Introduction

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Lack of international competitiveness has emerged as a prominent explanation of the high current account deficits and rising private and public indebtedness that are **at the root of the euro crisis**.[1] The southern euro-area member states are thought to have overspent before the crisis and now lack competitiveness, while the northern member states implemented structural reforms and restrained wage increases. Hence, large economic imbalances have accumulated and wages are a crucial variable for overcoming the economic crisis which has paralysed the European economy for over seven years.

However, the role of wages is ambivalent. On one hand, they are an important component of production costs and therefore affect profitability and competitiveness. On the other hand, wages are spent on consumption and therefore affect effective demand. Both dimensions contribute to the volume of employment and general welfare. **A priori it is not clear which aspect dominates**.

Moreover, it is impossible to say whether wages are competitive without comparing the overall productive capacities of an economy. This puts wage determination in the context of economic growth theory. If wages are an important part of production costs, they must be related to the production process, technological progress and productivity developments. Thus, the accumulation of capital, skills and knowledge, innovation, R&D and the broad conditions of the legal and political environment will play an important role in determining the right level of wages. In other words,

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1. See European Commission (2014); Chen *et al.* (2013); CESifo (2013); Sinn (2013); European Commission (2010), Guerrieri and Esposito (2012); Flassbeck and Spiecker (2010). For a critique see Collignon (2014).

competitiveness is not just explained by wage bargaining, but also, and maybe even more importantly, by the factors contributing to capital accumulation.

This insight opens up new perspectives for determining wage strategies in the euro area. We will develop a method for measuring the equilibrium wage levels for member states and their economic sectors in the euro area. Our equilibrium wage is not a market clearing wage, as in models of the 'natural rate of unemployment' or the NAIRU, but the wage level at which all sectors in the euro area would be on a balanced growth path.

We define 'competitiveness' as the relation of actual wages to equilibrium. When a country or economic sector operates with wages higher than the equilibrium level, we say it is overvalued and suffering from competitive disadvantages; by contrast, when wages are lower than equilibrium, the sector has a competitive advantage. Because the equilibrium wage is determined by productive capacities in a broad sense, our concept of competitiveness includes elements of non-price **competitiveness.**[2] Hence, the policy implications of our approach go beyond structural reforms that reduce nominal and real rigidities. Our methodology allows us also to take a fully integrated European approach rather than falling into the trap of rigid and dysfunctional national labour market discussions.

Two opposing wage strategies have been suggested in order to overcome the euro crisis. Mainstream orthodoxy, as defended by the European Commission, has argued that because the exchange rate is no longer an adjustment tool in the euro area, nominal wages must be reduced in order to restore competitiveness. Austerity **policies are meant to accomplish this task**.[3] However, if the equilibrium wage rises, wage reductions are not necessary to restore competitiveness. In this case, austerity may actually prevent improvements in competitiveness because it not only adjusts domestic costs and prices relative to foreign competitors, but also depresses demand in the non-tradable sector, with negative effects for investment and productivity. Greece is a salient example of this.

Alternatively, some heterodox papers have recently suggested a strategy of wage-led growth to overcome the effects of austerity in Europe. They have observed a significant correlation between the reduction in the wage share and low economic growth and conclude that, inversely, higher wages would increase growth and employment (Stockhammer 2015; Onaran and Obst 2015). However, we will show that when the productivity of the local capital stock remains behind the euro area benchmark, this reduction in local wage shares is necessary to maintain equilibrium. In a context in which wages are already above the equilibrium, wage-led growth

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2. 'The differences in export performance of some Member States over the decade preceding the crisis are in fact difficult to explain solely on the basis of measurable price and cost considerations. Non-price competitiveness is difficult to assess as it depends on a range of factors such as product quality or technological content, after-sale services or distribution services and cannot be captured in a single indicator. However, structural factors such as sectoral or technological specialization played a role in the observed divergence of Member States' export dynamics' (European Commission 2010: 9).

3. 'Large losses in competitiveness combined with persistent accumulation of large current account deficits cannot be sustained forever and can be reversed only at the cost of protracted periods of painful adjustment' (European Commission 2010: 1).

strategies would be counterproductive, but they may be appropriate when wages are significantly below equilibrium.

Hence, in order to judge correctly the role of wages in a strategy to overcome the euro crisis, it is necessary to assess cost competitiveness in Europe by determining equilibrium wages. This is the purpose of this paper.

The shortcomings of unit labour cost approaches to measuring competitiveness

There are many ways to measure competitiveness. International institutions frequently use real effective exchange rates or indices for unit labour costs (ULC).[4] However, all indices suffer from the assumption of an arbitrary base year at which all countries start from supposedly equal conditions. This approach ignores that substantial disequilibria may prevail at the moment when the index starts, so that the future evolution might reflect the adjustment of levels toward the equilibrium.
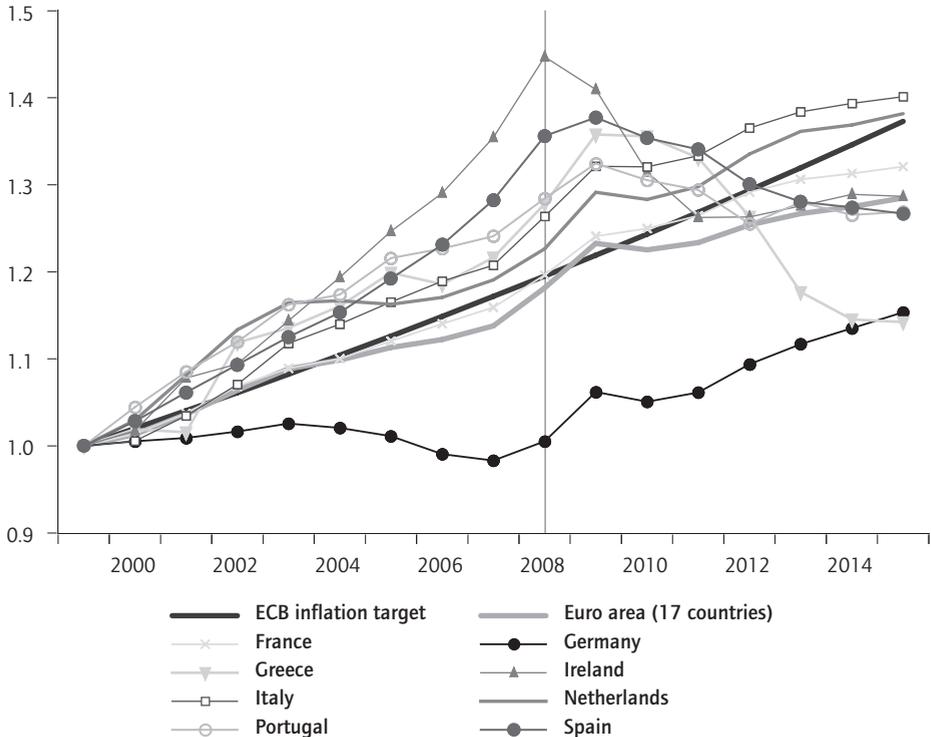
A typical example of the fallacious use of indices is provided by Figure 1, which shows the index of unit labour costs for some selected euro area member states, with 1999 as base year (the year when monetary union started). The thick red straight line represents the 2 per cent price stability target of the ECB and the blue curve the average performance of the euro area. There is a clear divergence in unit labour costs between northern and southern member states. While the average performance was close to the ECB target, unit labour costs have stagnated in Germany and exceeded the ECB target in the crisis economies. But how do we know whether Germany was not just correcting previous overvaluations, or whether the south has been catching up with euro-standards? A proper assessment must have an equilibrium condition against which one can evaluate actual performances.

An index shows *cumulative changes*; it says nothing about the *level* of relative costs and whether they reflect an equilibrium or disequilibrium in the arbitrarily chosen base year. In order to circumvent the arbitrary base year problem, some economists have divided the unit labour costs index by a long-run average of 40 decades (see Wyplosz 2013). While this approach dampens the distortions, it remains an ad hoc and a-theoretical assumption. The proper approach would be an index that shows the *absolute levels* of relative wage cost competitiveness.

One way to solve this problem is to derive the equilibrium from the assumption that in perfect markets the return on capital in a given country ought to be equal to the return of competitors, or, more generally, that the specific return on capital of a sector or country is equal to the average return for the euro area as a whole (see Collignon and Esposito 2014). This is, of course, only a theoretical benchmark and not a description of facts, but it allows measuring the handicap of attracting

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4. The usual measures are indices for real exchange rates, based on relative prices of commodities and export baskets converted by given exchange rates. See: Eurostat (http://ec.europa.eu/eurostat/en/web/products-datasets/-/TSDEC330), OECD (http://stats.oecd.org/Index.aspx?querytype=view&queryname=168) and IMF https://www.imf.org/external/pubs/ft/fandd/2007/09/pdf/basics.pdf).

Figure 1   **Unit labour costs index since 1999**

investment to particular sectors or countries. With free flow in the European market, capital ought to be invested where it yields the highest return, while diminishing **returns will erase this advantage over time.**

We have developed this method in previous work for calculating equilibrium unit labour costs in the euro area, using Eurostat and Ameco data before 2015 (Collignon 2013); Collignon and Esposito 2014). The methodology showed differences in unit labour cost *levels*, although our calculation of nominal equilibrium unit labour costs was still dependent on the price index. However, with the shift of the base year of the GDP deflator to 2010, we found that some important inconsistencies in **time series have emerged.**

Nevertheless, these difficulties can be circumvented when we reformulate the equilibrium concept for the *nominal wage level* and not for nominal unit labour costs. This is what we present in this report. It will explain the new concept and **show how wage competitiveness depends on nominal wages and on the intricate** dynamics of equilibrium wages. Our new formulation incorporates also a measure for *real* equilibrium unit labour costs.

The debate on wage competitiveness usually focuses on aggregate data for member states of the European Union. However, aggregate indices have been criticised from several angles. Felipe and Kumar (2011) have summarised the critique as follows:

'Current discussions about the need to reduce unit labor costs (especially through a significant reduction in nominal wages) in some countries of the eurozone (in particular, Greece, Ireland, Italy, Portugal, and Spain) to exit the crisis may not be a panacea. First, historically, there is no relationship between the growth of unit labor costs and the growth of output. This is a well-established empirical result, known in the literature as Kaldor's paradox.[5] Second, construction of unit labor costs using aggregate data (standard practice) is potentially misleading. Unit labor costs calculated with aggregate data are not just a weighted average of the firms' unit labor costs. Third, aggregate unit labor costs reflect the distribution of income between wages and profits. This has implications for aggregate demand that have been neglected.'

In this report we go beyond the determination of aggregate unit labour costs and shall calculate nominal equilibrium wages and a competitiveness index representing the ratio of actual to equilibrium labour compensation for 30 sectors in the major EU member states for which data are available. We will calculate two benchmark measures: equal return on capital with regard to the euro area and equal return on capital with regard to the European average of a specific sector.

In section 1, we explain the methodology behind our concept of equilibrium wages and present evidence for aggregate data. In section 2 we present sectoral data and our calculated equilibrium wage levels. Section 3 discusses factors for **change in sectoral competitiveness and shows some econometric evidence on the** determinants of our competitiveness measure. Section 4 concludes, drawing some policy conclusions.

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5.   See Kaldor (1978).