inflation, a more competitive RER, and hence a trade surplus, which translates into a current account surplus. By the balance of payments identity, these regimes will be external net creditors. Wage-setting regimes where sheltered sector wages are allowed to significantly surpass those in the export sector should witness higher inflation, a less

competitive RER, and hence, a trade/current account deficit. This requires greater public *and private* external borrowing to finance the current account deficit.

The literature on sectoral corporatism has demonstrated that bargaining regimes that are most conducive toward limiting sheltered sector wage growth are those that grant considerable trend-setting authority to exposed sector wage setters, the state, or both. Both actors favor limited sheltered (especially public) sector wage growth: the former in the name of competitiveness, the latter in the name of fiscal prudence. Such bargaining regimes that transfer considerable powers to exposed sector actors and/or the state can take three shapes. The first are pattern bargaining systems where the exposed sector leads national wage developments (Traxler & Brandl, 2010). The second consists of state-coordinated systems that enforce a permanent wage law or permanently encourage export sector led bargaining (Johnston & Hancké, 2009). The third consists of incomes policies/wage pacts with a high degree of "governability," which grant employers and/or governments considerable authority in the determination of sectoral/national wage settlements[6]—Typically this is introduced by governments after unsuccessful attempts to produce wage moderation (Brandl, 2012). In contrast, bargaining regimes that have been identified as limiting the role of the exposed sector and the state in collective bargaining are peak-level bargaining systems where wages are determined by peak organizations that embody multiple sectors (Traxler, Blaschke, & Kittel, 2001), and incomes policies or wage pacts with a low degree of governability (Brandl, 2012). The influence of a wage bargaining regime without coordination on wage growth differentials is more difficult to predict. Under Baumol's framework (Baumol & Bowen, 1965), if wage setters in an uncoordinated regime individually agree on wage settlements that are equivalent to inflation (or average wage increases), differences in sectoral wage growth should be nil. If, however, wages are set according to a neoclassical framework, where workers receive pay awards based upon their productivity, these regimes may produce negative pay differentials between sheltered sectors and manufacturing, as the former tends to consist of service sectors where productivity growth is lower than in goods-based production sectors.

Peak-level bargaining, as Traxler and Brandl (2010) point out, can be more conducive toward delivering sheltered sector wage restraint if the exposed sector is given a leading voice and governance within peak organizations is high—this explains the success of the Danish case in the 2000s, with the rise of five major wage bargaining cartels where wage setting was anchored by the industrial/manufacturing cartel. Incomes policies and, more notably, wage pacts with high governability are not usually permanent

Table 1. Wage Moderation by Bargaining Regime and Country (2000-2007).

Collective bargaining institutions that are conducive toward consistent sheltered sector wage moderation	Collective bargaining institutions that are conducive toward temporary or permanent sheltered sector wage excess
Pattern bargaining systems (export sector led): Austria, Germany, Japan, Sweden	Peak-level bargaining: • HG: Denmark, Finland (2001 and 2007), the Netherlands (2000-2001, 2005-2007) • LG: Italy, Portugal, Spain
State-imposed wage laws/state coordination (export sector led): Belgium, France	No coordination: Australia, Canada, the United Kingdom, the United States
Incomes policies/wage pacts with HG: Finland (2000, 2002-2006), the Netherlands (2002-2004)	Incomes policies/wage pacts with LG: Ireland

Source. Brandl (2012), Visser (2011), and European Industrial Relations Observatory (various articles).
Greece is excluded due to the lack of available data. LG = low governability; HG = high governability.

systems of coordination, as these pacts tend to be reactive by nature, often introduced and (in some cases, unilaterally) implemented by governments in times of crisis. Nevertheless, they are frequently used to correct wage inflation across the entire economy, including sheltered sectors. Hence, this method of coordination is effective at producing temporary wage moderation in the sheltered sector (even if persistent government intervention may not be acceptable to social partners). These types of systems, and where they exist among developed economies, are outlined in Table 1.

Given the distinction in the literature on how bargaining regimes influence sheltered sector wage developments, we expect EMU countries with bargaining regimes in the left-hand column of Table 1 (Austria, Belgium, Finland, France, Germany, and, between 2002 and 2004, the Netherlands) to exert greater levels of wage moderation compared with countries in the right-hand column (Spain, Italy, Portugal, Ireland, and the Netherlands between 2000 and 2001 and after 2005). Consequently, countries with bargaining regimes that are conducive toward wage moderation will witness lower national inflation, and therefore a more competitive RER and hence improvements in their export shares.

Empirical Model and Variable Selection

We select a 17-country sample from 1980 to 2007, which includes 10 countries that adopted the euro in 1999 (Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, and Spain; Greece is excluded due to the lack of sectoral data, although we would expect it to conform to the hypothesis mentioned above)[7] as well as 7 non-EMU participants (Australia, Canada, Denmark, Japan, Sweden, the United Kingdom, and the United States). We included non-EMU countries in this sample to analyze possible interaction effects between sheltered sector wage suppression and EMU (see results in Table 5). If we only considered interaction effects between the EMU dummy and corporatist institutions for EMU countries, one could argue the effects may be driven by common post-1999 timing effects rather than monetary union itself; the inclusion of non-EMU countries provide a counterfactual to developments happening in EMU countries after 1999. We selected 2007 as the end of our sample for two reasons: Sectoral data that we use for the construction of one of our primary independent variables only exist until 2007 for the data set we utilize. In addition, given the extraordinary circumstances since the crisis for countries with non-competitive bargaining systems and their subsequent regulation of wages in the (sheltered) public sector, we sought to remove this exceptional period after 2007.

From our proxies of competitiveness above in the bivariate analysis, we selected export share growth[8] as our primary dependent variable of interest, rather than current account dynamics, because the export share is the primary channel in the current account through which our theory operates. Countries with a competitive RER should witness greater export expansion than those with an uncompetitive RER. We selected two independent variables as proxies for sheltered sector wage suppression: (a) an output-based measure, the (lagged) differential between sheltered and manufacturing sector wage growth (results presented in Tables 3 and 4), and (b) an input measure, a simple sectoral wage coordination institution dummy that embodies the value of 1 if a country possesses one of the three bargaining institutions that enforce sheltered sector wage moderation, that is, pattern bargaining, state-imposed coordination or incomes policies/wage pacts with high governability (results presented in Table 5). Sheltered sector wage suppression is defined as the difference in the growth rate of the hourly wage in the sheltered sector and the growth rate of the hourly wage in the exposed sector. Hence, what is captured is the degree to which sheltered sector wage setters have over-/undershot wage developments within the (exposed) manufacturing sector, with positive/negative developments indicating that sheltered sector wage setters have managed to secure more/less lucrative wage gains than their exposed

Table 2. Differences in Sheltered Sector and Manufacturing Sector Annual Wage Growth by Bargaining Regime, 1980-2007 Average.

Collective bargaining institutions that are conducive toward consistent sheltered sector wage moderation	Collective bargaining institutions that are conducive toward temporary or permanent sheltered sector wage excess
Pattern bargaining systems (export sector led): −0.66% annual difference	Peak-level bargaining: • HG: −0.40 annual difference • LG: 0.32% annual difference
State-imposed wage laws/state coordination (export sector led): −1.14% annual difference	No coordination: −0.29% annual difference
Incomes policies/wage pacts with HG: −0.41% annual difference	Incomes policies/wage pacts with LG: 0.24% annual difference

HG = high governability; LG = low governability.

sector counterparts. We emphasize, however, that when regressions are run with absolute real sectoral wage dynamics as the primary independent variables in separate models, both real sheltered sector wage growth and real exposed sector wage growth are significantly associated with export decline.[9]

We selected an employment share weighted composite of the public administration and defense, education, and health and social work sectors—International Standard Industrial Classification (ISIC) Categories L, M, and N, respectively—given these sectors' heavily sheltered status from both foreign (and domestic) competition. For the exposed sector, we selected manufacturing (ISIC Category D) as a proxy. Wage and employment data are taken from the EU KLEMS Database (Groningen Growth and Development Centre, 2009). Table 2 presents average wage growth differentials between our sheltered sector proxy and exposed sector proxy by bargaining regime between 1980 and 2007. The most persistent suppression of annual wage growth in the sheltered sector relative to the manufacturing sector is found in bargaining regimes that are characterized by pattern bargaining, state-imposed wage laws/export sector coordination, and incomes policies/wage pacts with high governability. State-imposed coordination was the most effective at delivering sheltered sector wage suppression: Wage growth in the sheltered sector was, on average, 1.14% below that in manufacturing each year between 1980 and 2007, implying the emergence of a 11.4% wage gap in favor of the manufacturing sector over a 10-year period. Peak-level coordination with low governability and incomes policies/pacts with low governability proved the least effective at delivering sheltered sector wage suppression.

Table 3. The Influence of Sectoral Wage Differentials on Export Growth.

Independent variables	I	II	III	IV	V	VI
(Lagged) Difference in sheltered and man wage growth	−0.19*** (0.067)	−0.18*** (0.066)	−0.20*** (0.066)			
(Lagged) difference in net government borrowing				0 (0.000)	0 (0.000)	0 (0.000)
TFP growth		−0.159 (0.192)	−0.202 (0.183)		−0.141 (0.151)	−0.166 (0.143)
TOT shocks		−0.47*** (0.075)			−0.39*** (0.065)	
RER shocks			−0.26*** (0.038)			−0.28*** (0.030)
Constant	2.839* (1.598)	0.181 (1.460)	−0.021 (1.186)	6.447*** (1.574)	2.956** (1.403)	0.941 (1.142)
No. of observations	474	473	474	433	433	433
Wald χ^2 statistic (p value)	.000	.000	.000	.000	.000	.000
R^2	.302	.363	.381	.312	.354	.403

Dependent variable is the year-on-year change in the export share (X/GDP). An OLS regression model was used, including a panel-specific Prais–Winsten first order auto-regressive term, from 1980 to 2007. $n = 1$ country and time dummies were included but are not shown. Panel corrected standard errors are given in parentheses. TFP = total factor productivity; TOT = terms of trade; RER = real exchange rate; OLS = ordinary least squares.
*, **, and *** indicate significance on a 90%, 95%, and 99% confidence levels, respectively.

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Table 4. Robustness Results, the Influence of Sectoral Wage Differentials on Export Growth.

Independent variables	I	II	III	IV	V	VI
(Lagged) difference in sheltered and man wage growth	−0.13** (0.057)	−0.19*** (0.057)	−0.18*** (0.067)	−0.12** (0.055)	−0.22*** (0.057)	−0.20*** (0.067)
TFP growth	−0.168 (0.146)	−0.328** (0.160)	−0.163 (0.194)	−0.262* (0.141)	−0.172 (0.163)	−0.211 (0.186)
TOT shocks	−0.35*** (0.066)	−0.51*** (0.077)	−0.47*** (0.076)			
RER shocks				−0.27*** (0.034)	−0.23*** (0.033)	−0.26*** (0.038)
Social benefits (% of GDP)	0.617*** (0.127)			0.645*** (0.119)		
Legislative seats held by right parties		−0.042** (0.016)			−0.024 (0.016)	
Wage centralization		−3.596 (5.181)			0.967 (4.737)	
Sheltered sector employment share			0.046 (0.044)			0.008 (0.046)
Constant	−3.999** (1.593)	2.308 (1.792)	−1.107 (1.969)	−5.71*** (1.571)	0.873 (1.668)	−0.262 (1.810)
No. of observations	412	435	470	412	436	471
Wald χ² statistic (p value)	.000	.000	.000	.000	.000	.000
R²	.381	.406	.365	.433	.383	.381

Dependent variable is the year-on-year change in the export share (X/GDP). An OLS regression model was used, including a panel-specific Prais–Winsten first order auto-regressive term, from 1980 to 2007. n − 1 country and time dummies were included but are not shown. Panel corrected standard errors are given in parentheses. TFP = total factor productivity; TOT = terms of trade; RER = real exchange rate; OLS = ordinary least squares.
*, **, and *** indicate significance on a 90%, 95%, and 99% confidence levels, respectively.

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Table 5. The Influence of High Sectoral Wage Governance on Export Growth.

Independent variables	I	II	III	IV
High sectoral wage governance (1 = yes)	1.150** (0.456)	1.071** (0.503)	1.306** (0.531)	0.789 (0.492)
TFP growth	−0.12 (0.140)	−0.033 (0.160)	−0.109 (0.187)	−0.175 (0.136)
RER shocks	−0.210*** (0.033)	−0.197*** (0.034)	−0.214*** (0.040)	−0.209*** (0.031)
Social benefits (% of GDP)	0.199*** (0.073)			0.193*** (0.074)
Legislative seats held by right parties		0.013 (0.008)		
Wage centralization		1.668 (1.067)		
Sheltered sector employment share			0.024 (0.032)	
EMU dummy				−1.881* (1.045)
EMU dummy × High sectoral wage governance				1.711** (0.856)
Constant	−3.263*** (1.205)	−1.966*** (0.739)	−1.367 (0.928)	−2.976** (1.210)
No. of observations	414	437	471	414
Wald χ² statistic (p value)	.000	.000	.000	.000
R²	.362	.337	.332	.370

Dependent variable is the year-on-year change in the export share (X/GDP). An OLS regression model was used, including a panel-specific Prais–Winsten first order auto-regressive term, from 1980 to 2007. *n* − 1 time dummies are included but not shown. Panel corrected standard errors are given in parentheses. TFP = total factor productivity; RER = real exchange rate; EMU = Economic and Monetary Union; OLS = ordinary least squares.

*, **, and *** indicate significance on a 90%, 95%, and 99% confidence levels, respectively.

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Regarding measurement of the sectoral wage coordination institution dummy, this institutional proxy of sheltered sector wage suppression took the value of 1 for countries that possess bargaining institutions that are conducive toward limiting sheltered sector wage settlements (pattern bargaining, state-imposed coordination, and incomes policies/wage pacts with high governability) at time *t*, and 0 if otherwise. Six countries within our 17-country sample (Canada, France, Germany, Japan, the United Kingdom, and the United States) maintained the same bargaining institutions over the 1980-2007 period. For this reason, we conducted these regressions without country fixed effects to avoid perfect multicollinearity problems within these six panels. Data on bargaining regimes from 1980 to 2003 were taken from Brandl (2012), while we updated data from 2004 to 2007 using wage pact data from Visser (2011) and various articles from the European Industrial Relations Observatory.

We use a fixed effects panel regression model of the 17 countries above from 1980 to 2007 (for the sectoral wage-governance dummy regressions, we use a random effects model) to test the relationship between sheltered sector wage suppression and export performance. The selection of growth rates, rather than levels delivers an added benefit for fixed effects; using a growth rate for our main dependent and most of our independent variables, rather than levels, makes the use of country fixed effects less problematic, as these dummies crowd out country-specific effects which are common in levels (see Plümper, Troeger, & Manow, 2005). Our results in Tables 3 and 4 remain significant and robust when we select random effects as an estimator,[10] suggesting that they do not merely capture within-country time variations but also (in the random effects models) cross-national variation. Our empirical model can be summarized as follows:

$$\Delta \left(X / \text{GDP}_{i,t} \right) = \alpha_{i,t} + \beta_1 (\text{SheltWageSup}_{i,t-1}) + \Sigma \beta_k X_{k,i,t} + \Sigma \beta_m Z_{m,i,t} + \varepsilon_{i,t}$$

$\Delta(X/\text{GDP}_{i,t})$ is the year-on-year change in country *i*'s export share at time *t*, $\text{SheltWageSup}_{i,t}$ is the degree of sheltered wage suppression—measured, in turn, as the difference in log changes in the sheltered sector and manufacturing hourly wage for country *i* at time *t* − 1 (results presented in Tables 3 and 4), and as the crude sectoral wage-governance dummy (results presented in Table 5)—$\Sigma \mathbf{X}_{k,i,t}$ is a vector of economic controls and $\Sigma \mathbf{Z}_{m,i,t}$ is a vector of institutional controls. Data for export shares were taken from the EU's AMECO database. For the sectoral wage differential independent variable, the (lagged) difference is used to avoid endogeneity problems with the

dependent variable, as well as multicollinearity problems with terms of trade (TOT) shocks and changes in the RER that we incorporate as controls.

Regarding economic controls, we include year-on-year changes in net government borrowing to test whether fiscal developments play a significant role in export expansion (see Table 3, columns III-VI), TOT shocks, total factor productivity (TFP) growth, and RER shocks. Although our theory of how sectoral wage dynamics influences export performance operates primarily via the RER, we include it as a separate control to account for RER movements that may be influenced by developments other than sectoral wages (such as the prices of non-labor factor inputs). We excluded TOT shocks from the wage-governance dummy regressions, given their slight, but significant, correlation with the dummy variable across all panels. Real interest rate shocks were purposefully excluded given their relationship by identity with RER shocks, via the interest rate parity condition.[11] TOT, TFP, net government borrowing, and RER data all stem from the EU's AMECO database.

For institutional controls, we included the level (not change) of social benefits as a percentage of GDP to account for Rodrik's (1998) hypothesis that highly open countries have large welfare states as an insurance mechanism against market risk; the proportion of legislative seats held by right parties to account for the fact that these parties may be more likely to pursue pro-trade policies that favor export growth, wage bargaining centralization, and the employment share of the sheltered sector (employment in sectors ISIC categories L, M, and N as a percentage of total employment) to account for Garrett and Way's (1999) hypothesis that larger sheltered (public) sectors produce greater wage inflation and hence hamper macroeconomic outcomes. We do not control for general wage coordination, given its (obvious) collinearity with the sectoral coordination proxies in our statistical model, as well as its lack of distinction between different *types* of sectoral coordination, which we feel is more important in influencing competitiveness. Wage centralization data stem from Visser (2011), right-wing legislative seats stem from Swank (2006), social benefits as a percentage of GDP were constructed from EU's AMECO database, and sectoral employment share data stem from EU KLEMS Database (Groningen Growth and Development Centre, 2009).[12] Given the presence of autocorrelation for the baseline regressions (see column I in Tables 3 and 5), we incorporated a panel-specific Prais–Winsten transformation into our models, which both corrects for autocorrelation and absorbs less time-series dynamics than a lagged dependent variable (Plümper et al., 2005).[13] Panel corrected standard errors are used to control for heteroskedasticity within panels (Beck & Katz, 1995).[14] We also incorporate $n - 1$ time dummies into our regressions to control for unobserved time effects.

In the first series of regressions, we test the preliminary relationship between the (lagged) difference in sheltered and manufacturing wages and growth in the export share with several important controls (TFP growth, TOT shocks, and changes in the RER, of which the latter two are not included in the same models together due to multicollinearity problems[15]). Models I to III in Table 3 present the results using the (lagged) difference in public and manufacturing wages as the primary independent variable of interest, while Models IV to VI present results where the (lagged) change in net government borrowing is the independent variable of interest.

From Table 3, the (lagged) differentials between sheltered and manufacturing wages produce a significant dampening effect on export share growth, even when accounting for TOT, TFP, and RER shocks. This implies that countries where sheltered sector wage growth exceeds wage growth in the manufacturing sector will, ceteris paribus, witness shrinkages in their export shares, while countries where public sector wage growth is kept below manufacturing wage growth witness expansions in their export shares. The second interesting result that emerges in Table 3 is that changes in net government borrowing do *not* have a significant or pronounced influence in terms of beta coefficient magnitude on export share growth. In other words, countries that increase fiscal deficits year-on-year do not behave significantly differently in terms of export performance than countries which increase fiscal surpluses.

Results in Table 4 demonstrate the robustness of the difference in sheltered sector and manufacturing hourly growth wage variable while incorporating further institutional controls into the baseline model; in all models, the sectoral wage differential variable maintained consistency in terms of beta magnitude and significance. Other variables perform as expected (TOT shocks and RER shocks are associated with export share contraction while social benefits as a percentage of GDP are associated with export share expansion, per Rodrik's hypothesis[16]) or fail to hold significance (bargaining centralization). TFP growth possessed a (unexpected) negative beta coefficient, although it lacked significance in 8 of the 10 models it was included in between Tables 3 and 4 (if random effects estimators are used, TFP growth lacks significance in all models, suggesting that sheltered sector wage differentials, TOT shocks, and RER shocks are more important predictors of export expansion). Partisanship also behaved unexpectedly, with more legislative seats held by right parties indicative of export decline, although it failed to retain its significance when RER shocks were controlled for (if a random effects estimator is used, it loses significance in Model II, Table 4, but is significantly and positively associated with export share growth in Model IV). Contrary to Garrett and Way's results, sheltered sector employment share exhibits an insignificant relationship with export share growth,

indicating that it is not the size of the public sector that matters per se, but whether its wage demands can be controlled by the exposed sector.

Regression results for the high sectoral wage-governance dummy are presented in Table 5. As mentioned above, we excluded the terms-of-trade shock variable due to slight, but significant, collinearity between it and the governance dummy, as well as country fixed effects given perfect collinearity between them and the governance dummy within six panels. We conducted similar robustness checks as above, but contrary to the (lagged) sectoral wage differential variable, which lacked a significant interaction term with an EMU dummy, we also incorporated an interaction term between the wage-governance dummy and an EMU dummy to test whether the competitiveness enhancing effects of high sectoral wage governance were magnified under monetary union.

The high sectoral wage-governance dummy, like sectoral wage differentials, displays consistency in terms of significance and sign across in Table 5. Given results from columns I to III, countries that possess one of the collective bargaining institutions where either export sector wage setters or the state constrains the wage outcomes of sheltered sector employees tend to experience an annual increase in their export shares that is 1% to 1.3% higher than countries that lack these institutions. In addition to the direct effect, the wage-governance dummy also suggests an interesting, significant interaction with the EMU dummy (Model IV, Table 5), implying that monetary union seems to have magnified the influence of high wage-governance institutions on export growth. While the hierarchical high governance dummy term just lacks significance at the 90% level ($p = .109$), its interaction with the EMU dummy is significantly associated with export share growth. This suggests that the influence of high levels of (intra-sectoral) wage governance between the exposed and sheltered sectors on export performance may be conditional upon the monetary regime. According to Model IV (see Table 5), countries with high governance institutions witness a 1.7% annual boost in export share growth, but only if they are in monetary union: Countries that possessed institutions that suppressed sheltered sector wage growth witnessed an exclusive corporatist comparative advantage under their pre-crisis EMU tenure.

Discussion and Conclusion

The results above provide evidence that countries in which wage developments in the (private and public) sheltered sectors were kept in check relative to those in the exposed sector report export gains. If sheltered sector wage excess emerges, the reverse happens: Competitiveness falls and exports

decline. The effects are the combination of current account surpluses and capital account deficits for the creditor nations (primarily in the north of Europe) and current account deficits accompanied by borrowing (in both the public and the private sector) in the others.

Importantly, this effect appears to operate through a (wage) price-level effect, with domestic inflation eroding export competitiveness, thus leading to current account deficits, and not a fiscal effect, in which expanding budgets produce excessive public borrowing. Equally importantly, while the effect existed before the introduction of the euro, the fixed exchange rate regime heralded by EMU has reinforced this dynamic because of the absence of a safety valve in the form of nominal exchange rate depreciations, which helped EMU economies correct excessive current account imbalances in the past. The crisis of EMU since 2010 may therefore primarily be a result of differences in wage-setting systems between north-western Europe and southern Europe, in which the former have been able to keep aggregate inflation under control through wage coordination (and concurrent supply-side productivity improvements), while the latter appear unable to do so. It is emphatically not a crisis of fiscal profligacy: budget balances show up as insignificant factors in our analysis. They are, if anything, symptoms of the problem, not causes.

Wages thus have been crucial in terms of inter-country adjustment in the European political economy since at least the introduction of the Maastricht criteria, if not before. Prima facie, this seems to confirm a central element in the standard interpretation of monetary unions and its challenges—the theory of OCAs. According to that view, fixing exchange rates, interest rates, and fiscal policy inevitably implies that the bulk of adjustment runs through labor market flexibility. A closer look at the results here suggests that the world is not only more complex than these arguments suggest, but that this view covers, at best, only one possible world. The economies that have performed well under EMU have been those that relied on wage moderation—but the type provided by a combination of strong labor unions, wage coordination, and skills-based export competitiveness—almost the exact institutional opposite of the flexible labor markets proposed by OCA protagonists.

Wage moderation, however, is not an unmitigated blessing, as the inter-country dynamics of wage setting in EMU make clear. All other things being equal, competitiveness gains in one group of countries as a result of RER depreciations must imply competitiveness losses as a result of RER appreciations elsewhere. In effect, by targeting unit labor cost growth below that of their trading partners, and using relatively tight systems of wage coordination as a means to do so, the creditor countries have imposed current account deficits on the others who lacked the institutional capacity to moderate wages.

This does not bode well for the future of the single currency. For even if the current crisis can be contained, for example, through a dramatic fiscal restructuring of the Euro-zone, that would only buy time. The structural dynamics associated with the current account divergences that led to the crisis, which themselves have deep roots in the different types of wage setting, will reassert themselves if they continue to remain unaddressed.

This has important implications for the policies currently (in 2012 and 2013) adopted by the EU, especially in its macroeconomic imbalance procedure (MIP). The MIP is asymmetric, in the sense that the language regarding current account imbalances focuses solely on deficits, with little or no consideration that in a currency union which is (mostly) a closed economy, significant current account surpluses in one country imply significant current account deficits elsewhere. While some adjustment might be welcome, it is hard to see how "internal devaluations," implying massive relative wage moderation in the deficit countries, can solve the problem on their own—assuming that beggar-thy-neighbor policies ever can. Without a parallel reflation or demand expansion in the creditor countries, particularly in Germany and among its well-performing neighbors, the problem is almost intractable and Europe is likely to witness stagnant growth and high unemployment in the South for quite some time. Put differently, alongside arguments for structural adjustment in the south, the European Commission should also consider using its influence to argue for significant wage increases or fiscal policies that increase disposable income, such as reductions in income and labor taxes, in Germany and the North for several years to come to allow southern Europe the space to adjust.

That, of course, is wishful thinking, if the arguments that have been coming from Brussels and Berlin since the onset of the Euro-crisis are anything to go by. While there has been some muted mention of higher wages among German trade unions, the general tenor of German policy makers (and in its wake, in its satellites in northern Europe as well) has been in favor of more, not less, austerity and continued wage moderation to strengthen exports. In addition, it is not entirely clear what actually would happen if Germany went on an expansionary course: The ECB's relatively dovish stance might—and according to its mandate almost certainly will—change, because rising German inflation is very likely to entail higher aggregate inflation throughout EMU. A reaction by the ECB thus would all but eliminate the gains made through "symmetric adjustment," but with an additional price for Germany to pay in the guise of higher interest rates. Germany's reluctance to engage in expansive policies might be informed by a misguided understanding of its own interests, as many observers have pointed out, but it is also built on a hard political-economic understanding of monetary policy in Europe that leaves policy makers and wage setters in the country little choice.

Authors' Note

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Declaration of Conflicting Interests

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Notes

1. Current account deficits in Economic and Monetary Union's (EMU) peripheral economies were significantly lower in the 1990s (with Italy and Ireland, in fact, recording on average a current account surplus between 1990 and 1999), than they were between 2000 and 2008 (Eurostat Statistical Database, 2013). Portugal's average current account deficit (as a percentage of GDP) between 2000 and 2008 was twice that of its 1990s average, while Greece's and Spain's deficits were roughly 3 times that of their 1990s averages.
2. While northern EMU economies have been more successful at expanding their non-EU export market shares than southern economies, given the specialization of the former in high value-added goods, trade between both groups of countries continues to predominate within the EU.
3. Trade with EMU's northern economies was quite substantial for the South, although less so for Ireland, in the 2000s. In 2005, imports from Austria, Belgium, Finland, France, Germany, and the Netherlands accounted for 40% of Italy's and Spain's total imports, 30% of Greece's and Portugal's imports, and 20% of Ireland's imports (International Monetary Fund, 2008).
4. Between 2000 and 2008, the average maximum spread in nominal interest rates on long-term government debt was 0.8% for the EMU12, growing to 2% in 2009, 6.3% in 2010, and 13.1% in 2011 (European Commission's Directorate General for Economic and Financial Affairs, 2013).
5. We acknowledge that other factors influence divergent spreads in European bond yields, most notably default contagion, which we do not analyze here. However,

bivariate analyses can be helpful in indicating whether certain factors are (or not) sufficient determinants of variation within a dependent variable.

6. Examples of this include governments determining national wages unilaterally (via legislation enforcing a nation-wide wage-freeze) or wage pacts that grant export sector employers or the state considerable authority in agenda setting.

7. Our selection of 17 rather than the 23 Organisation for Economic Co-operation and Development (OECD) countries is due to the data limitations of the EU KLEMS sectoral database. This database provides wage, employment, and productivity developments by sector for all EU25 countries, but only a limited number of non-EU countries (all of which we include in our sample).

8. Growth rates are used for the dependent variable as well as most independent variables given the violation of time stationarity within panels.

9. We do not present these results here, but they are available on the corresponding author's website: http://oregonstate.edu/cla/polisci/alison-johnston.

10. We do not present results from a random effects estimator, but they are available on the corresponding author's website.

11. Given that all countries within the sample are developed and possess limited capital controls, it is fair to assume that this condition would hold.

12. An online data appendix, available at the corresponding author's website, outlines the sources of all variables, how they were constructed, and provides the data and replication commands.

13. The likelihood ratio (LR) chi-square statistics for the Wooldridge test for panel autocorrelation for the sectoral wage differential and governance dummy baseline models were 29.9 (p = .000) and 13.17 (p = .002), respectively.

14. Tests for panel heteroskedasticity were run without time dummies given the failure for the generalized least-squares iterations to achieve convergence. LR tests for the baseline models (column I in Tables 3 and 5) were highly significant (122.27, p = .000; 83.13, p = .000, respectively) indicating a high likelihood of panel heteroskedasticity.

15. Surprisingly, total factor productivity growth was not significantly correlated with the economic controls. It was significantly, negatively correlated with the lagged sheltered sector wage differential variable (pairwise correlation of $-.090$, p = .049), but not to an extent that would cause serious multicollinearity problems.

16. Social benefit as a percentage of GDP retains its significantly positive beta coefficient if random effects are used, although its beta magnitude is reduced.

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