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Manger, Mark; Sattler, Thomas

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The Origins of Persistent Current Account Imbalances in the post-Bretton Woods Era

Mark Manger
University of Toronto
mark.manger@utoronto.ca

Thomas Sattler
Université de Genève
thomas.sattler@unige.ch

Abstract

Why do some countries run persistent current account surpluses? Why do others run deficits, often over decades, leading to enduring global imbalances? Such persistent imbalances are the root cause of many financial crises and a major source of international economic conflict. We propose that differences in wage-bargaining institutions explain a large share of imbalances through their effect on the trade balance. In countries with coordinated wage bargaining, wage growth in export industries can be restrained to ensure competitiveness, leading to persistent trade surpluses. We estimate the contribution of these institutions to trade balances in OECD member countries since 1977 and find ample support for our hypothesis. Contrary to much of the literature, the choice of fixed or floating exchange rate regimes has only a small effect on trade or current account balances. In other words, internal adjustment in surplus countries via wage-bargaining institutions trumps external adjustment by deficit countries.

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1 Introduction

Why do some countries run persistent current account surpluses? Why do others run deficits, often over decades, leading to enduring global imbalances?[1] Such imbalances are a long-standing source of political friction between states (Simmons, 1997). Most of today's surplus and deficit countries have prominently starred in the same roles since the 1960s. Examples of such frictions are the debates about the American "exorbitant privilege" in the 1960s, the "locomotive conflict" within the G7 in the 1970s, and the Louvre and Plaza Accords in the 1980s.

Imbalances remain politically highly salient: In April 2016, the US Treasury published its first monitoring report mandated as part of implementing the Trade Facilitation and Trade Enforcement Act of 2015. One of three criteria is a "current account surplus larger than 3% of that economy's GDP [gross domestic product]," putting China, Japan, Germany, and Korea on a watch list (U.S. Treasury, 2016, 1). The implicit charge is that these countries are pursuing a "mercantilist strategy," a point repeatedly made by commentators ranging from Paul Krugman (2016) and Martin Wolf (2014b) to Peter Navarro, trade advisor to United States President Donald Trump (Jacoby, 2017). *The Economist* ran a cover story in July 2017 titled "The German Problem: Why its surplus is damaging the world economy." Once again, imbalances have become a significant source of international tensions among industrialized countries.

What is at stake in this debate? In financial terms, capital exported from surplus countries drives down interest rates in the deficit countries, a likely cause of financial crises (Bernanke, 2005; Copelovitch & Singer, 2016; Frieden & Chinn, 2012). Yet more relevant to voters and hence politicians is a different perception: that "mercantilists" pursue unfair trade policies, that they support their manufacturing sector where workers enjoy stable jobs and earnings that have been lost in the United States and other deficit countries (Broz & Werfel, 2014; Nollen & Quinn, 1994, p. 496). Surpluses are seen as an indicator of a policy that beggars neighbors and redistributes

[1] A current account deficit means that a country spends more on imports and interest payments than it earns from exports and investments abroad, so it accumulates international liabilities. A surplus means that a country earns more from exports and investments than it spends on imports and interest payments and, therefore, accumulates claims on deficit countries.

export earnings at the expense of others. Arguments over current account imbalances are thus conflicts over the distributional consequences of globalization.

And yet, in stark contrast to the political and economic importance of persistent imbalances, our understanding of their causes is limited. The literature provides compelling analyses of the adjustment phase (Walter, 2013, 2016), but the origins of imbalances are assumed to be primarily an economic phenomenon. We counter that imbalances are fundamentally based on institutional and political differences between countries. Economic theories alone do not answer the question why major countries have remained either in deficit or in surplus for most of the post-war period, but point to factors that only generate short- and medium-term fluctuations in current accounts. This lack of understanding distorts the scholarly and public debates and hobbles effective policy choice.

Drawing on key insights from the Varieties-of-Capialism literature and its extensions (e.g., Baccaro & Pontussen, 2016; Hall & Soskice, 2001; Hancké, 2009), we develop several implications and offer an explanation that highlights the variations in wage bargaining institutions across countries. Our analysis shows that wage bargaining that is coordinated across economic sectors systematically pushes a country towards surpluses, while uncoordinated bargaining leads a country to run deficits. Restrained wage growth in coordinated systems ensures the export competitiveness of manufacturing industries, which in turn underpins their political influence and the continued existence of such wage bargaining institutions. In the absence of wage bargaining coordination and export success, countries go down one of two paths: either toward an expansion of the public sector, itself often a cause of deficits, or toward the erosion of labor organization in the manufacturing sector, deindustrialization and a shift toward service industries.

Our estimations predict that countries with the least coordinated bargaining systems have a persistent trade deficit of –2.5 percent of GDP over the analysis period. By contrast, the most coordinated system yields a predicted persistent trade surplus of +3.37 percent of GDP. This variation occurs because in coordinated countries, the prices of export goods rise only gradually, which then translates into trade and current account surpluses. A case study of Germany after its reunification illustrates this mechanism.

We show that this mechanism holds irrespective of the exchange rate regime in place—that is, whether countries fix or float their currencies. While some analyses of the eurozone crisis have identified different wage bargaining regimes as the culprit (Höpner & Lutter, 2017; Johnston, Hancké, & Pant, 2014), the underlying problems are not just defects of the currency union. Contrary to previous claims (Johnston & Regan, 2016), sustained current account imbalances among countries with different wage bargaining systems are not a novel phenomenon that is unique to the Eurozone. Differences in wage bargaining institutions have produced such imbalances among industrialized countries throughout the whole post-Bretton Woods era, prior to EMU and outside the EMU. Fixed exchange rates exacerbate the problem, but imbalances persist even with floating currencies.

Our study makes several contributions and has important policy implications. First, we account for persistent patterns in international economic outcomes that present a challenge for standard macroeconomic theory. Second, we show that much of what is sometimes labeled a mercantilist strategy really has its origins in the domestic political-institutional variation across countries. Finally, we clarify that an automatic resolution of global imbalances is unlikely as long as these institutional differences exist. Solutions need to take into account their importance and hectoring against alleged government policy misses the mark (e.g. Wolf, 2014a).

2 Patterns of Current Account Imbalances

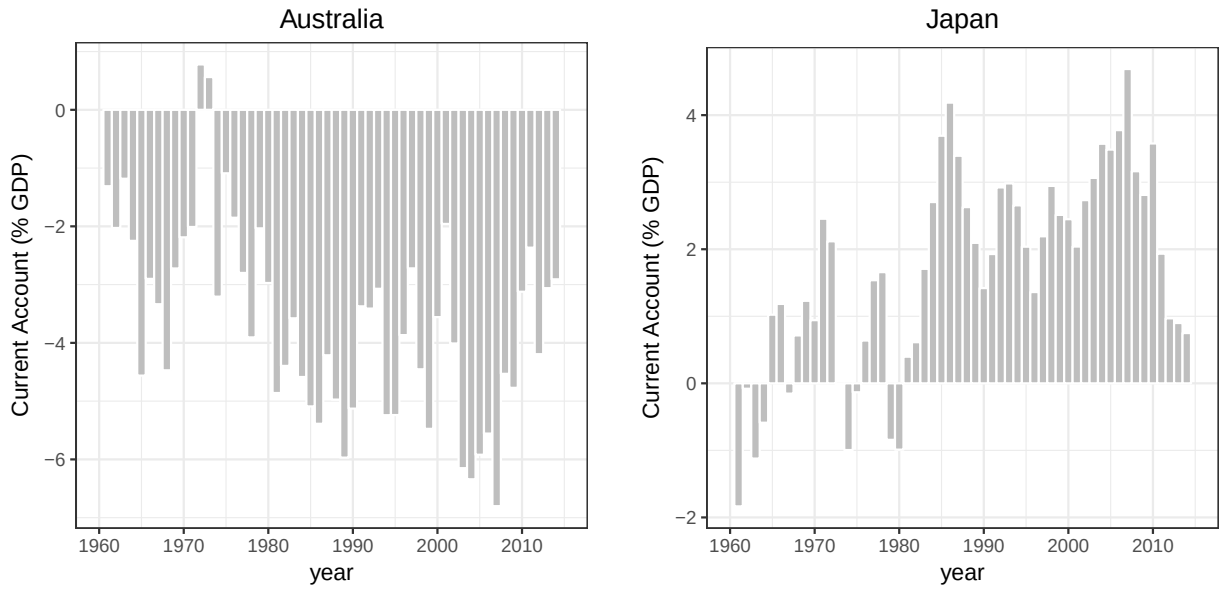
Our analysis begins with the finding that the external imbalances of many countries are not a new phenomenon but, rather, have persisted over decades. Even though the balance of payments is one of the most central concepts in international economic affairs, current accounts exhibit empirical patterns that are difficult to reconcile with existing theories.

2.1 Current Accounts since Bretton Woods

A striking, yet unexplored pattern of current accounts is the endurance of imbalances over many decades. A persistent imbalance means that a country has been almost permanently in deficit

throughout the postwar period, while another has been quite consistently in surplus. Figure 1 illustrates this pattern: Australia has not achieved a current account surplus since 1960, except in 1974 and 1975, when resource prices surged unexpectedly due to the first oil shock. Meanwhile, Japan has been consistently in surplus since 1981, with only a short pause after a surge of fossil fuel imports following the shutdown of its nuclear plants in 2011.

Figure 1: The Australian and Japanese Current Accounts



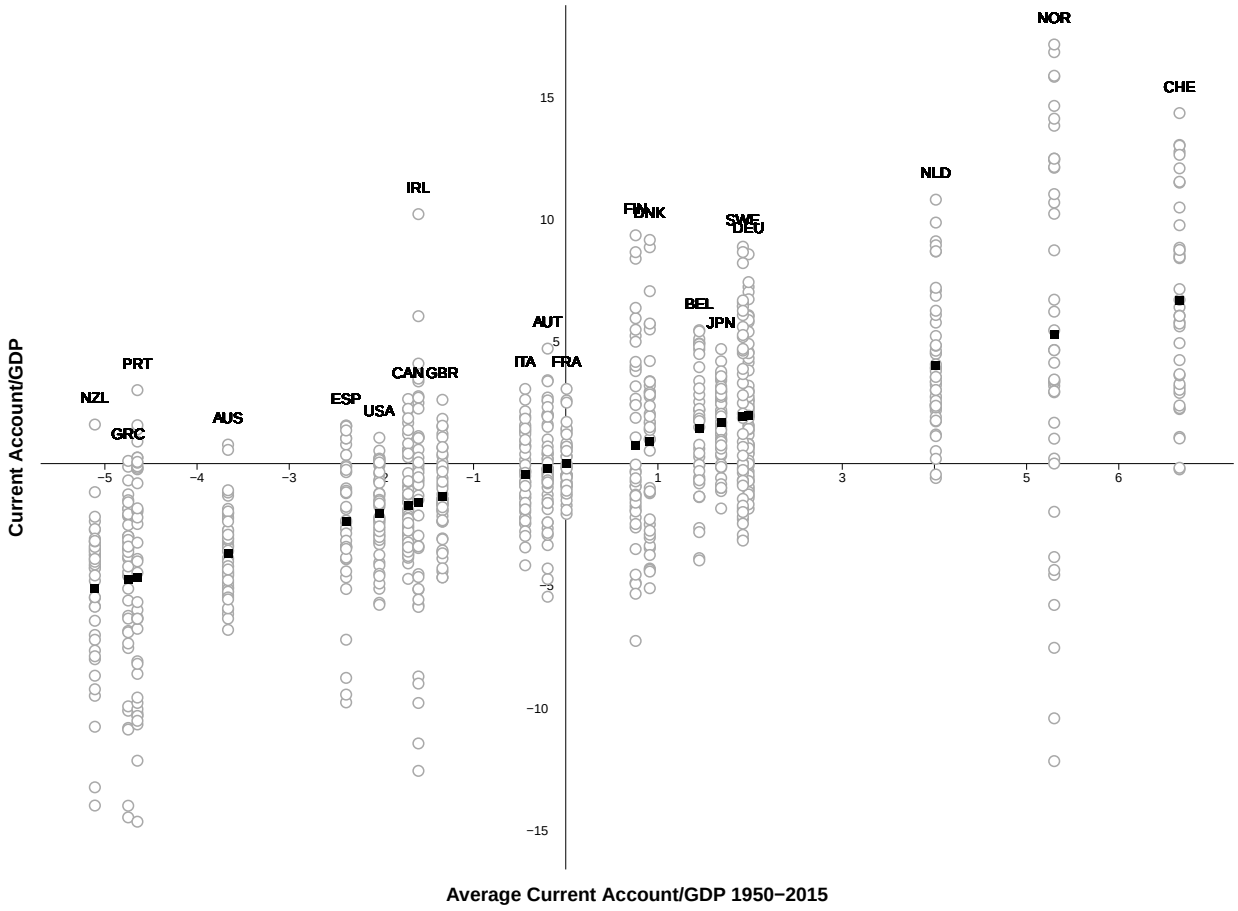
Such extreme values are not peculiar to these two economies, but rather a characteristic of many industrialized countries, as Figure 2 shows.[2] Portugal, New Zealand, Greece, Canada, the UK and the US are other examples of long-term deficit economies. Germany, the Netherlands, and Switzerland are persistent surplus countries. Finally, some show regular ups and downs, for example Italy and France, while the Scandinavian countries switched from small deficits to a significant persistent surpluses in the early 1990s. Notably, these imbalances remain even when we consider that much trade today is in parts, components, and machinery (Johnson, 2014; Johnson & Noguera, 2012): While "where value is added" matters marginally for bilateral trade imbal-

[2]Figure 2 is an updated and expanded version of the graph presented in Ventura (2003).

ances, overall imbalances are by definition unchanged because they are equivalent in gross and valued-added terms.[3]

Although the existence of imbalances per se is not surprising, we would expect current accounts to adjust eventually via the exchange rate or relative prices. Accordingly, most existing research has focused on factors that explain short- or medium-term term variation, but not the kind of long-term patterns that our figures reveal.

Figure 2: Current account balances within and between OECD countries



[3]We show the relevant identity in our web appendix in section A1.

2.2 Current Knowledge

Work in economics has focused on four arguments. The "twin deficits" hypothesis suggests that large public deficits coincide with current account deterioration (Volcker, 1987). Countries running current account surpluses because they intervene in the foreign exchange market accumulate sizeable foreign exchange reserves. The large reserve holdings of some developing countries have raised the question whether these policies are primarily export-promotion through undervaluation (Dooley, Folkerts-Landau, & Garber, 2003)—with reserves as a byproduct—or whether reserves themselves are the objective as a means of self-insurance (Aizenman & Lee, 2008). A related argument revolves around financial market imperfections: Although people in emerging markets seek a safe store of value, investment opportunities do not keep up with savings because of associated risks (Bernanke, 2005). In consequence, capital flows to locations that produce safe assets (Caballero, Farhi, & Gourinchas, 2008; Kraay & Ventura, 2000).[4]

Although these studies point to important factors, they are unable to explain the persistent, cross-country variation that we see in Figures 1 and 2. Current account balances tend to change very little in their relative levels over time. Meanwhile, fiscal deficits and attempts to adjust fiscal policy have varied considerably in all countries (Hübscher, 2016; Hübscher & Sattler, 2017). Reserve accumulation and financialization are relatively recent phenomena arising during the 1990s. Slowly changing variables like demographics offer little explanatory power (Chinn & Ito, 2007; Chinn & Prasad, 2003).

The most rigorous approach sees the current account as an intertemporal allocation of consumption (Kraay & Ventura, 2003; Obstfeld & Rogoff, 1995). Absent pronounced differences in economic cycles, countries have to have diverse preferences: Some prefer consumption today, others postpone it to the future. These models, however, are much better at explaining short-term movements than long-term equilibria, and offer little to explain different country preferences in the first place.

We submit that imbalances are not merely the result of economic processes. We argue that specific institutional features, maintained by politically important economic sectors, allow some

[4] See Appendix section A3 for further discussion.

countries to remain systematically more competitive in tradables production, with fundamental effects on their current accounts.[5] Accordingly, our work relates to the Varieties-of-Capitalism literature that offers compelling accounts of the divergent growth and inflation histories of developed countries (Hall & Soskice, 2001; Hancké, 2009). For a long time, this literature has not fully worked out its international implications, although recent extensions more explicitly recognize the international dimension of growth strategies and the importance of the current account (Baccaro & Pontussen, 2016; Blyth & Matthijs, 2017). When international aspects are considered, research tends to focus on imbalances within the European Monetary Union (EMU) (Hancké, 2013; Johnston et al., 2014), As our exposition shows, however, imbalances arise regardless of the exchange rate regime chosen, and even countries with flexible exchange rates can experience large current account deficits for a long time. Our approach connects to these works, but takes a broader, global perspective by showing how wage bargaining has affected current account imbalances throughout the whole post-Bretton Woods period and outside the Eurozone.

3 Theory

Our theoretical argument takes a factor market perspective, highlighting the relative cost of employing one factor—labor—in different economic sectors and countries. As usual, we divide sectors into tradables and nontradables (Frieden, 1991, p. 445). The tradable sector encompasses firms—in the majority in manufacturing but also in services such as communication, financial intermediation and insurance—that compete in the domestic market against imports from abroad or those that sell their products on foreign markets.[6]

The building blocs for our theory are labor unions and employers operating within a specific set of wage bargaining institutions. We assume that employers maximize profit, while unions maximize wages subject to securing the employment of their members. We furthermore assume that firms in the tradable sector have limited pricing power when they sell into foreign markets. To

[5] Large financial flows notwithstanding, the current account of developed countries remains largely driven by the trade balance, and is treated as equivalent in many textbooks (see, e.g., Krugman & Obstfeld, 1997, p. 308).

[6] A list of sectors is provided in section A4 of the online appendix.

be sure, some small manufacturing firms from Germany, Sweden, and Japan have a near-monopoly in specialized goods, but a wealth of research shows that the demand for high-value-added goods like automobiles, machinery, and chemicals is surprisingly strongly determined by prices (Carlin, Glyn, & Van Reenen, 2001).

Although we focus on labor, current account imbalances could clearly also be strongly influenced by other factor markets, in particular that for capital. International capital allows for temporary balance-of-payments financing, but also constrains public spending (Mosley, 2003). Domestic capital markets can affect current accounts through credit provision and interest rates that shape consumption and saving decisions (Ahlquist & Ansell, 2017). It should be noted, however, that the most direct means of undervaluation of the exchange rate—foreign exchange market intervention or financial repression through policies that reduce the cost of capital to the tradable sector—are not used as primary policy tools by the largest industrialized economies.

3.1 Coordinated Wage Bargaining

The Varieties-of-Capitalism literature has identified a feature of wage bargaining systems that is central to our argument: the *coordination* of sectoral wage agreements across the whole economy, based on clear domains of authority of unions and employer organizations that specify who bargains and who is covered by the resulting collective agreements (Calmfors & Driffill, 1988). Successful coordination presupposes a specific kind of labor market institution, for example enterprise unions that bargain with management on behalf of all permanent employees in the same firm (as in, e.g., Japan), or industry-wide confederations (as in, e.g., Germany) that negotiate wage increases for a whole industry. By contrast, in systems with craft- or profession-based unions where several unions represent different employee groups in the same company or where unions have competing political affiliations, coordination is weaker (Hancké, 2013), as competing unions will otherwise have incentives to outbid each other (Calmfors, 1993, p. 163). Wage bargaining institutions therefore influence whether firm and union interests coincide (Iversen, 1999, p. 53). In this setting, wage settlements will converge on a division of productivity gains between workers and firms. Such wage bargaining is called "coordinated" because negotiated wage settlements in one

sector are often translated into other sectors, so that for example public sector wages do not outpace those in the export sector. We submit that such coordination strongly affects competitiveness in international trade.

3.2 Wage Bargaining, Trade, and Competitiveness

When markets are opened to foreign trade, the same institutions have important effects on international exchange. With foreign competition, firms in the tradable sector will receive signals about their own competitiveness in the form of the relative prices of their products. In addition to bargaining over the division of profits, owners of capital and workers will recognize their relative cost vis-à-vis international competitors. Holding the labor share of firm profits constant, the ceiling of wage demands will therefore be set by productivity gains or the prices of foreign competitors, whichever is lower. In a coordinated bargaining setting, unions can can negotiate wages that guarantee employment for their members—to the point of cutting wages in real terms if foreign competition requires such a step (Franzese, 2002, 213).

Such a bargain addresses the problem of wage costs for employers and job security for workers, but only within the bargaining unit. Cost compression efforts are in vain if wages and prices rise elsewhere in the economy, feeding into inputs or imposing a tax burden. Most importantly, if wages develop unequally across sectors, workers in the tradable sector might choose to leave for other sectors of the economy, limiting the supply of labor in the tradable sector and exacerbating the very problem that wage moderation is meant to solve. In this situation, coordination of wage bargaining across sectors helps to control wage growth in the whole economy. Coordination means that wage increases in the nontradable and public sectors do not exceed those in the tradable sector. It is particularly important when wages in the nontradable sector could be rising because of growing government spending, an expansion of public sector employment, or a demand shock in the form of, for example, a credit-driven expansion of construction and real estate prices. By imposing a common ceiling, coordination helps avoid large divergence in wage increases.

By contrast, in countries without such coordinated bargaining, unions cannot internalize the benefits of wage restraint. If there are multiple unions within the same firm, each union may try to

obtain benefits at the expense of others. Accordingly, in uncoordinated systems, firms will often lose relatively export competitiveness, possibly seek to obtain trade protection, or exit industries entirely. Existing analyses of the eurozone crisis have (correctly) diagnosed this problem in some countries in Southern Europe: wages rose quickly in some nontradable sectors, e.g., construction, drawing workers to these sectors (e.g., Baccaro & Simoni, 2010).

Note that because of the shift in workers to these sectors, it is entirely possible to have relatively low nominal inflation and thus no rapid increases in the real exchange rate—the cost of an equal basket of consumption divided by the nominal exchange rate is a measure of relative *domestic* prices. The price signals that exporters receive and translate into wage settlements restrain the prices of exports from coordinated-wage-bargaining countries. This means that the *effective* real exchange rate, or the real exchange rate weighted by the country's trade partners, will appreciate only slowly. As this sustains the cost competitiveness of exporting and import-competing firms, a slow appreciation in relation to trade partners will result in a positive shift in the trade balance.

Compared to these price signals, the influence of the monetary authorities is limited. According to seminal Varieties-of-Capitalism accounts, at high levels of coordination, the difference in inflation between a country with a central bank that prioritizes price stability and one that focuses on full employment is minimal (Iversen, 1999, 35; Hall & Franzese, 1998), the difference manifests itself in unemployment rates.

3.3 Competitiveness and the Exchange Rate Regime

How does the nominal exchange rate regime interfere with this mechanism? Countries vary widely in their choice of fixed or flexible exchange rates (e.g., Sattler & Walter, 2010) With a floating exchange rate, a country with weak coordination could try to offset a real exchange rate appreciation with a depreciation of the nominal exchange rate. Fixed exchange rate regimes, including currency unions, could therefore be responsible for persistent deficits by preventing adjustment of the current account, even if they contain escape clauses that provide for the possibility of external adjustment (see e.g. Bodea, 2015). The literature on the Euro crisis, therefore, highlights the difficulty of Eurozone countries to adjust externally in case of external disequilibrium and sees the

currency union as a primary cause of growing intra-European imbalances during the first decade of the Euro (Johnston, 2016; Johnston et al., 2014).

To what extent flexible exchange rates are capable so remove long-term current account imbalances is debated, however (compare for example Chinn & Wei 2011 and Eguren Martin 2016). As Carlin (2013) reminds us, prices and wages could adjust in small economies, while in larger countries, they need to be delivered by wage bargaining institutions. The degree to which this takes place, however, is an empirical question. If there is no systematic relationship between wage bargaining institutions, fixed exchange rate regimes, and current account imbalances, then this would suggest that the problems of the eurozone are to be found in financial flows leading to capital misallocation (Gopinath, Kalemli-Özcan, Karabarbounis, & Villegas-Sanchez, 2017), or the institutional problem of having a joint central bank for disparate national economies (Hancké, 2013). We therefore submit that fixed exchange rates are likely to exacerbate current account imbalances, but that the root cause lies in different wage bargaining institutions.

3.4 Alternative Explanations

While short-term fluctuations in variables cannot account for the persistent patterns we see in the data, other structural factors may predispose countries to deficits and surpluses. The three most important candidates are natural resources exports, patterns of foreign direct investment, and the ability to borrow in national currency on international markets.

Natural resource prices are often volatile, and especially smaller economies are often structurally incapable of absorbing the export earnings generated by a single important export commodity.

External imbalances can also arise on the *financial account* side (the mirror image of the current account): countries that are more open to foreign investment could have a capital account surplus. Conceptually, such an imbalance requires that capital is relatively cheaper in current account surplus countries. Given that mergers and acquisitions of public companies are the most important component of FDI among developed economies, countries with deeper stock markets could have a tendency to experience current account deficits.

At the same time, *financial intermediation* often plays an important role, but the effect is not obvious *ex ante.* While Germany and Austria have fragmented financial industries, the Netherlands, Sweden and Switzerland have highly sophisticated financial institutions, but also produce some of the biggest and most persistent current account surpluses. Japan fully opened its financial sector (albeit under US pressure) but the current account surpluses remained.

Lastly, a country's ability to *borrow internationally in its own currency* helps to sustain current account deficits. Such borrowing consists of purchases of government bonds by other governments (i.e., international reserves), purchases of such bonds by foreign private actors (e.g. French banks buying US T-bills), as well as international borrowing by domestic actors (e.g. US banks selling their own bonds to French pension funds). The direction of this effect is hard to predict, since some countries that borrow in their own currency have little public debt, but large current account surpluses (like Switzerland), while others have deficits (like Australia).

3.5 Empirical Predictions

Wage-bargaining coordination implies a tendency toward a trade and current account surplus, as expressed in Hypothesis 1. We expect this effect to be stronger when exchange rate regimes are more rigid, as per Hypothesis 2.

Hypothesis 1 *The stronger the coordination of wage bargaining, the more positive (less negative) the long-run average trade and current account balance.*

Hypothesis 2 *The more rigid the exchange rate regime, the stronger the effect of wage-bargaining coordination on the average trade and current account balance.*

4 Analysis

We focus our analysis on the 21 largest member economies of the Organization for Economic Cooperation and Development (OECD), listed in Table 4 in the period from 1977, the first year in which floating exchange rates were permitted by the International Monetary Fund (IMF) after the end of the Bretton Woods financial regime in the 1976 Jamaica Accord, until 2015.

Table 1: Countries examined

Australia	Germany	Norway
Austria	Greece	Portugal
Belgium	Ireland	Sweden
Canada	Italy	Switzerland
Denmark	Japan	Spain
Finland	Netherlands	United Kingdom
France	New Zealand	United States of America

4.1 Data

The mechanism that we outline above primarily affects relative export competitiveness, so we first examine the trade balance, that is, the difference between exports and imports. We then show that this translates into the current account, which is the sum of the trade balance and net foreign transfers. For both, we use the ratio of *trade balance* (TB) and *current account* (CU) to GDP. All data sources are listed in the appendix.

Our central explanatory variable is wage bargaining *coordination*, drawn from the ICTWSS data set that provides a broad index for all OECD and European Union (EU) as well as several other industrialized countries (Visser, 2015). In our robustness checks in the Appendix, we use three alternative indicators: a composite measure of the boundaries of union authority[7] referred to as *demarcation*, the *unionization* rate (Visser, 2015, p. 26), and a measure that we call *peak* (called "cwb" in the ICTWSS data) which denotes the level at which bargaining takes places, from peak labour organizations to the firm level (Visser, 2015, p. 15). To preview our results, none of these checks affect our conclusions below.

To evaluate the three alternative explanations described above, we use several variables. To test for the role of the financial account, we focus on financial deepening and relative capital cost that should attract foreign investment inflows, and include the values of *stock market capitalization*, *financial intermediation* as well as the change in *private credit* extended by local banks to the non-financial private sector, always as share of GDP. By using data on credit to the non-financial sector we differentiate this from inter-bank lending, which is strongly correlated with *financial*

[7]This measure originates with Iversen (1999) and is called *centi* in the ICTWSS data set.

intermediation and important in financial hubs such as the UK. Furthermore, we include a direct policy measure of capital account openness *KaOpen*, given that foreign investment restrictions could lead to current account surpluses.

To evaluate the relative importance of resource price shocks for importers and exporters, we also include changes in the *terms of trade*, which is particularly relevant for resource importers, and *fuel exports* as share of GDP, which is structurally important for Norway and, to a lesser extent, Canada, Australia, and the Netherlands.

Furthermore, we operationalize the ability to borrow in a country's own currency following Hausmann, Panizza, and Stein (2001). We use data from the Bank for International Settlements to construct a measure of the share of internationally traded debt in local currency in its total debt in any currency, called *OrigSin* (after the "original sin" of borrowing in foreign currency). This measure, ranging from zero to one, also captures the revealed preference of domestic borrowers and international lenders to transact debt in domestic or foreign currency.

In addition, our empirical models include a variety of control variables that previous research identifies as important determinants of the current account: (Chinn & Ito, 2007; Chinn & Prasad, 2003). We include the *fiscal balance/GDP*, as greater fiscal deficits are generally associated with greater current account deficits. Indeed, in our sample, the current account deficits of three countries (Denmark, Finland and Sweden) until the early 1990s appear to be entirely driven by public borrowing, and the countries move into persistent surpluses once government deficits are eliminated. We capture differences in demographic structure with *Dependency ratio (young)*, the share of people under age 15 compared to those between 15 and 65, and *Dependency ratio (old)*, the share of people over 65 compared to those between 15 and 65. We also include *GDP per capita* and *GDP growth* to control for the possibility that capital flows "downhill" from rich to poor countries or to faster-growing economies to achieve greater returns (Abiad, Leigh, & Mody, 2009).

Net foreign assets/GDP is equivalent to the sum of past current account balances, technically defined as the difference between the foreign assets owned by a country's residents and the local assets owned by foreigners. Because these assets generate income (which has to be estimated), the variable only enters the current account regressions. A large stock of profitable *net foreign as-*

sets/GDP potentially allows a country to run a current account surplus even when its trade balance is negative.

Lastly, we include a dummy variable for four eurozone crisis countries (Ireland, Greece, Portugal and Spain) in 2010-2015 because they received IMF-sponsored bailout programs that led to an unprecedented reduction in public and private spending that enforced a current account surplus through because of a demand shock. Summary statistics are provided in the online appendix.

4.2 Empirical models

Our empirical analysis needs to address two challenges. First, we are primarily concerned with persistent variation across countries. At the same time, we need to control for the variables discussed above that produce possibly substantial temporal variation in the current account. Second, wage bargaining institutions vary only little over time, precluding the use of standard fixed-effects models for pooled country time series data. Ignoring country-specific constants, however, may be problematic because the slowly-moving institutional variable would pick up country-specific effects not directly related to our variable of interest.

To address these issues, we use a hierarchical empirical model that exploits the multi-level nature of our data (Gelman & Hill, 2007; Kedar & Shively, 2005). This model accounts for the fact that wage bargaining institutions are (almost) time-invariant, while the most important control variables vary within countries over time. In this approach, the time dimension within a country and the cross-country dimension are treated as different levels. We opt for a "partial pooling" approach (Gelman & Hill, 2007, ch. 12.2-12.3), which fixes the coefficient on the time-varying variables across countries, but allows that the coefficients on the key variables, notably the intercept and fixed exchange rate regime, to vary with wage bargaining. We choose the partial pooling approach because our theory primarily motivates varying coefficients for the constant and the fixed exchange rate regime dummy, and because the number of observations within countries is small compared to other multilevel studies.

In the first step, we use a varying-intercept model to estimate the effect of wage-bargaining

coordination:

$$
\begin{aligned}
&\mathrm{y}_{jt} = \alpha_{1j} + \alpha_2 \mathrm{X}_{jt} + d_t + \varepsilon_{jt}, \\
&\alpha_{1j} = \gamma_0 + \gamma_1 \mathrm{C}_j + \eta_j, \qquad \text{for } t = 1977, ..., 2015; j = AUS, ..., USA; \qquad (1)
\end{aligned}
$$

where y_t is either the trade balance or the current account, C_j is the average wage-bargaining coordination in country j, X_t is a vector with time-varying control variables described above, and d_t are period dummies to account for common shocks across countries. We also examine the effect of initial conditions before our period of analysis by estimating the effect of coordination in the year 1975, reasoning that wage bargaining institutions before our analysis are not the result of trade balances and current accounts during our period of analysis.

In the second step, we use a varying-intercept, varying-coefficient model to estimate the effect of wage-bargaining coordination conditional on having a fixed exchange rate regime in year t:

$$
\begin{aligned}
&\mathrm{y}_{jt} = \alpha_{1j} + \alpha_{2j} \mathrm{Fixed}_{jt} + \alpha_3 \mathrm{X}_{jt} + d_t + \varepsilon_{jt}, \\
&\alpha_{1j} = \gamma_0^{\alpha_1} + \gamma_1^{\alpha_1} \mathrm{C}_j + \eta_j^{\alpha_1} \\
&\alpha_{2j} = \gamma_0^{\alpha_2} + \gamma_1^{\alpha_2} \mathrm{C}_j + \eta_j^{\alpha_2}, \qquad \text{for } t = 1977, ..., 2015; j = AUS, ..., USA; \qquad (2)
\end{aligned}
$$

where Fixed_t is a binary variable indicating a fixed exchange rate regime. In additional analyses shown in the appendix, we also use a two-step estimation procedure based on alternative modelling assumptions: We estimate the effect of the time-variant variables using a standard pooled, country-fixed-effects model. We then regress the estimated, country-specific constants on the wage-bargaining variable using feasible GLS (Lewis & Linzer, 2005).

Finally, we use dynamic panel models that exploit both cross-country and within-country variation in wage-bargaining institutions. Although these institutions vary only very little over time, there are some instances of institutional change in our sample. The panel model takes the following form:

$$
\begin{aligned}
&\mathrm{y}_{jt} = \beta_0 + \beta_1 \mathrm{y}_{jt-1} + \beta_2 \mathrm{C}_{jt} + \beta_3 \mathrm{X}_{jt} + d_t + \varepsilon_{jt}, \\
&\qquad \text{for } t = 1977, ..., 2015; j = AUS, ..., USA \qquad (3)
\end{aligned}
$$

We estimate the model using ordinary and two-stage least squares (2SLS). For the 2SLS model, we instrument wage-bargaining coordination, C_{jt}, with wage bargaining prior to our period of analysis in 1975, C_{j1975}. This instrument is temporally exogenous–the trade balance in 1977 does not affect wage bargaining coordination in later years–and prior values will affect later values on via coordination itself. Nonetheless, as with nearly all institutional questions, we cannot rule out that both have a common antecedent.

4.3 Results

Our results show that wage-bargaining systems have a strong effect on the trade balance and the current account. Countries with more coordinated wage-bargaining systems have substantially higher, persistent trade and current account surpluses than those with less coordinated systems. We find that de-facto fixed exchange rate regimes exacerbate trade and current account imbalances, but also that the effect of *coordination* remains strongly significant and almost unchanged in size. This offers support for our hypotheses: Coordination is the root cause for imbalances, though fixed exchange rate regimes can cause further problems for deficit countries.

4.3.1 Wage Bargaining, Trade Balance and Current Account

In specification (1) in Table 2, the trade balance increases by 1.6 percentage points of GDP when wage-bargaining coordination increases by one unit on average. This translates into an overall average increase of approximately 4.34 percentage points if we move from the country with the lowest level (Great Britain) to the country with the highest level of coordination (Austria). Model (2) drops the year fixed effects, with no substantial change in the conclusions. In model (3) we replace the average coordination score with the country's value in the year 1975. The coefficient on *coordination* is only slightly smaller and remains statistically significant at the 5 percent level. Columns (4) to (6) show the results for these models substituting the current account for the trade balances as dependent variable. Intuitively, the coefficients are very close in size. In specification (4), a one-unit increase in coordination leads to a 1.42. percent of GDP increase in the current account balance.

Table 2: Wage bargaining coordination, trade balance and current account – hierarchical models

	Trade balance			Current account		
	(1)	(2)	(3)	(4)	(5)	(6)
Coord_i	1.598***	1.659***		1.412***	1.360***	
	(0.484)	(0.511)		(0.377)	(0.288)	
Coord(1975)_i			0.983**			0.558
			(0.473)			(0.418)
$\text{NFA}_{i,t-1}$				0.036***	0.036***	0.035***
				(0.005)	(0.005)	(0.005)
$\text{Fiscal}_{i,t}$	0.198***	0.164***	0.196***	0.195***	0.134***	0.198***
	(0.036)	(0.034)	(0.037)	(0.036)	(0.034)	(0.036)
$\text{Stock}_{i,t}$	0.010***	0.010***	0.010***	0.012***	0.012***	0.011***
	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
$\text{Intermed}_{i,t}$	0.038	0.057	0.030	-0.361***	-0.191*	-0.381***
	(0.117)	(0.115)	(0.117)	(0.115)	(0.113)	(0.117)
$\text{Old}_{i,t}$	-0.207***	-0.295***	-0.204***	-0.086*	-0.044	-0.090*
	(0.053)	(0.040)	(0.053)	(0.052)	(0.040)	(0.053)
$\text{Young}_{i,t}$	-0.034	-0.079**	-0.047	0.203***	0.095**	0.200***
	(0.044)	(0.040)	(0.044)	(0.043)	(0.039)	(0.043)
$\text{GDPpc}_{i,t}$	0.262***	0.158***	0.264***	0.118***	0.154***	0.115***
	(0.039)	(0.021)	(0.039)	(0.040)	(0.022)	(0.041)
$\text{Growth}_{i,t}$	0.068	0.029	0.067	0.086**	0.052	0.089**
	(0.042)	(0.035)	(0.042)	(0.042)	(0.036)	(0.042)
$\text{ToT}_{i,t}$	0.071***	0.092***	0.071***	0.054***	0.083***	0.052**
	(0.021)	(0.020)	(0.021)	(0.021)	(0.020)	(0.021)
$\text{Credit}_{i,t}$	-0.082***	-0.085***	-0.083***	-0.080***	-0.083***	-0.080***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.014)	(0.013)
$\text{FuelExp}_{i,t}$	0.022	0.012	0.024	0.044**	0.030	0.056**
	(0.024)	(0.022)	(0.024)	(0.022)	(0.019)	(0.024)
$\text{KAOpen}_{i,t}$	0.290*	0.430***	0.264	-0.093	0.265*	-0.147
	(0.169)	(0.160)	(0.170)	(0.166)	(0.158)	(0.168)
$\text{OrigSin}_{i,t}$	-0.160**	-0.215***	-0.157**	-0.297***	-0.311***	-0.296***
	(0.069)	(0.065)	(0.069)	(0.069)	(0.067)	(0.070)
$\text{Eurocrisis}_{i,t}$	6.563***	6.039***	6.507***	5.596***	4.472***	5.565***
	(0.704)	(0.677)	(0.706)	(0.787)	(0.754)	(0.794)
Constant	-3.995**	-4.157**	-2.439	-8.533***	-4.428***	-6.240***
	(1.834)	(1.695)	(1.992)	(1.520)	(0.950)	(1.802)
Year FE	Yes	No	Yes	Yes	No	Yes
Sd(Cons)	2.41	2.56	2.73	1.84	1.33	2.39
p	0.000	0.000	0.000	0.000	0.000	0.000
N	817	817	817	817	817	817

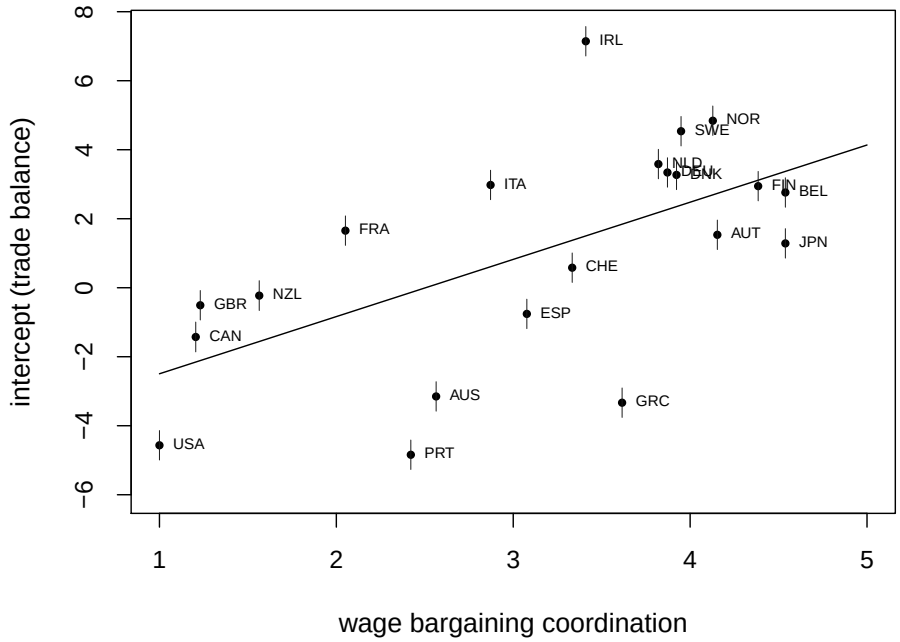
Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

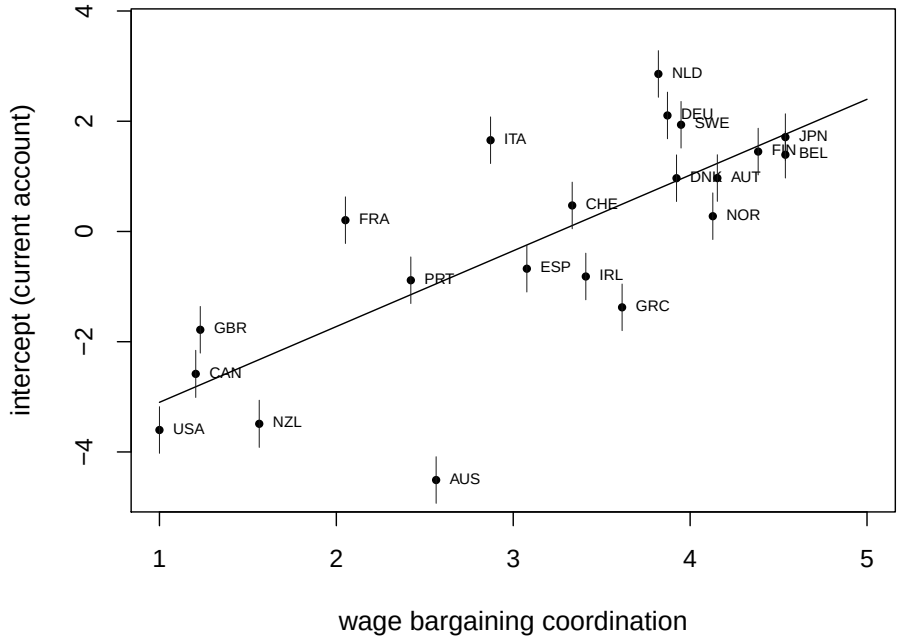
To illustrate the substantive effect, Figure 3 shows the estimated country-specific intercepts on the *y*-axis, which represent the country-specific trade and current account balance over the whole period net of the influence of the time-varying control variables. The coordination variable is on the *x*-axis. The predicted persistent trade balance conditional on coordination ranges from –2.50 percent to +3.37 percent of GDP, and the current account balance from –3.06 to +1.74 percent of GDP. The estimated intercepts for the individual countries are located closely around the estimated regression line. In particular, the relative positions of "modern mercantilists" such as Germany can be almost perfectly explained by the wage bargaining system. Many of the larger deviations are intuitive. The trade deficit of the United States is slightly larger than predicted because of the role of the USD in international borrowing. Norway has a higher trade surplus than predicted because of its large oil exports, while Ireland has a large surplus in trade in services because it hosts the European headquarters of important multinational firms. In summary, countries with a low levels of wage-bargaining coordination tend to have a negative trade and current account balance in the long term, while countries with a high level of coordination tend to have a positive persistent trade and current account balance. This offers strong support for our conjecture about the influence of coordination. We conduct robustness checks using alternative measures of wage bargaining and show the results in the appendix. Overall, these alternative indicators underscore how robust our results are.

The results also indicate that the three alternative explanations above matter, but are substantively of lesser importance. With our linear model, coefficients are marginal effects, so that we can simply multiply variable values with these estimates to obtain predicted values. We show calculations for key countries in our Web Appendix.

Our results for the control variables substantially match those of the most prominent empirical studies (Chinn & Ito, 2007; Chinn & Prasad, 2003). A positive fiscal balance leads to a more positive external balance. The most important predictor for the current account, in addition to the wage-bargaining system, is the past level of net foreign assets. The estimated coefficients on this variable, changes in the terms of trade, stock market capitalization, demography and per-capita GDP are comparable to those in the literature (Chinn & Prasad, 2003, p. 55,72). The ability to

Figure 3: Effect of wage-bargaining coordination on trade balance and current account





Notes: dots represent country-specific intercepts α_j; error bars standard errors plotted against country-level wage-bargaining coordination from models (2) and (5); solid line represents estimated multilevel regression line $\alpha = \gamma_0 + \gamma_1 \mathrm{C}$.

borrow internationally in domestic currency allows countries to run larger current account deficits, as expected.

4.3.2 Fixed Exchange Rate Regimes and the Trade and Current Account Balance

In table 3 we test our second hypothesis. Columns (7) and (10) display the results when we include a dummy variable for a de-facto fixed exchange rate regime using the well-known Reinhart-Rogoff-Ilzetski (2017) data set. We construct an indicator called *XRfix* that equals 1 when the regime is in their category 1 and 0 otherwise, representing the most rigid regime, including very narrow bands, pegs, and currency unions. We then interact this variable with *coordination*. In these models, we allow not only for varying intercepts but also for varying coefficients on the fixed exchange rate regime indicator.

he effect is clear: the positive effect of *coordination* on the trade balance and current account exists under both fixed and non-fixed exchange rates, but it seems to be larger when the exchange rate is fixed. The results show that for a country with a floating exchange rate regime, a one-unit increase in *coordination* improves the trade balance by 1.08 percent of GDP and the current account balance by 0.82 percent of GDP. For a country with a fixed exchange rate regime, the trade balance increases by 2.63 percent of GDP for every unit increase in coordination, and the current account balance by 2.09 percent of GDP. These results offer support for our Hypothesis 2, however they are only significant at the 10 percent level. They also reinforce the message that countries with weak wage bargaining coordination are better off retaining floating exchange rates to allow gradual depreciation. Nonetheless, all else equal, a country with weak *coordination* will have a substantial trade and current account deficit even with a floating exchange rate as the positive and statistically significant coefficient on the coordination variable shows.

In columns (8) and (11), we replace the indicator with a dummy for membership in the Euro. Contrary to expectations in much of the literature discussed earlier, the moderating effect of the Euro for the whole Eurozone period is not statistically signficant. We explore this result further in columns (9) and (12) with a dummy variable for Euro membership and the period up to 2007, and a dummy for Euro membership and the period from 2008 on, each interacted with *coordination*.

The results show that until the onset of the Euro crisis, Euro membership and strong coordination led to a substantial current account surpluses, which is consistent with previous analyses (Johnston et al., 2014). However subsequently, the moderating effect of the Euro disappears. This most likely reflects that crisis-struck Eurozone countries quickly and radically cut public spending and, in some cases, also wages. Both resulted in a rapid reduction of current account deficits. But these are clearly unusual circumstances, given that countries vary widely in their ability to pursue domestic adjustment in a balance-of-payments crisis (Frieden & Walter, 2017): These polities only generated such adjustment under considerable external pressure from the "Troika" of IMF, the European Commission and the European Central Bank (Copelovitch, Frieden, & Walter, 2016, 814-816).

4.3.3 Dynamic model

Table 4 shows the results for the dynamic panel models. We also estimated a series of error-correction models, which, under a number of assumptions, are equivalent to the models in Table 4 (De Boef & Keele, 2008). The results are almost identical. Models (13) and (15) are the results from the standard OLS model for the trade balance and the current account, respectively. The results confirm our previous findings. The effect of wage-bargaining coordination is pronounced and statistically significant. More coordination leads to strong increases in the trade balance and, hence, the current account. The estimated long-term effect of a one unit increase in coordination on the trade balance is 2.59 percent of GDP; and the long-term effect on the current account is 1.75 percent.

Models (14) and (16) show the results from the two-stage least squares model for which wage bargaining is instrumented with wage bargaining in 1975, prior to our period of analysis. The results are substantively identical. The analysis of the first stage regression shows that past wage bargaining is positively correlated with wage bargaining during our period of analysis. The Kleinbergen-Paap F-statistic for excluded instruments exceeds the 10% threshold for the Stock & Yogo (2005) weak ID test. This test indicates whether excluded instruments, in our case past wage bargaining, is strongly correlated with wage bargaining in our period of analysis. The results from

Table 3: Effect of exchange rate

	Trade balance			Current account		
	(7)	(8)	(9)	(10)	(11)	(12)
$Coord_i$	1.084**	1.194***	1.249***	0.823**	1.241***	1.259**
	(0.448)	(0.418)	(0.469)	(0.367)	(0.406)	(0.490)
$XRfix_{i,t}$	-4.822			-3.663		
	(3.078)			(2.599)		
$Coord_i$*$XRfix_{i,t}$	1.548*			1.264*		
	(0.892)			(0.750)		
$Euro_{i,t}$		-4.831			-8.032*	
		(5.100)			(4.708)	
$Coord_i$*$Euro_{i,t}$		1.874			2.077	
		(1.412)			(1.305)	
$Euro1_{i,t}$			-5.754			-9.358**
			(4.393)			(4.042)
$Euro2_{i,t}$			3.714			4.574
			(7.857)			(5.650)
$Coord_i$*$Euro1_{i,t}$			2.107*			2.538**
			(1.212)			(1.117)
$Coord_i$*$Euro2_{i,t}$			-0.008			-0.857
			(2.189)			(1.584)
...	*(control variables omitted)*					
Sd(Cons)	2.15	2.04	2.32	1.68	1.97	2.42
Sd(XRfix)	2.65	—	—	2.25	—	—
Sd(Euro)	—	3.57	—	—	3.18	—
Sd(Euro1)	—	—	3.00	—	—	2.65
Sd(Euro2)	—	—	5.43	—	—	4.56
Corr(Cons, XRfix)	0.32	—	—	-0.36	—	—
Corr(Cons, Euro)	—	0.34	—	—	-0.02	—
Corr(Cons, Euro1)	—	—	0.35	—	—	-0.03
Corr(Cons, Euro2)	—	—	0.02	—	—	-0.60
Corr(Euro1, Euro2)	—	—	0.80	—	—	0.42
p	0.000	0.000	0.000	0.000	0.000	0.000
N	817	817	817	817	817	817

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. All models with year fixed-effects. Euro1 refers to Eurozone countries from 1999 to 2007; Euro2 refers to Eurozone countries from 2008 to 2015. The complete results, including the control variables, are in the Appendix.

Table 4: Effect of wage bargaining coordination – panel models

	Trade Balance		Current Account	
	(13)	(14)	(15)	(16)
$TB_{i,t-1}$	0.922***	0.921***		
	(0.020)	(0.024)		
$CU_{i,t-1}$			0.881***	0.884***
			(0.022)	(0.029)
$Coord_{i,t}$	0.202***	0.214**	0.208***	0.178***
	(0.050)	(0.084)	(0.049)	(0.060)
$Fiscal_{i,t}$	0.013	0.013	0.026	0.028
	(0.019)	(0.014)	(0.020)	(0.019)
$Stock_{i,t}$	-0.001	-0.000	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
$Intermed_{i,t}$	0.053	0.053	0.018	0.017
	(0.050)	(0.035)	(0.059)	(0.036)
$Old_{i,t}$	0.019	0.018	0.048**	0.048**
	(0.019)	(0.018)	(0.021)	(0.021)
$Young_{i,t}$	0.056***	0.057***	0.033*	0.031***
	(0.019)	(0.018)	(0.018)	(0.012)
$GDPpc_{i,t}$	0.032**	0.032*	0.039***	0.038***
	(0.014)	(0.017)	(0.014)	(0.012)
$Growth_{i,t}$	-0.033	-0.033	-0.072***	-0.072**
	(0.024)	(0.028)	(0.027)	(0.034)
$ToT_{i,t}$	0.113***	0.113***	0.115***	0.115***
	(0.019)	(0.040)	(0.021)	(0.041)
$Credit_{i,t}$	-0.031**	-0.031***	-0.035***	-0.035***
	(0.012)	(0.010)	(0.011)	(0.012)
$FuelExp_{i,t}$	-0.007	-0.006	-0.002	-0.003
	(0.007)	(0.006)	(0.007)	(0.005)
$KAOpen_{i,t}$	0.123	0.126**	0.069	0.062
	(0.085)	(0.058)	(0.088)	(0.069)
$OrigSin_{i,t}$	-0.031	-0.031	-0.060*	-0.060**
	(0.026)	(0.026)	(0.034)	(0.028)
$Eurocrisis_{i,t}$	2.384***	2.395***	1.844***	1.836***
	(0.620)	(0.630)	(0.444)	(0.329)
Constant	-0.509		-0.476	
	(0.454)		(0.450)	
Kleinbergen-Paap F	—	32.89	—	37.74
10% max IV relative bias	—	16.38	—	16.38
p	0.000	0.000	0.000	0.000
N	814	814	815	815

Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

the first stage regression are in the Appendix.

5 Case Study: Germany After Reunification

To supplement these quantitative analyses, we further explore the causal mechanism behind our results with a case study. The persistence of current account deficits implies that within-country variation on the dependent variable is limited. Germany is at the center of the current discussions about mercantilism and eurozone imbalances, with prominent interpretations ranging from the effect of ordoliberal ideas on policy (Matthijs, 2016) and distributive conflict over adjustment (Frieden & Walter, 2017). Unusually, it also offers a rare case of substantial, exogenously induced variation that we can exploit. The only other cases are Finland and Sweden, as shown in Appendix Figure 1, but their current account deficits prior to 1990 were almost entirely due to large public deficits that were subsequently eliminated. Change in wage bargaining was gradual (Iversen, 1999, pp. 141–159) and too small to affect the quantitative indicators used here. Unfortunately, we are not aware of a deficit country that experienced similar variation, so that we cannot offer a "mirror image" deficit case—the closest are the resource boom phases of Australia and Canada, but they retain negative current account balances even during these years.

West Germany posted consistent current account surpluses until 1989 despite having a fully floating currency, but then experienced nearly a decade of current account deficits. Following a period of considerable internal adjustment, the now reunified Germany's current account swung back into surplus. The relationship between the current account surplus and the nominal value of the currency is weak. The Deutsche Mark appreciated vis-à-vis the USD during the latter half of the 1980s, yet West Germany's current account surplus continued to grow and peaked at 5 percent of GDP in 1989. (West) Germany until 1990 therefore represents the archetypical persistent-surplus economy in our framework.

What permits us to examine our causal mechanism is that Germany is unique in receiving a clearly exogenous shock in the form of reunification in 1990. Although East Germany's productivity was only a fraction of West Germany's, the treaty on the union of currency, economy, and

social systems *(Währungs-, Wirtschafts- und Sozialunion)* stipulated an exchange rate of 1:1 for wages, salaries, pensions as well as small savings. Crucially, at the insistence of West German unions, East German wages would be adjusted to 100 percent of the West German level by 1996, and the West German tariff system expanded to the newly admitted provinces within two years, bringing them into the fold of coordinated wage bargaining.

In consequence, Germany suffered an increase in the real effective exchange rate of about 20 percent within five years, coupled with a demand shock that boosted West German GDP growth to 4.6 percent in 1990. Overall inflation was low at 2.8 percent, but this figure obscured high wage settlements in key industries in West Germany.

When the surge in demand subsided, East and West German employers faced wage settlements that either exceeded productivity gains (in the West) or were wholly unrelated to them (in the East). Extension of these settlements to the public sector implied an additional fiscal burden. Real economic growth averaged only 1 percent, earning Germany the name of "sick man of Europe." Unemployment soared to 10 percent, most of which was concentrated in the East: employment in the East German metalworking industry fell from 943,000 to 204,000 between 1990 and 1993 (Ohl, 2009, p. 629).

Faced with a relative loss of competitiveness, symbolized by the unprecedented current account deficit close to 2 percent, German employer associations sought lower wage settlements. This reflected the usual conditions of coordinated wage bargaining, in which wage increases are primarily related to the price signals that firms receive from international markets, as we outline above. In Germany, the metalworking sector unions and employer associations representing globally oriented machine tools and vehicle industries in the country's southwestern regions set the pace for the rest of the economy (Iversen, 1999, p. 160). Typically, wage settlements are negotiated for whole industries, but separately by region *(Bundesland)* (Bispinck, 2007). The union peak federations regularly calculate the size of the "pie," consisting of overall inflation and hourly labor productivity gains in the past year, that can be divided between employers and employees, even though these are at best suggestive in a globalized economy.[8]

[8]We do not dispute that the expansion of a low-wage sector has depressed demand , but this sector is by definition

In the mid-1990s, unions and employers cooperated to preserve employment in exchange for essentially stagnant real wages. Moreover, the role of "works councils" consisting of representatives of unions and employers increased, as firms and employees sought consensual decisions on wages relative to productivity (Carlin & Soskice, 2009, p. 72).[9] Nonetheless, it took time for information on international competitiveness to work its way through the system. Manufacturing employment decreased by almost 15 percent between 1991 and 1994. The last excessive wage settlement (from the point of view of international competitiveness) was reached in February 1995 after a two-week strike in the metalworking industry. Only in 1996 did the two-year collective agreement lock in considerable wage moderation in exchange for job guarantees. In addition, employers and unions struck "Pacts for Employment and Competitivenes" *(betriebliche Bündnisse zur Beschäftigungs- und Wettbewerbssicherung)* More than half of these agreements in the 120 biggest German manufacturing companies entailed income cuts, retrenchment of bonuses, and in many cases longer working hours (Hassel & Rehder, 2001, p. 8).

Why were such job protection pacts attractive for employers and employees in a coordinated wage bargaining system? Such pacts are partly endogenous to the economic structure of economies with highly coordinated systems. Coordinated systems favor sophisticated manufacturing industries in which employees and employers have an incentive to invest in company-specific skills. This correlates with relatively high costs of dismissal and strong employment protections. Employees are more likely to invest in company-specific skills if they are likely to retain their position even in an economic downturn. By comparison, in a highly deregulated labour market, employees will try to improve general skills that improve their job mobility. To the extent that employers benefit when workers become more productive because they have acquired company-specific expertise, they will therefore accept high firing costs. By extension, employers will also often prefer to retain

weakly unionized. In the exposed sector, the coordination *Überbau* persists and functions effectively. Moreover, since 2009 real wages and domestic consumption have been growing. This puts us close to Thelen (2014) who emphasizes the continuities in German industrial relations.

[9]Note that works councils do not bargain over wages or employment conditions, but they play a crucial role in facilitating the information flow between management and unions, because works council representatives on the company board have access to all the firms' accounting data.

workers rather than lay them off, provided they can keep wage costs in line by flexibly reducing working hours.

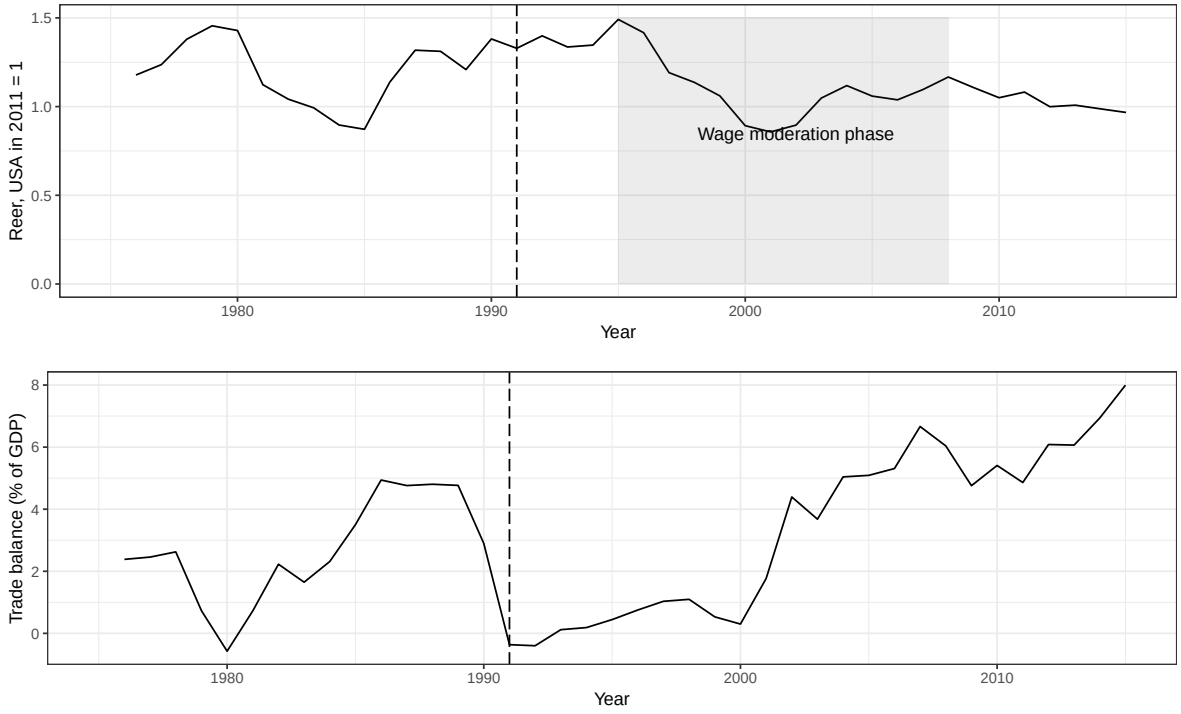
The "coordination" aspect of such pacts at first appears limited. In practice, however, industry-wide collective bargaining agreements have become a ceiling that only the most profitable companies reach. Less successful companies then resort to pacts to lower personnel costs relative to the agreement, a measure requiring "opening clauses" conceded by German trade unions during the second half of the 1990s (Lehmann, 2002, pp. 236–238).

Although quantitative studies of the direct effect of such jobs pacts are lacking, case studies (Büttner & Kirsch, 2002) show a similar pattern: By 1994/1995, the employers in question had begun to reduce their headcount in response to operational losses, prompting workers to propose bargains to secure the employment, typically negotiated in 1996 and 1997. The timing of these pacts is important, as they clearly predate the *Agenda 2010* and the "Hartz Reforms," which primarily reduced unemployment insurance payments and introduced elements of "welfare-to-work", and generally either coincide with or precede the adoption of the euro by a year or two (Dustmann, Fitzenberger, Schönberg, & Spitz-Oener, 2014).

Pacts were not limited to the manufacturing sector. A central element of the coordination in German wage bargaining is that the collective agreements in the exporting industries set the ceiling for agreements in other sectors as well. However it appears that more pacts were concluded in mature manufacturing industries than in services, very few in the public sector, and none in "new" industries such as software engineering (Heidemann, 2005, p. 13).

These developments are evident in the evolution of Germany's real effective exchange rate and the trade balance as shown in Figure 4. The dashed line indicates the year of German reunification. The wage moderation phase that began in 1995-1996 (shown in the upper panel) helped reduce the real effective exchange rate by almost 40 percent. The German trade balance shown in the lower panel moved from nearly –2 percent to a historical high of 7 percent between 2000 and 2007, even though the euro nominally appreciated over 44 percent against the USD in the same timeframe. This underscores that the link between the nominal exchange rate and the current account balance is tenuous. In fact, much of the increase in Germany's real exchange rate after 2003, despite

Figure 4: Germany's real effective exchange rate and trade balance, 1976-2015



ongoing wage moderation, may be attributed to movements in the euro's external value: Chronic weakness in demand in much of the post-crisis Eurozone and ECB policies have resulted in a weak Euro, which in turn boosts German surpluses with countries outside the Eurozone.

Note that the implementation of the Agenda 2010 and Hartz reforms between 2002 and 2005 came after the wage moderation phase and coincided with an increase in the real exchange rate. This suggests that wage moderation, rather than an expansion in the low-wage sector, was the main contributor to the trade surplus. It is also noteworthy that the Bundesbank had begun to lower interest rates in 1993 while unions were still negotiating large wage increases, whereas in normal times, interest rates would be raised to signal a willingness to prevent wage-push inflation (Franzese & Hall, 2000). Following reunification, Germany was temporarily pushed out of its institutional equilibrium. Limited liberalization and the creation of a low-wage sector notwithstanding, it returned to its institutional equilibrium in the late 1990s.

The German case therefore illustrates our causal mechanism. Countries with coordinated wage-bargaining institutions tend to run persistent current account surpluses in their institutional equilibrium. Given an exogenous shock to competitiveness, the same institutional mechanism also allows for wage moderation, which restores competitiveness and thus moves the current account back into surplus. The consequence is, of course, that such countries must export their way out of recessions, because wage moderation delays an increase in domestic demand until export earnings wind their way through the economy.

6 Conclusion

This paper sheds new light on the origins of global financial imbalances. These imbalances are among the most important determinants of international financial crises and present one of the most urgent policy problems for the current liberal world order (Copelovitch & Singer, 2016). In this debate, analysts often see surplus countries as mercantilists and deficit countries as spendthrifts that manipulate exchange rates and promote too little or too much consumption or too much or too little saving. Although the studies identify very different policies as decisive, a common theme of

all analyses is the focus on short- or medium-term government policies.

As our paper emphasizes, such imbalances are not a temporary phenomenon but, rather, have characterized the international economy for a long time. To account for these highly persistent current account deficits and surpluses, we concentrate on the effect of wage bargaining systems, which strongly determine how relative labor costs evolve among OECD economies. We find that countries with a more coordinated wage-bargaining system are able to moderate export price changes in response to economic shocks more effectively than countries with a less coordinated system. This means that a continuously slower increase in relative export prices translates into a favorable trade balance and, hence, current account. We also find evidence that flexible exchange rates are no panacea in that they do not automatically lead to balanced current accounts. Our results are not as stark as the assessment of Chinn and Wei (2011, p. 183), whose "key finding is an utter absence of any robust association between the de facto nominal exchange rate regime and the speed of current account adjustment" but they suggest that fixed exchange rate regimes are not to blame for current account imbalances among OECD countries.

Our findings also offer a new perspective on the distributional consequences of the liberal international order with its open trading system (Bechtel & Sattler, 2015). It is likely that countries with coordinated wage-bargaining systems successfully slow down the pace of their own industrial transformation from manufacturing to services. They continue to export manufactured goods to countries with less coordinated wage-bargaining systems that are undergoing a much more pronounced transformation and where the manufacturing sector is shrinking rapidly (Hays, 2009, p. 94). This loss of manufacturing jobs potentially fuels populist anger at the "mercantilist" trade partners and turns the mood against free trade in many manufacturing industries (Owen, 2016; Owen & Quinn, 2016, p. 104; Jensen & Rosas, 2016). Insofar as wage-bargaining systems help some countries retain manufacturing jobs at the expense of others, persistent imbalances are the manifestation of an intense political conflict.

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