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Unit Labour Cost and Unit Capital Cost Indicators in Slovenia and the other Euro Area Countries

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Abstract: Prices and costs are often the main points of interest in a typical competitiveness analysis. If studying prices cover the inflation and exchange rate perspectives, studying costs usually covers the relationship between labour costs and labour productivity. Strictly focusing on the labour side within the cost analysis does not offer a complete cost-overview of the production process. In this paper we try to complement the toolbox for assessing competitiveness in Slovenia and the rest of the euro area countries by constructing a unit capital cost index (UKC).

Keywords: unit capital cost; unit labour cost; competitiveness; nominal wages

JEL classification: D31, D33, E25, J30

Kazalniki stroškov dela na enoto in stroškov kapitala na enoto v Sloveniji in drugih državah evrskega območja

Povzetek: Cene in stroški so pogosto najpomembnejše točke v tipični analizi konkurenčnosti. Če študijske cene pokrivajo inflacijske in tečajne perspektive, stroški študija običajno zajemajo razmerje med stroški dela in produktivnostjo dela. Strogo osredotočanje na delovno stran v analizi stroškov ne ponuja popolnega pregleda stroškov v proizvodnem procesu. V tem prispevku skušamo dopolniti orodje za ocenjevanje konkurenčnosti v Sloveniji in ostalih državah evro območja z izgradnjo indeksa stroškov kapitala na enoto (UKC).

Ključne besede: stroški kapitala na enoto; stroški dela na enoto; konkurenčnost; nominalne plače

JEL klasifikacija: D31, D33, E25, J30

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1 Introduction

Analysing competitiveness of a country usually leads us to study the measure of unit labour costs (ULCs) per unit of output. Looking at the share of labour in the production process (compensation of employees per gross value added), it amounts to a maximum of 60-65% for most developed countries, while for less developed countries the labour share is even lower. In this respect, a large share of the production process is unobserved when studying competitiveness only through labour costs. The aim of this paper is therefore to broaden the scope of available analytical tools in order to study competitiveness in Slovenia and the rest of the euro area by constructing a unit capital cost (UKC) indicator, based on the methodology proposed by Kumar and Felipe (2011). We believe that relying on a unit labour cost index (ULC) is not sufficient enough for giving policy recommendations that advocate wage moderation since the labour share in value added is only slightly higher than the capital share in value added in euro area countries.

The results vary across countries; however, some general conclusions can still be made. The dynamics of both indexes through time are more stable and share a common path in more developed countries. In less developed euro area countries, the periods of divergence of both indexes are more evident, especially in countries that were hit the most by the global financial crisis. This was mostly due to limited wage growth in these countries.[1]

The structure of the paper is as follows. In section 2 we provide an overview of nominal wage growth and the ULC dynamics across euro area countries. In section 3 we construct the unit capital cost index, while in section 4 we offer a comparison of the ULC and UKC indexes in euro area countries. In section 5 we conclude.

2 Overview of the nominal wage growth and ULC dynamics in the euro area

In this section we discuss the motivation of the paper in more detail by examining some stylised facts of competitiveness in the labour market in the euro area and provide the reasoning behind the implementation of the unit capital costs index (UKC).

There are many measures of monitoring the international competitiveness of a particular country, however, by far the most popular and influential measure is the growth in relative unit labour costs (ULCs) (Fagerberg, 1988).[2] Thus, monitoring nominal wage growth plays a key role in competitiveness determination. Nominal wage growth dispersion has been quite volatile in Europe from the mid 90's on.[3] This dynamic is presented in figure 1. The unweighted standard deviation of the nominal wages across the euro area countries has been on a clear downward trend in the 90's as it fell from 10 percentage points to around 3 percentage points in the beginning of 2000's.[4] The decrease of nominal wage dispersion was more or less due to the fact that most European countries entered the ERM system in 1999. The decline in the nominal wage growth dispersion was accompanied by a decline in the inflation dispersion. The nominal wage growth dispersion stayed relatively low until the beginning of the overheating period in most euro area countries that started in 2005. Several countries, especially the less developed ones, experienced high nominal wage growth during this period. The high nominal wage growth trend abruptly ended at the start of the global financial crisis. In the post-crisis period, the nominal wage growth dispersion steadied at around 2 to 3 percentage points as countries that were affected by the crisis had gone through labour market reforms, limiting wage growth as one of a variety of structural measures that were implemented during the crisis.

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1 The reasons behind wage growth restrictions were also restrictive labour market reforms during financial crisis.

2 The indicators of competitiveness span from economic performance, profitability, single-factor and complex composite indicators (Fagerberg, 1988).

3 Nominal wage growth is defined as the change in compensation of employees, while we use data from a constant panel of all euro area countries (except Malta) despite different entry dates of the euro area candidates during the observed period.

4 Andersson et al. (2008) provide more on stylised facts with respect to wages in the 90's and beginning of 2000's.

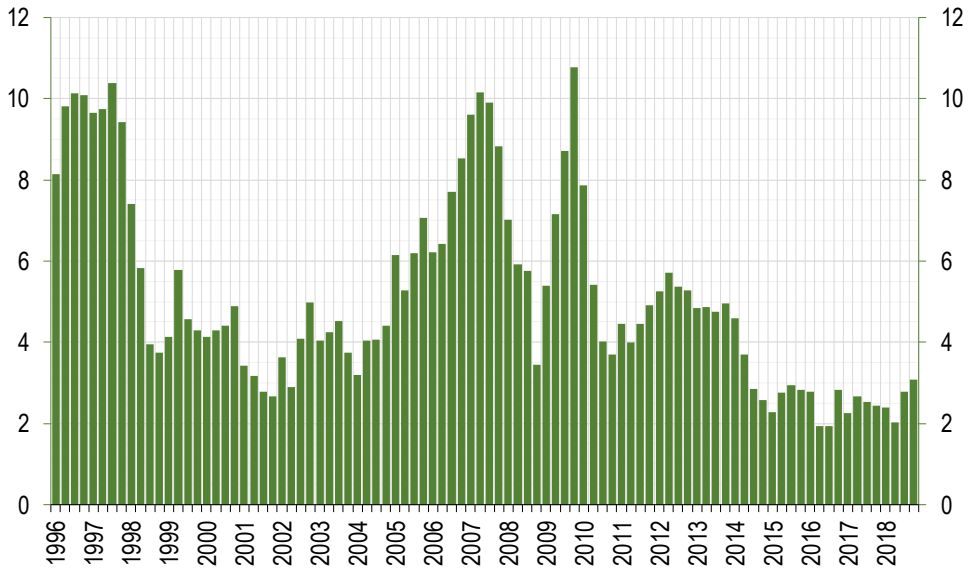

Figure 1: Unweighted nominal wage growth dispersion in the euro area – standard deviation through time (in p.p.)
Source: Eurostat, own calculations.

Figure 2 backs up the story of high nominal wage growth rates during the overheating period, especially in the new member states (NMS) and partially in periphery countries. On the other hand, the core countries experienced a more stable nominal wage growth rate.[5] With the beginning of the financial crisis the high nominal wage growth and high inflation trend was disrupted, as high wage growth figures for most of the euro area countries slowed down significantly. Even more so, a majority of the peripheral countries experienced negative wage growth in the financial crisis period. In the recovery period, despite the low inflation environment, somewhat higher nominal wage growth rates were restored, but these did not reach the pre-crisis growth levels.

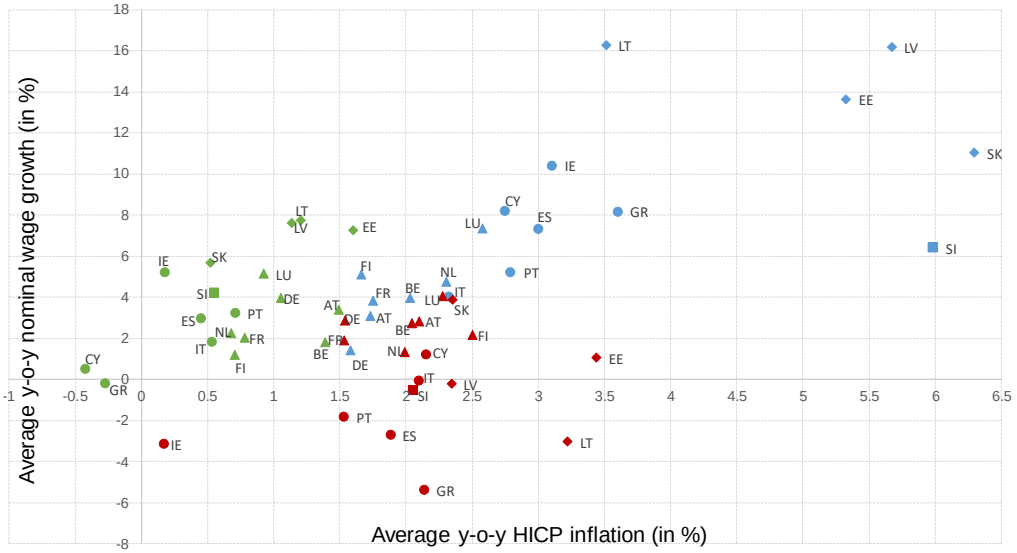

Figure 2: Average y-o-y nominal wage growth vs. inflation in the euro area[6]
Source: Eurostat, own calculations.

[5] In this analysis the NMS countries are Estonia (EE), Latvia (LV), Lithuania (LT), and Slovakia (SK). The periphery countries are Cyprus (CY), Greece (GR), Ireland (IE), Italy (IT), Portugal (PT), and Spain (ES). The core countries are presented by the following countries: Austria (AT), Belgium (BE), Finland (FI), France (FR), Germany (DE), Luxembourg (LU), and Netherlands (NL). Slovenia (SI) is not counted in in these groups.

[6] Note: Blue colour represents the average values in the pre-crisis period of 1997Q1-2008Q3; the red colour represents the average values of the crisis period of 2008Q4-2013Q3; while the green colour represents the average values of the post-crisis period of 2013Q4-2018Q3. The squares represent Slovenia; the diamonds represent the NMS countries (EE, LT, LV and SK); the circles represent the periphery euro area countries (CY, ES, GR, IE, IT and PT); the triangles represent the core euro area countries (AT, BE, DE, FI, FR, LU and NL).

A general perception amongst policy makers is that high wage growth rate can become a liability for economies from a decreased competitiveness perspective if the wage growth rate is not backed up by at least equal productivity growth rate. One of the possible tools to measure this is the unit labour cost index (ULC). ULCs are defined as the ratio of a worker's total compensation to labour productivity.[7] The intuition behind the labour cost theory is quite simple. It states that the labour costs should not increase faster than the labour productivity on a permanent basis (Mertsina and Jänes, 2012), as this could hamper an economy's competiveness relative to other economies, and *vice versa*. Lower ULC growth dynamic in comparison to other economies would make the economy more competitive.[8]

Figure 3 represents the dynamics of the real ULCs across euro area countries and their components, i.e. real productivity and real compensation of employees. In general, with some exceptions most of the euro area countries experienced a downward trend in the real ULC dynamics after the crisis. This is particularly evident for the periphery countries as the financial crisis hit them the most. Most of the countries also carried out structural labour market reforms that additionally slowed down the nominal wage increase (see Figure 2 as well), thus making them more competitive from the labour cost point of view.[9]

Firms track the relationship between their total labour costs and how productive their employees are. If ULCs increase, and even more so *vis-à-vis* their competition, firms are more likely to lose their market share and competitiveness. The solution to tackling this problem is twofold. Firms may choose between restricting growth of wages and boosting labour productivity (or a combination of both).

The need to regain competitiveness in the euro area has taken centre stage amongst the economic policy makers in the crisis and especially the post-crisis era. The competitiveness issue is especially important for the likes of periphery or NMS countries. No matter the severity of the financial crisis in a particular economy, the general perception is that most of these countries suffered from a competitiveness problem, as the notion of workers being too expensive, especially given their labour productivity, still wanders around. Due to the absence of monetary policy independence in the euro area, the devaluation through the nominal exchange rate is no longer possible. The adjustment process has to come through the labour market via wage increase/decrease. Consequently, economic policy discussions have focused on thorough analyses of ULCs. The so-called competitiveness gap, particularly against Germany and other core countries, requires downward adjustments or at least limiting the growth of relative wages in periphery and NMS countries, thus implementing internal devaluation.

7 The ULC methodology has been developed further, but this is beyond the scope of this paper. Lozej (2013), by using the Collignon (2012) method, replicates the computation of an equilibrium competitiveness indicator.

8 This is even more important for smaller open economies that depend on their exports and do not have a large domestic market.

9 Growth in nominal wages cannot be completely explained by the growth of productivity. We have to consider other (institutional) factors as well. For instance, Ortiz et al. (2015) provide a good overview of structural reforms and other austerity measures (labour market reforms) that were carried out across countries in the last 10 years.

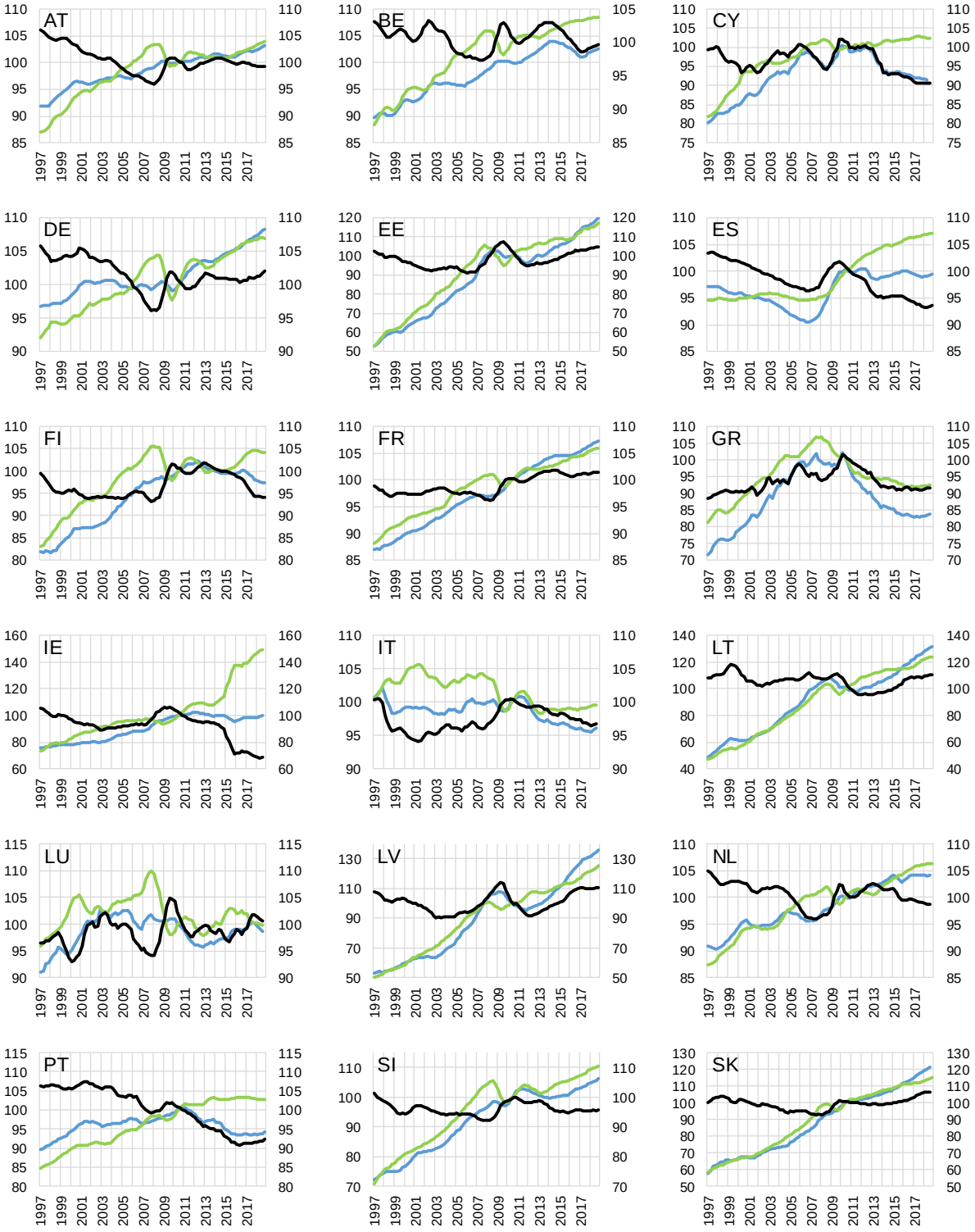

Figure 3: Real ULC indexes (black line) and their components: real compensation of employees (blue line) real average labour productivity (green line) (2010 = 100, moving averages of last 4 quarters)
Source: Eurostat, own calculations.

One of the reasons why the ULCs of the periphery countries and especially the NMS countries were growing faster in comparison to core countries (during the pre-crisis period and post-crisis period) might be the convergence of nominal wages towards core countries. From the Figure 4 it is clear that the levels of nominal wages expressed as

compensation of employees per employee still significantly lag behind in NMS countries and partially in the periphery countries, in comparison to core countries or the euro area average.

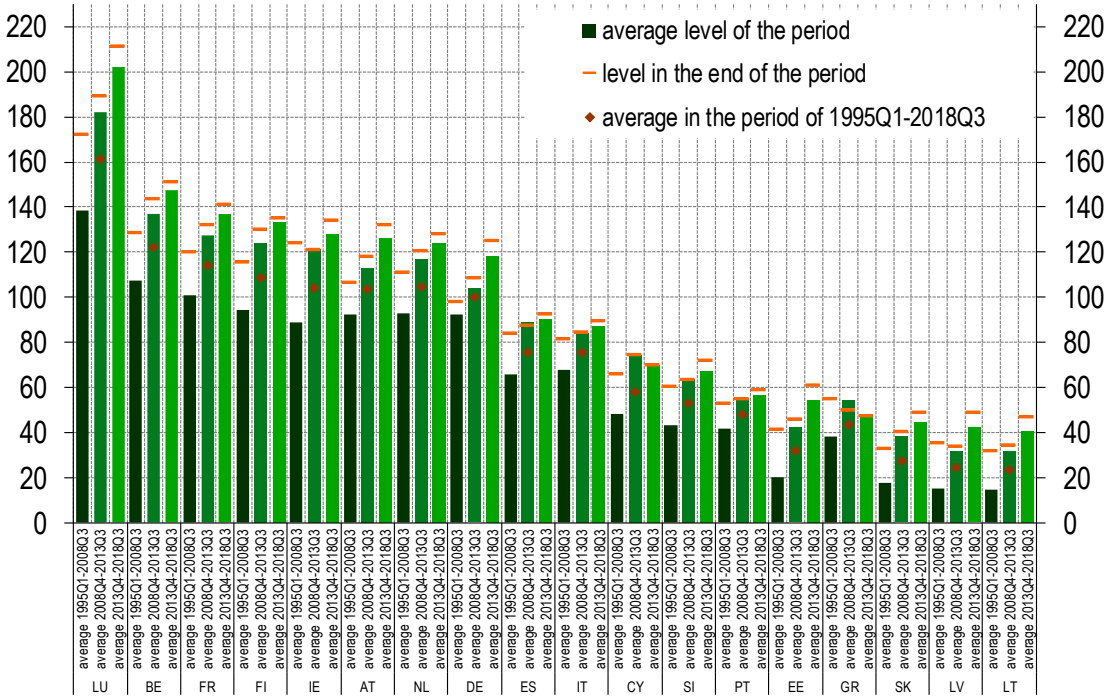

Figure 4: Compensation of employees per employee (EA 2010 =100)
Source: Eurostat, own calculations.

While restricting the growth of wages is relatively easy to implement, stimulating higher productivity is not and cannot happen overnight.[10] Additionally, the productivity determinants are not well known and are difficult to measure. The problem that could arise is the decision regarding the choice of a reliable productivity proxy. In empirical studies total factor productivity (TFP) or average productivity of labour are typically used. Marston (1987), De Gregorio et al. (1994), De Gregorio and Wolf (1994), Chinn and Johnston, (1997), Halikias, Swagel and Allan (1999), Kakkar (2002), and Lojshová (2003) use total factor productivity as a productivity proxy, while, due to the lack of data on TFP, many others, such as Coricelli and Jazbec (2004), and Žumer (2002), use average productivity of labour. In comparison between total factor productivity and average productivity of labour, the argument against the use of the average productivity of labour is that it is not completely clear, whether it should be regarded as a reliable indicator for representing a sustainable productivity growth which has a long term effect on the economy (De Gregorio and Wolf, 1994). However, according to Canzoneri, Cumby and Diba (1999), the argument against using TFP is that it is a result of a possibly unreliable data collection of sectoral capital stocks compared to data collection of sectoral employment and sectoral gross value added, especially in the case of the shorter-term series. Sargent and Rodriguez (2000) also concluded that if the intent of the research is to examine trends in the economy over a period of less than a decade or so, labour productivity might be a better measure than total factor productivity.

In figure 5 we show the average year on year nominal wage growth versus the GDP per employee growth across euro area countries through different periods of time.[11] Some similarities in patterns are observable. In comparison to the core and periphery countries, the NMS countries experienced high nominal wage growth as well as higher productivity growth during the pre-crisis period, thus providing some stylised support for the convergence theory. The productivity and nominal wage growth slowed down significantly and even turned negative during the financial crisis period. As the

[10] However, Blanchard (2007) argues that implementing measures to decrease nominal wage growth might face all sorts of legal and other issues. He poses the question whether workers in countries like Spain, where unemployment affects over a fifth of the labour force, would accept a reduction in nominal wages to maintain their firms' competitiveness and this way keep their jobs.

[11] We use an average labour productivity proxy by taking GDP growth per employee. Other measures could be used as well by taking gross value added per employee.

economies recovered in the last period, so did the growth rate of nominal wages and productivity, but these have not reached the growth rates from the pre-crisis period, despite the fact that some NMS countries are again experiencing relatively strong nominal wage and productivity growth.

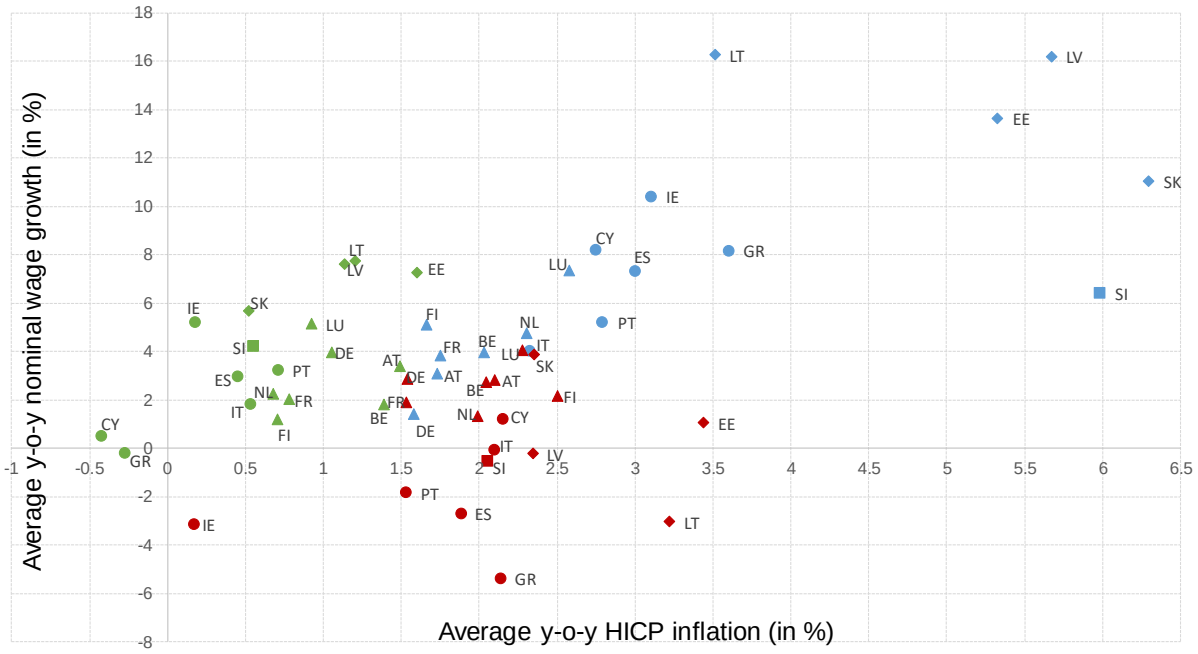

Figure 5: Average y-o-y nominal wage growth vs. GDP per employee growth in the euro area[12]
Source: Eurostat, own calculations.

Syverson (2010), in contrast to quantitative measuring of productivity proxies, tried to gather the productivity determinants in a survey-based analysis. His work classifies the productivity determinants into two groups. First, he collected factors that operate primarily within firms and are under the control of their management layer. These are managerial practices, higher-quality labour and capital inputs, technology, innovation and R&D implementation, and firms' structures. Second, he mentions factors that are external to firms, such as productivity spill overs, level of competition, regulation, flexibility/rigidity of markets. He concludes, however, that it is not completely clear which one of the determinants is more important quantitatively and that further research might be needed.

In discussions amongst policy makers, often the policy recommendations are to increase productivity, particularly the reforming of labour markets. Fagerberg (1988), and Felipe and Kumar (2011) add a key issue to the competitiveness discussion. They refer to Kaldor's paradox (Kaldor, 1978). Kaldor discovers that countries that had experienced the largest decline in their price competitiveness in the post-war era (i.e. highest increase in ULCs) also had the largest increase in their market share. They argue that the belief that low nominal wage growth vis-à-vis productivity growth will restore competitiveness and eventually lead back to higher output growth might be too simplistic and does not have strong empirical evidence. If the argument about the importance of ULCs as a measure of competitiveness were that straightforward, researchers would have found an unambiguous relationship between them and growth rates. However, according to Kaldor, export competitiveness depends on the dynamic evolution of money-wage and productivity. The evidence on the inverse relationship between output growth and the growth rate of ULCs is, paradoxically, inconclusive, because at times researchers have found that the fastest growing countries in terms of exports and GDP in the post-war period have at the same time experienced faster growth in their unit labour costs than other countries, and vice versa. Fagerberg (1996) revisited this enduring puzzle by analysing the period 1978–1994 and concluded that the paradox also holds for this period.

[12] Note: Blue colour represents the average values in the pre-crisis period of 1997Q1-2008Q3; the red colour represents the average values of the crisis period of 2008Q4-2013Q3; while the green colour represents the average values of the post-crisis period of 2013Q4-2018Q3. The squares represent Slovenia; the diamonds represent the NMS countries (EE, LT, LV and SK); the circles represent the periphery euro area countries (CY, ES, GR, IE, IT and PT); the triangles represent the core euro area countries (AT, BE, DE, FI, FR, LU and NL).

Until now, we discussed mostly containing competiveness by monitoring the ULCs. Based on the discussion above, it is clear that just monitoring ULCs would not be sufficient to conclude the complete competitiveness stance of the observed countries. Since ULCs only capture the economy's labour share in the production process, we suggest capturing the economy's capital share in the production process as well. Put differently, if ULCs provide a measure of competitiveness from the workers' side, there is no reason why one could not calculate a parallel measure of competitiveness from the capital side. This way we might get a clearer picture of what is going on in the production process of the economies in the euro area. To complement the above point of view, the shares of compensation of employees, gross operating surplus and gross fixed capital formation per gross value added show the importance of the capital share in the production process (see Figure 6). The shares of compensation of employees per gross value added are higher and more stable in more developed euro area countries.13

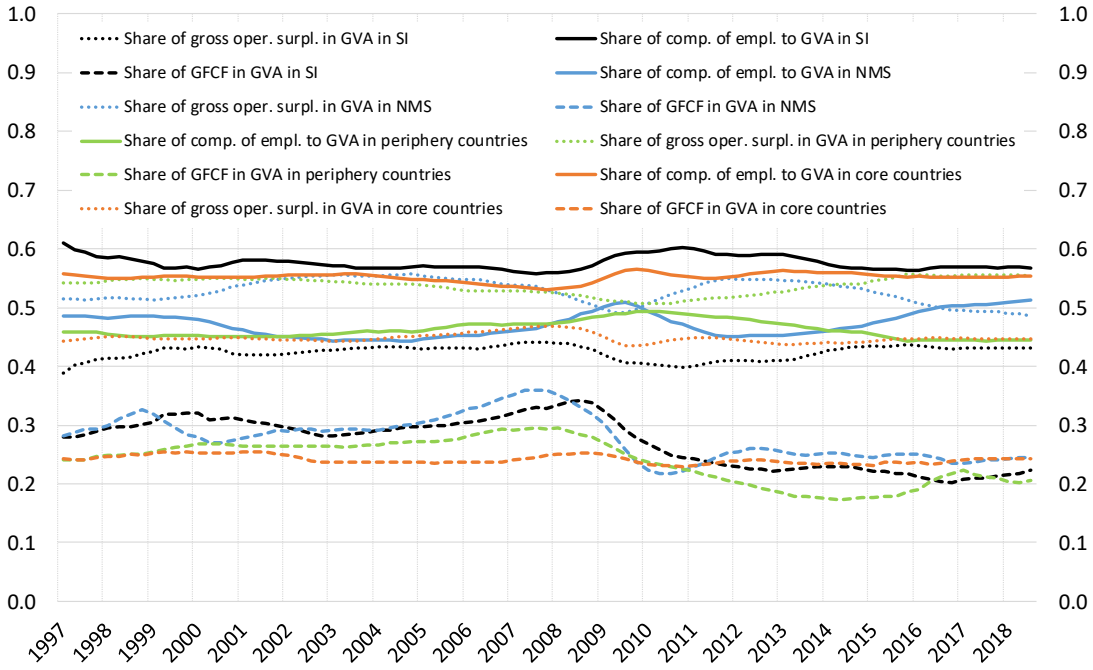

Figure 6: Shares of compensation of employees, gross operating surplus gross fixed capital formation per gross value added in selected group of countries (unweighted average within groups)
Source: Eurostat, own calculations.

However, the literature with respect to unit capital costs is scarce. Kumar and Felipe (2011) proposed a methodology of a unit capital cost indicator (UKC) that is derived from a simple national account representation.[14] Their analysis showed that, in the case of India, policy recommendations that moderate wage growth might be misleading. They base their argument that ULCs are in a declining trend since the 2000s, while the real wages increased only minimally during this period. On the other hand, labour productivity, real profit rate and UKC increased during the same period. They add that a long-term decline in labour share may have important consequences as it induces a decline in consumption, even if an economy is growing. Consequently, a mismatch between supply and demand could arise as the increase in capacity caused by the increase in investment will not be matched by an increase in consumption demand (Kumar and Felipe, 2011). Using the same methodology, Uxó et al. (2014), for example, look at ULC and UKC developments in

13 What is also observable is that before the start of the financial crisis, the shares of compensation of employees per gross value added in NMS and periphery countries were converging toward the core countries. The convergence trend was disrupted by the financial crisis in the less developed countries. However, in recent years, only the NMS countries managed to start converging back to higher core country share levels. The periphery country shares remained low, thus suggesting the pick-up in wages in the NMS countries. Additionally, Kumar and Felipe (2011) report that the share of compensation of employees per gross value added only amounts to 20 percent in India. Consequently, they argue that in the rising ULCs could not be the only reason of losing India's competitiveness.

14 The derivation of the UKC index comes from a simple national account representation, where the nominal gross value added is defined as the sum of labour and capital inputs, so that $VA_n = w_n L + r_n K$. See Kumar in Felipe (2011) for more details.

Greece, Spain and Portugal. They conclude that while ULCs in these countries adjusted to euro area aggregate levels, UKCs and profit margins rose.

3 Construction of the UKC index and its components

Based on the discussion above we construct a unit capital cost measure by following Kumar and Felipe (2011). The UKC index measures capital efficiency in value added. The index is constructed as follows

$$UKC_n = \frac{r_n}{prod_K}$$

$$= \frac{r_n}{(VA_r/K)} = \frac{r_r P}{(VA_r/K)} = P\frac{r_r K}{VA_r}$$

where the variable UKC_n represents the nominal unit capital cost, while the variable $prod_K = VA_r/K$ is the productivity of capital. The index UKC is defined as the price of capital with respect to its productivity. The variable VA_r is real total value added, K is the real capital stock, r_n is the ex post nominal profit rate obtained from the nominal gross operating surplus-to-nominal gross total fixed assets ratio. Variable P is the investment deflator.

In order to express the UKC index in real terms, we rewrite the above equation

$$UKC_r = \frac{r_r K}{VA_r}$$

The intuition behind the UKC index is the similar as for the ULC index. Higher UKC values or the rising UKC trend dynamics would hamper an economy's competitiveness in comparison to other economies. And the other way around, if an economy's UKC index dynamic is lower than of the others, than the economy is gaining its competitiveness against others.

The data entering the UKC index calculation is the real gross value index, VA_r, and the investment deflator, P. Both of the indexes are directly available at Eurostat database. Other components of the UKC index have to be calculated separately. Real capital stock index, K, is proxied by gross total fixed assets in current prices index deflated by investment deflator, P. The real profit rate, r_r, is defined as the nominal profit rate, r_n, deflated by investment deflator, P. The nominal profit rate, r_n, is defined as nominal operating surplus divided by the gross total fixed assets in current prices index. Lastly, the nominal operating surplus is defined as gross value added in current prices in millions of euros subtracted by compensation of employees in current prices in millions of euros. All of the obtained indexes have a base of 100 in 2010. We use non-seasonally adjusted data while the new UKC index has a base of 100 in 2010 as well and is presented as a 4-quarter moving average.

In order to understand the UKC index better we examine the components of the UKC index. Figure 7 presents the dynamics of the calculated real UKC_r indexes for each euro area country through time. The figure also presents the value of capital index ($r_r K$), the capital productivity dynamics ($prod_K = VA_r/K$) and the gross fixed capital formation index that serves as a proxy for capital dynamics (K). Interestingly, capital productivity was relatively low in most countries before the start of the financial crisis. In some countries (for example Estonia, France, Latvia, Lithuania, Spain and Slovenia), the capital productivity even decreased during the pre-crisis period. Only later on (with the start of the financial crisis), the productivity of capital significantly improved in most of the euro area countries. There are several reasons for this. As the financial crisis began, investors' risk aversion increased. At the same time, investors demanded better efficiency per unit of invested capital in the production process. Additionally, the gross fixed capital formation index implies the unsustainable growth of investments before the crisis, i.e. in the overheating period. In the case of Slovenia, Delakorda (2011) largely attributes the unsustainable investment growth to over-investing in construction projects during the overheating period.[15] We believe that similar processes took place in other euro area

[15] Investments into machinery and construction on average accounted for 80% of all investments in the euro area and Slovenia before the overheating period. The construction investments represented 50 p.p., while the investments into machinery and equipment represented the other 30 p.p. in Slovenia. In the overheating period, construction investments rose significantly and at the peak they accounted for 5% of GDP in Slovenia (Delakorda, 2011).

countries, however varied in size across countries. Consequently, the capital productivity ($prod_K$) increase after the start of the financial crisis slowed down or even decreased the UKC index in most of the euro area countries, thus increasing the capital efficiency and its competitiveness.

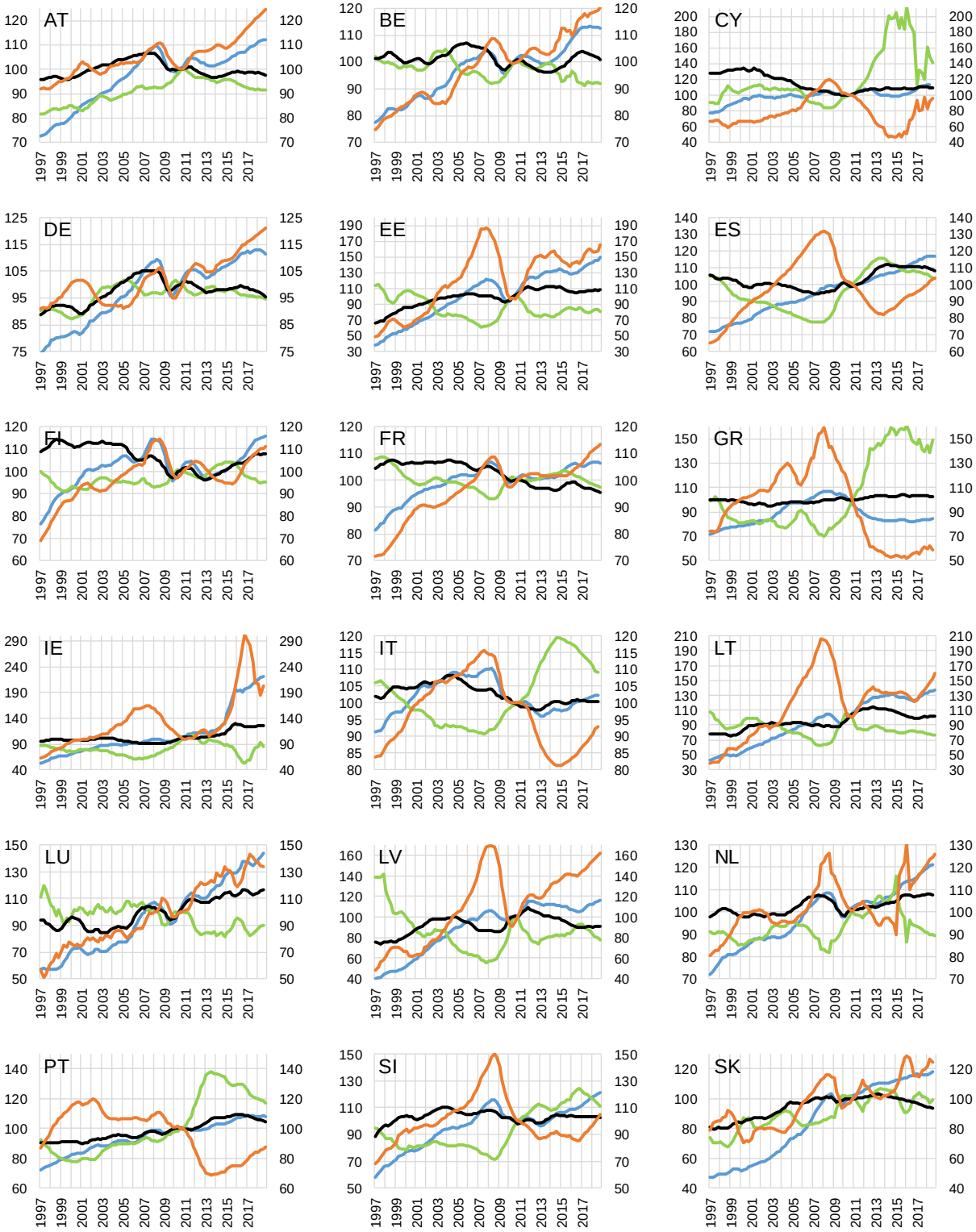

Figure 7: Real UKC indexes (black line) and their components: gross fixed capital formation (orange line), capital value (blue line) capital productivity (green line) (2010 = 100, moving averages of last 4 quarters)
Source: Eurostat, own calculations.

4 Comparing ULC and UKC dynamics and policy implications

The comparison of the UKC index with the ULC index offers a more intuitive perspective of the UKC index within the theory of competitiveness. We compare the UKC and ULC index dynamics as well as comparing the cross-country UKC dynamics within the euro area. Figure 8 presents shows some divergence between both indexes in their dynamics in Slovenia and other euro area countries. If we focus on to the case of Slovenia, the long-term trends of both indexes seem to be relatively similar and stable, but in the short-term some divergence is observable.[16] The first period during which the indexes diverged was a consequence of the accession process of the Slovene economy to the European Union in 2004 and later on into the monetary union in 2007, as Slovenia had to fulfil the Maastricht criteria. In order to keep inflation low, wages were kept low. Consequently, the real ULC index decreased by 5 p.p. in the 2000-2007 period. On the other side, the real UKC index increased by 7 p.p. in the same period. The year 2008 was marked by a public-sector wage reform that corrected the sluggishness of the wage growth in the previous years. In only two years (up to the year 2009) the real ULC index grew by almost 7 p.p., while the real UKC index was already responding to the start of the global financial crisis and consequently decreased by 6 p.p. The period of deviation of both indexes concluded in 2009.

In the other euro area countries, it is clear that for the most developed euro area countries, the dynamics or trend of both indexes is more or less the same through the whole sample period of 1997Q1-2018Q3. On the other hand, the countries (such as Greece, Ireland, Cyprus, Spain and Portugal) which were hit the most by the financial crisis, have significantly decreased the labour costs during the crisis period, while the UKC indexes rose in the same period. This is visible in the figure 8 as both indexes clearly deviate from each other after the years 2011 and 2012 (thus in the height of the sovereign crisis) in the above-mentioned euro area countries. This means that the competitiveness based on labour costs improved as these countries limited wage growth as part of labour market reforms, but at the same time the competitiveness based on capital did not improve. A similar pattern, but not as significant, is observable in Slovenia after 2012, which marks the second period of diverged indexes. In 2012, a structural labour market reform was implemented in a form of wage limiting legislation ZUJF. With the pickup of the Slovene economy and gradual lifting off of wage limiting legislation in recent years, the expectation is that the divergence between the two indexes will decrease in future.

The UKC index was less competitive in less developed countries in the period before the crisis. The productivity and the competitiveness of capital only improved after the start of the financial crisis. In Slovenia, the growth of the real UKC index was amongst the highest in the whole observed period of 1997Q1-2018Q3 with 15.2 p.p., while the unweighted average in the euro area countries accounted for 9.8 p.p. Most of the UKC index growth stems from the transition and overheating periods, as the index increased by 18.9 p.p. In the financial crisis and its aftermath (2008Q3-2018Q3) the real UKC index decreased by 3.6 p.p., suggesting a more competitive dynamic of the Slovene economy, even in comparison to other countries (see Table 1). The dynamics of the Slovene real UKC index in recent years came close to the dynamics of more developed countries such as Germany, Austria and France. On the other hand, the competitiveness of capital, based on the UKC index, is worsening particularly in Ireland and Spain.

[16] Figure 8 displays some symmetricity between dynamics of the ULC and UKC indexes. The reason behind it is that both indexes have gross value added (or GDP) in the denominator, meaning that if the compensation of employees is staggering, while gross value added is increasing, the capital (operating surplus) is growing that much faster. The basic assumption is that the compensation of employees is increasing in line with the growth of gross value added. In this case, the cost of growth in compensation of employees is constant in relative terms to gross value added, which is observable in most developed economies. A complete symmetricity between both indexes would be achieved if we would consider the same price deflators in both indexes, but this is not a realistic assumption.

Figure 8: Comparison of the real (continuous line) and nominal (dotted line) UKC (blue line) and ULC (orange line) dynamics across countries (2010 = 100, moving averages of last 4 quarters)
Source: Eurostat, own calculations.

Table 1. UKC index growth in euro area countries in different periods (in p.p.).

country	1997Q1-2018Q3	1997Q1-2008Q3	2008Q3-2018Q3
EE	42.19	32.84	8.68
IE	30.93	-3.48	33.37
LT	24.25	11.11	12.64
LU	21.65	8.20	14.71
PT	15.62	6.67	8.66
SI	15.15	18.87	-3.57
LV	14.91	10.59	4.50
SK	13.34	20.10	-6.99
NL	10.11	8.02	1.68
DE	8.34	15.53	-8.15
ES	3.84	-10.13	13.23
GR	2.71	0.32	2.23
AT	2.45	8.66	-6.56
BE	0.89	-0.13	0.59
FI	-1.12	-4.18	3.16
IT	-1.44	1.32	-2.95
FR	-8.34	-0.52	-8.25
CY	-18.52	-24.43	5.65
Unweighted average	9.83	5.52	4.04

(Source: Eurostat, own calculations)

From the economic policy perspective, it is important for policy makers to track labour market competitiveness as well as the capital market competitiveness. Solely monitoring the ULC indexes (and their derivation) and giving policy advice based only on the labour market might be to simplified and also misleading if the capital side of the production process is neglected.[17] Several studies have also pointed out, that amongst the factors that influence international competitiveness and growth across countries could be technological competitiveness and the ability to compete on delivery. The crucial role is played by investments, and factors influencing investments that create new production capacities (Fagerberg, 1988). Having a full competitiveness toolbox with ULCs and UKCs would provide a good overview of an "internal" market competitiveness stance (cost inflation analysis perspective) in monitoring the production process with capital creation alongside the labour market evolution. If both indexes move in line through time, this would suggest stability of shares of production factors (compensation of employees per gross value added and gross operating surplus per gross value added) in the production process. In order to maintain stable level of those shares, the economic policies would/should have to strive towards "fair" structural reforms that promote higher productivity and value added as a whole, and not just by slashing the wage aspect of the production process.

5 Conclusions

If the ULC index represents the competitiveness of an economy through the labour market, then the UKC index could represent the competitiveness of an economy through the capital market. In this paper we tried to present a new viewpoint of following economic competitiveness with the help of implementing the UKC index methodology. By doing this, we try to complete the competitiveness toolbox. We show that the dynamics of both indexes are relatively similar across euro area countries. However, some countries experienced some deviation between the two indexes in the last five years. This is especially evident for the countries that the global financial crisis hit the most. Consequently, they were subject to significant structural reforms, especially in labour markets. Additionally, we show that the

[17] Also shown by Uxó et al. (2014) in the case of Spain, Greece and Portugal, and Kumar and Felipe (2011) analysis in the case of India.

competitiveness of capital for Slovenia was staggering in comparison to other euro area countries. After the crisis, the productivity of the capital picked up and thus increased the efficiency of capital in the production process.

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