



CENTRAL BANK OF CYPRUS

EUROSYSTEM

WORKING PAPER SERIES

Measuring the Competitiveness of the Cyprus Economy: the Case of Unit Labour Costs

Marios C. Polemidiotis

Maria C. Papageorghiou

Maria G. Mithillou

July 2018

Working Paper 2018-2

Central Bank of Cyprus Working Papers present work in progress by central bank staff and outside contributors. They are intended to stimulate discussion and critical comment. The opinions expressed in the papers do not necessarily reflect the views of the Central Bank of Cyprus or the Eurosystem.

Address

80 Kennedy Avenue
CY-1076 Nicosia, Cyprus

E-mail

publications@centralbank.cy

Website

<https://www.centralbank.cy/en/home>

Papers in the Working Paper Series may be downloaded from:

<https://www.centralbank.cy/en/publications/working-papers>

© Central Bank of Cyprus, 2018. Reproduction is permitted provided that the source is acknowledged.

Measuring the Competitiveness of the Cyprus Economy: the Case of Unit Labour Costs

Marios C. Polemidiotis*, Maria C. Papageorghiou* and
Maria G. Mithillou*

July 2018

Abstract

The focus of this paper is on developments in unit labour costs (ULC) in Cyprus, an important indicator of competitiveness. The data points to a significant correction in the nominal ULC index in the period 2013-2016, almost exclusively driven by the significant wage declines observed in the public and private sectors, with the decline in the private sector driven mainly by construction and the trade, transport and tourism sectors. Once the index is adjusted for the impact of prices (to arrive at the real ULC index, a complementary indicator that is sometimes informative to analyse), the data points to an earlier and more pronounced correction in ULC. The marginal rise in the ULC index in 2017 is due to the small rise in wages, largely in the public sector, which still leaves the level of the index well below its pre-crisis level. Furthermore, developments in the ULC index are in line with recent macroeconomic performance. Overall, the significant wage moderation observed prior to the crisis, and especially the immediate and continuous adjustment of wages (as well as that of prices) following the March 2013 events, demonstrates the Cyprus economy's potential to achieve internal devaluation as a mechanism for the correction of macroeconomic imbalances.

Keywords: Competitiveness, labour productivity, unit labour costs, wages, crisis.

JEL Classification: E24, J08, J21, J31, J38, J45, J68.

*Economic Analysis & Research Department, Central Bank of Cyprus. We thank George Kyriacou, Pany Karamanou, Nektarios Michail and participants of a Central Bank of Cyprus seminar for comments. We also thank George Georgiou for comments and editing. The views expressed in the paper are those of the authors and do not necessarily reflect those of the Central Bank of Cyprus or the Eurosystem. The authors remain solely responsible for any remaining errors or omissions.

Corresponding author: Marios Polemidiotis, Economic Analysis & Research Department, Central Bank of Cyprus. Email: MariosPolemidiotis@centralbank.cy, Telephone: +357 22-714536, Address: P. O. Box 25529 CY-1395 Nicosia, Cyprus.

1. Introduction

The use of competitiveness indicators is an integral part of the analysis of how well an economy is performing relative to its competitors. More importantly, and also within the context of the European Commission's Macroeconomic Imbalance Procedure (MIP)¹ scoreboard, detecting a deterioration of competitiveness is essential to identify a build-up of unsustainable macroeconomic imbalances and to guide the development of a smooth policy adjustment path. Analysis of competitiveness developments is particularly important for economies that experience accumulating imbalances, which could culminate in the adoption of an economic adjustment programme. More broadly, detecting a deterioration in competitiveness is important for a small open economy like Cyprus, which faces an ongoing challenge in terms of maintaining competitiveness within the euro area. The adoption of the euro in January 2008 has been beneficial for the country overall, but has removed the possibility of resorting to independent exchange rate and monetary policies to deal with macroeconomic imbalances. In this respect, the key policy tools used for improving competitiveness both in Cyprus and the euro area more generally, are structural reforms.

The concept of competitiveness is a broad one as it can be used to cover almost any aspect of market performance, e.g. product quality, the ability to innovate, the capacity to adjust rapidly to customers' needs, absence of restrictive practices in the labour market, etc (Turner and Van t'dack, 1993). It can be defined either from a long or short-term perspective (De Broeck et al., 2012). Given the broad coverage of long-run measures, which often incorporate qualitative sub-indicators, researchers and policymakers have focused on the use of short-run measures. Short-run measures include ULC, which can be defined as the average cost of labour per unit of output and can be measured either in real or nominal terms. It can be calculated for the total economy², for specific sectors or for a particular business. A rise in ULC corresponds to a rise in labour costs that exceeds the increase in labour productivity. This can potentially be a threat to an economy's competitiveness, unless other costs (e.g. cost of capital) are adjusted in compensation or businesses adjust their profit margins. It should be noted that increases in ULC in one year alone or over a relatively short time period are not a

¹ The MIP aims to identify, prevent and address the emergence of potentially harmful macroeconomic imbalances that could adversely affect economic stability in a particular Member State, the euro area, or the EU as a whole.

² Empirical researchers and policymakers have predominantly focused on using aggregate cost-based indicators for their analysis and policy recommendations. See Lipschitz and McDonald (1991) for a survey of related literature and empirical evidence of the superiority of cost-based indicators over their price-based counterparts.

material cause of concern. What is important is for labour costs not to rise faster than labour productivity on a *sustained basis*.

The aim of this paper is to present an in depth analysis of developments in the ULC index in Cyprus by analysing developments in the labour compensation and labour productivity components of the relevant index. The data points to a significant correction in the nominal ULC index as from 2012, driven almost exclusively by significant wage declines, both in the public but, more importantly, the private sector, rather than gains in labour productivity. While the wage adjustment following the March 2013 events was immediate and profound, it is important to highlight the significant wage restraint that was observed prior to the peak of the crisis, both in the public and private sectors. Focusing on the private sector wage decline, this was driven mainly by construction as well as the trade, transport and tourism sectors. Also, once the index is adjusted for the impact of prices (to arrive at the real ULC index, a complementary indicator that is sometimes informative to analyse), the data points to an earlier and more pronounced correction in ULC. The small labour productivity gains registered following the March 2013 events could be explained by the time lag between implementation of the reform programme and the resulting benefits. At the same time, renewing the structural reform momentum should be a high policy priority in order to safeguard and build upon these achievements.

The remainder of this paper is organised as follows. Section 2 provides a short review of long and short-run measures of competitiveness and explains why the ULC index, although widely used, should not be considered as a comprehensive indicator. Section 3 discusses the various policy measures aiming at improving competitiveness in Cyprus. Section 4 is devoted to a discussion of ULC developments for the total economy broken down by the labour compensation and labour productivity components of the index as well as disaggregated developments at the sectoral level for some key sectors. It also discusses the extent to which developments in ULC are in line with Cyprus' recent macroeconomic performance. Section 5 summarises and concludes.

2. Understanding the importance of ULC-based indicators of competitiveness

As noted in the introduction, competitiveness is a broad concept that can be defined either from a long or short-term perspective. In the long run, competitiveness can be defined as the

ability of an economy to compete successfully in markets for internationally traded goods and services, thereby helping it to improve its external trade balance and contribute to sustainable economic growth. There is a wide range of relevant measures comprising of various sub-indicators³. Whilst these measures are quite comprehensive, the individual sub-indicators address very different aspects of competitiveness and, as such, an aggregation into a single composite index may prove sensitive to the underlying sub-indicators used (van Ark, 2005). As such, given the broad coverage of the aforementioned measures as well as the difficulty in measuring the qualitative aspect of competitiveness, long-run competitiveness indicators are not widely used and the focus of researchers and policymakers has been on the short-term perspective.

From a short-run perspective, competitiveness can be defined in terms of misalignments in relative prices and costs⁴. The most commonly used short-term measures are effective exchange rates (EER)⁵ and ULC. EER track changes in the value of the country's currency relative to the currencies of its principal trading partners whilst ULC capture the amount of labour costs needed to produce one unit of output. Both measures are incorporated in the European Commission MIP scoreboard⁶. The advantage of ULC relative to EER is that the former track the relative evolution of unit costs of production expressed in a common currency and are more closely correlated with changes in market shares in both domestic and foreign markets than the REER for the economy as a whole (Lipschitz and McDonald, 1991).

³ The measures include the World Competitiveness Index of the International Institute for Management Development (IMD), the Growth and Business Competitiveness Indexes of the World Economic Forum (WEF), the Structural Indicators of the European Union and the Human Development Index of the United Nations. The relevant sub-indicators include economic performance, innovative capacity, structural change, improved living standards, social conditions, etc.

⁴ The prices of an economy's exports are partly determined by the costs and strategic decisions of firms. This, together with broader macroeconomic factors outside firms' control, e.g. exchange rate fluctuations, influence an economy's competitiveness and thus its external trade flows.

⁵ The Nominal Effective Exchange Rate (NEER) of a country is calculated as a weighted average of the bilateral exchange rates with those currencies. Three elements are important for ensuring the proper construction and interpretation of the NEER (see Turner and Van t'dack 1993): (a) the choice of currencies to be included in the index; (b) the structure of weights to be assigned to the set of selected currencies; and (c) the base period. The Real Effective Exchange Rate (REER) corresponds to the NEER deflated by selected relative price or cost deflators. In particular, the REER can be expressed either in terms of production costs (ULC), export prices or economy-wide prices (HICP or GDP deflators). In the case of the European Commission MIP scoreboard, the NEER is obtained from a weighted average (by double export weights) of the exchange rate versus a panel of the most important trading partners of the euro-area (36 industrialised countries: EU-27 plus Australia, Canada, United States, Japan, Norway, New Zealand, Mexico, Switzerland, and Turkey).

⁶ The MIP scoreboard indicator for the REER is the percentage change over three years based on consumer price index deflators (data source DG ECFIN), with the indicative thresholds of +/-5% and +/-11% for euro-area and non-euro-area countries, respectively. The MIP scoreboard indicator as regards the ULC is the percentage change over three years of the index in nominal terms (based on Eurostat data), with the indicative thresholds of +9% and +12% for euro-area and non-euro-area countries, respectively.

As previously mentioned, the ULC index measures the average cost of labour per unit of output in a particular business, sector or the total economy. Focusing on the total economy dimension and the sectoral level, it is calculated as a ratio which reflects the major cost category in the production process⁷ (i.e. labour compensation measured as total compensation per employee or per hour) per unit of output (i.e. labour productivity measured as GDP or gross value added (GVA) per employed person or per hour). The labour compensation component is typically expressed in nominal terms⁸ whereas the labour productivity component is usually measured in real terms (nominal terms as regards the firm level)⁹. A rise (fall) in ULC implies an increase (decrease) in the labour costs of production relative to productivity, and thus a loss (gain) in competitiveness.

It is generally perceived that ULC should not rise rapidly. If labour costs rise faster than productivity, the competitiveness of the economy could deteriorate unless it is compensated for by a simultaneous reduction in other costs (e.g. cost of capital) or firms opt to adjust their profit margins. Higher ULC compared to competitor economies suggest that domestic exports are less price competitive. It is thus important for a small open economy in the medium and long term to maintain such costs low so as to improve competitiveness. However, increases in ULC in a particular year alone or over a relatively short time period are not a material cause of concern. It is rather large and sustained increases in ULC that could lead to the erosion of competitiveness, possibly leading to a widening current account deficit and declining market shares for exports (European Commission, 2012).

From a monetary policy perspective, analysing developments in ULC is important given the notion that prices are determined as a mark-up on firms' costs. In light of the fact that the cost of labour input accounts for a significant share of a firm's total cost, an analysis of ULC is clearly important for inflation. At the same time, it should be noted that other input costs, e.g.

⁷ In view of data availability challenges concerning the cost and productivity of capital, only one factor of production, labour, is considered in the analysis.

⁸ Sometimes the real ULC index is computed using the private final consumption deflator to deflate the labour compensation component of the ratio. The real ULC index for Cyprus is presented in section 4.

⁹ At the firm level, and given that the labour component is measured in euros per worker and the labour productivity component is measured in terms of the quantity of good/service produced per worker, ULC can be interpreted as the cost in euros per unit of good/service produced. At the total economy or sectoral level, whilst the labour compensation component remains an average of the total wage compensation (and thus can still be measured in euros per worker as is the case at the firm level), the labour productivity component cannot be measured in units of good/service produced per worker. To calculate it, the economy's (or sector's) value-added in real terms is used divided by the number of workers. This implies that the total economy or sectoral ULC, unlike that of a firm, is a unit-less magnitude (Felipe and Kumar, 2011). For this reason, the ULC indicator at the total economy or sectoral level is measured in percentage changes and indices.

oil, also influence price developments. More importantly, movements in ULC do not always lead immediately to changes in the inflation rate¹⁰. First, a high rate of wage growth associated with stronger growth in labour productivity does not jeopardise a firm's profit margin and is thus not expected to put pressure on firms to raise prices. Second, firms may not seek to increase their prices in response to a rise in labour costs due to fear of losing market share or to avoid menu costs (i.e. costs associated with changing their prices). In this way, and as previously mentioned, firms could decide to absorb labour cost changes by adjusting their profit margins. Overall, the greater the extent to which firms perceive the change in ULC as permanent or at least long term, the higher the incentive to pass this on to their prices.

At the same time, it should be acknowledged that the ULC index is not a comprehensive measure of competitiveness for three main reasons (van Ark et al., 2005). First, whilst the ULC index focuses on the cost of labour that is often a significant share of the total cost of inputs, the cost of capital and intermediate inputs is not reflected in the labour compensation component, which matters for cross-country comparisons of competitiveness. In this respect, productivity measures could be viewed as more appropriate given that they capture both the capital and labour dimension. Another related issue is that the labour compensation component does not capture the compensation of self-employed persons (which is part of "other income" in the National Accounts, including income on capital, profits, etc.) whilst it is captured in the labour productivity component (total economy employment is used, which includes both employees and self-employed)¹¹. Second, ULC-based measures capture only direct production costs whilst other factors are also important. For example, product quality, design, reliability and performance, choice, marketing, branding, availability and cost of replacement parts can be more important than cost. This is particularly relevant in the case of durable consumer and investment goods, and thus improvements in the non-cost factors are not necessarily reflected in lower ULC. In highly competitive markets where prices have often converged, such factors are often crucial. Third, measures of competitiveness may be distorted by the effects of bilateral market access agreements, direct and indirect export subsidies, tariff protection, etc. This issue is not applicable when comparing countries within an economic union like the EU in which there is free movement of goods and services, whilst acknowledging that other factors, e.g. divergences in corporate tax rates, also play an

¹⁰ For more information see ECB (2004), Box 6, p. 51-52.

¹¹ It is possible to adjust the labour compensation component for the compensation of self-employed depending on data availability. However, this is not so important if there are no significant differences in the level or, more importantly, changes over time in the number of self-employed people across countries. In the case of Cyprus, self-employment has been a stable share of total employment since 2011 (about 12%).

important role in influencing economic activity within an economic union. Overall, and despite the issues raised above, ULC remains a widely used measure of competitiveness and, given its incorporation in the European Commission MIP scoreboard, it is important to be analysed and understood in depth. At the same time, an analysis of ULC needs to be seen in the context of a broader analysis, which includes other competitiveness indicators that capture relevant dimensions of macroeconomic imbalances.

3. Policy measures aiming at improving competitiveness in Cyprus

As mentioned in the introduction, policymakers in Cyprus and the euro area more generally, adopt structural reforms aimed at boosting the competitiveness of their economies, thereby helping them to improve their external balances and contribute to the achievement of sustainable levels of economic growth. Focusing on the case of Cyprus, the Government's Action Plan for Growth includes around 70 targeted actions, with specific timeframes, aimed at strengthening the competitiveness of the economy, increasing productivity and unlocking Cyprus' investment potential (Cyprus National Reform Programme 2017). When viewed in terms of the ratio of labour compensation and the labour productivity components, it can be seen that policies aimed at improving competitiveness (i.e. reducing ULC), are either associated with policies to decrease the labour cost per person employed or to raise productivity performance or both. A balanced policy mix is necessary, e.g. an excessive and long-run emphasis on wage moderation could jeopardise a country's productivity growth rate as it might discourage innovation and investment in human capital (van Ark, 2005). In the case of Cyprus, both within and outside the context of the economic adjustment programme, a number of structural reforms are being pursued to improve competitiveness. These span a range of policy areas and include product market reforms, framework conditions, financial sector reforms, labour market reforms (including changes to the wage indexation system) as well as fiscal-structural reforms. A number of reforms have been completed, while others are in the stage of implementation. The overall aim has been that of overcoming the macroeconomic imbalances that accumulated prior and during the crisis and to re-establish solid foundations for a sustainable growth path.

In terms of influencing directly the labour cost component of the ULC index, a combination of wage policy changes and labour market reforms have contributed to gains in economy competitiveness in Cyprus. In particular, significant wage restraint in the public and private

sectors both prior and following adoption of the economic adjustment programme, has enabled the Cyprus economy to improve its competitiveness as evidenced by significant decreases in compensation per employee. Looking ahead, the foreseen wage increases are expected to be in line with economic developments and remain significantly below their pre-crisis trends. Additionally, the reform of the system of wage indexation, i.e. the Cost of Living Allowance (COLA)¹², used in both the public and private sectors, is expected to ensure that wage increases continue to better match gains in labour productivity.

Furthermore, the Cypriot authorities are pursuing the implementation of various active labour market policies (ALMP) in order to stimulate employment by increasing the employment opportunities for job seekers and to improve matching between jobs (vacancies) and the unemployed. ALMP include temporary wage subsidies to employers in order to finance a large part of the labour cost of the persons employed (salary and employer's social insurance contributions). Such wage subsidies can influence positively the attitudes of employers towards the, especially long-term, unemployed by bringing them into contact with each other, thus providing employers with an opportunity of hiring individuals who have been outside the labour market for a relatively long time at lower than full wage costs. At the same time, it is important for wage subsidy schemes to be well targeted so as to minimise the risk that employers displace non-subsidised workers with subsidised workers. In particular, mechanisms need to be in place to provide incentives for employers to retain workers after the wage subsidy expires or combined with other ALMP measures to improve the employability of beneficiaries within integrated programmes. Overall, ALMP can have a direct impact on both the labour cost and labour productivity components of the ULC index. In the case of Cyprus, relevant policies include schemes for the job placement and training of tertiary education graduates, schemes to support youth and long-term unemployed, schemes for attracting people in the labour market through flexible forms of employment as well as various training and work experience programmes (Cyprus National Reform Programme 2017). In addition, shop opening hours have been extended as of 1 July 2013 in an effort to stimulate the job market. To effectively implement ALMP, the authorities are taking steps to enhance the capacity of the public employment services (PES) of the Ministry of Labour, Welfare and Social Insurance. These include a tender for the recruitment of additional staff,

¹² The new COLA method provides for wage increases due to inflation on an annual (as opposed to bi-annual) basis, partial indexation (i.e. 50% as opposed to 100% of the annual change in the Consumer Price Index (CPI) net of excise taxes, as calculated by the Cyprus Statistical Service) and an automatic suspension in cases of negative (seasonally adjusted) real GDP growth rates (in the second and third quarters) of the previous year.

training of employment counsellors, a youth activation campaign, joint actions with private employment services, etc. Also, whilst the impact of ALMP has not yet been fully assessed (European Commission, 2017), important first steps have been made in terms of putting in place since December 2017 a system for the continuous monitoring and evaluation of these policies.

Other important reforms included in the Government's Action Plan for Growth, in particular those related to framework conditions, are designed to strengthen the Cypriot entrepreneurial ecosystem and are thus paramount for the promotion of high-quality investments. To better coordinate the implementation of the Action Plan for Growth, the Government envisages the creation of Deputy Ministries for Growth and Competitiveness as well as Tourism, following the establishment of a Deputy Ministry of Shipping as from 1 March 2018. Overall, the policies included in the Government's Action Plan for Growth can indirectly contribute to the rise in the labour productivity component of the ULC-based index by stimulating investments and economic activity and thus help keep ULC down.

4. ULC developments in Cyprus¹³

This sub-section provides a historical analysis of the ULC index in Cyprus and examines developments in the labour cost and labour productivity components of the index separately. This is important in order to better understand the macroeconomic implications of changes in the ULC index for the total economy. For example, a decline in ULC due to labour productivity gains has different implications than a similar decline which is due to a cut in wages. It also examines sectoral ULC developments, as differences at the sectoral level may be important. Finally, it discusses the extent to which developments in ULC are in line with Cyprus' recent macroeconomic performance.

Examining ULC in terms of levels, **Chart 1** demonstrates a continuous increase in the level of the index up until 2012, with a downward trend exhibited afterwards. Even when one excludes the contribution of the public sector from the ULC for the total economy (so as to remove the impact of the significant wage moderation observed in the public sector), the private sector ULC index still registers a significant correction owing to the significant wage

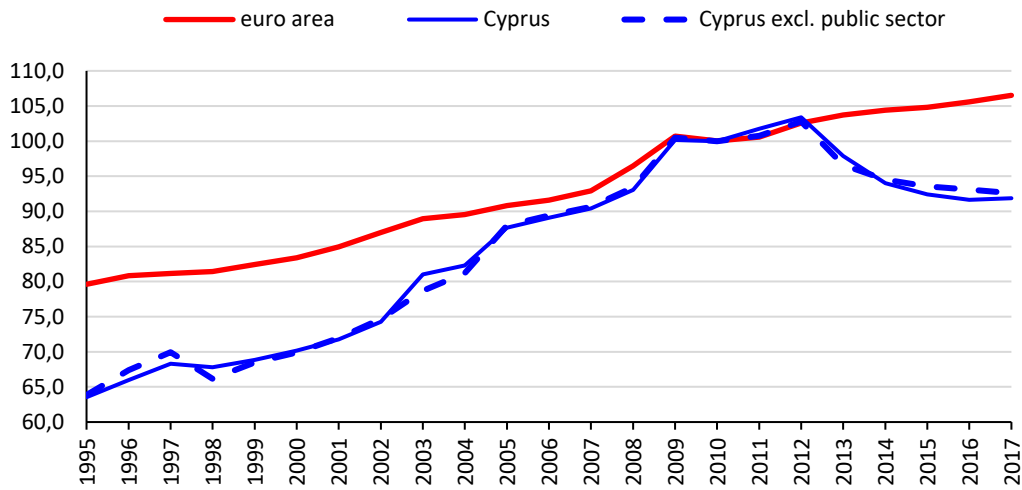
¹³ The analysis of the public sector in this section uses NACE Rev. 2 sectors O to Q as a proxy: O-Public administration and defence; compulsory social security; P- Education; and Q- Human health and social work activities.

cuts observed in various segments of the private sector, including banking, construction, and tourism. This finding confirms the more significant contribution of the private sector compared with the public sector to developments in the ULC index for the total economy. In particular, about 80% of the total number of employees work in the private sector so that smaller annual changes in their number and wages induce larger changes in ULC index for the total economy. Moreover, an examination of the level of the ULC index for the total economy over time shows that it was lower compared with the euro area up to 2010, albeit growing at a faster rate. The index remained close to the respective euro area level in 2011 and 2012. However, in the period 2013-2016, a significant decline was recorded in the ULC index for the Cyprus economy whilst that of the euro area continued rising. In 2017 the ULC index of Cyprus registered a marginal increase, with further rises in the euro area index. It should be stressed that when one excludes the contribution of the public sector from the ULC for the total economy, the private sector ULC index of Cyprus continues to register a correction in 2017.

As analysed in more detail later in the paper, the reduction in the ULC index of Cyprus in the period 2013-2016 highlights the improvement in the economy's competitiveness due to the significant reduction in wages, with a consequent reduction in the prices of goods and services. The marginal rise in the level of the ULC index for the Cyprus economy in 2017 emanates from the public sector, which still leaves the level of the index significantly below its pre-crisis level. In fact, the ULC index in Cyprus stood at about 15 percentage points lower than that in the euro area in 2017. More importantly, the level of the ULC index in Cyprus in 2017 was broadly comparable to that reached in 2007. This is indicative of the path of other macroeconomic indicators, such the residential property price index (RPPI). The RPPI in 2017 stood close to the 2006 level, following the peak in residential property prices reached in 2008. This is in line with the results of various house price valuation models estimated by the CBC, pointing to a house price equilibrium towards the end of 2006¹⁴. In a similar vein to the developments in residential property prices, competitiveness measured in terms of the ULC index could also be assessed as having returned to equilibrium levels.

¹⁴ For more information see CBC (2016), Box 2, p. 42-46.

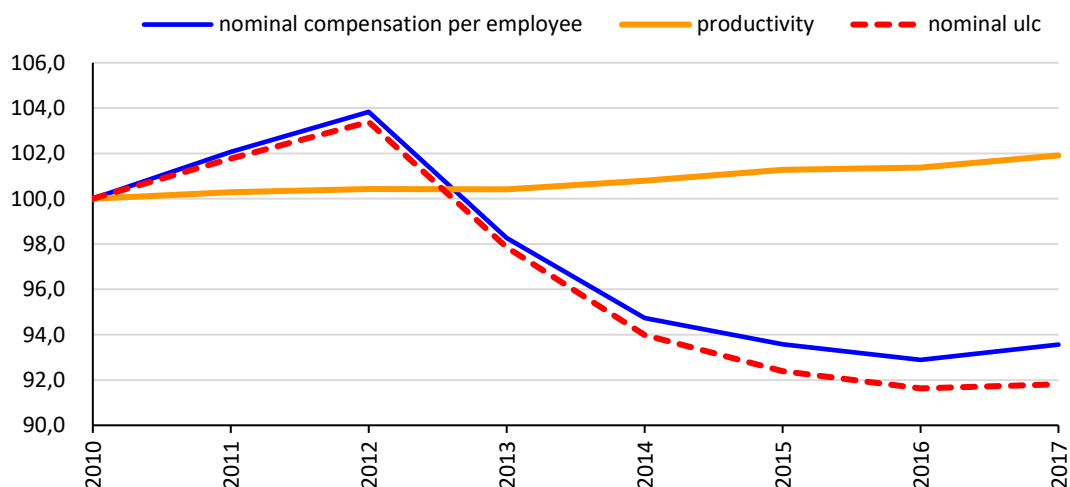
CHART 1 Unit labour costs
(index, 2010=100)



Sources: ECB (SDW), CBC calculations.

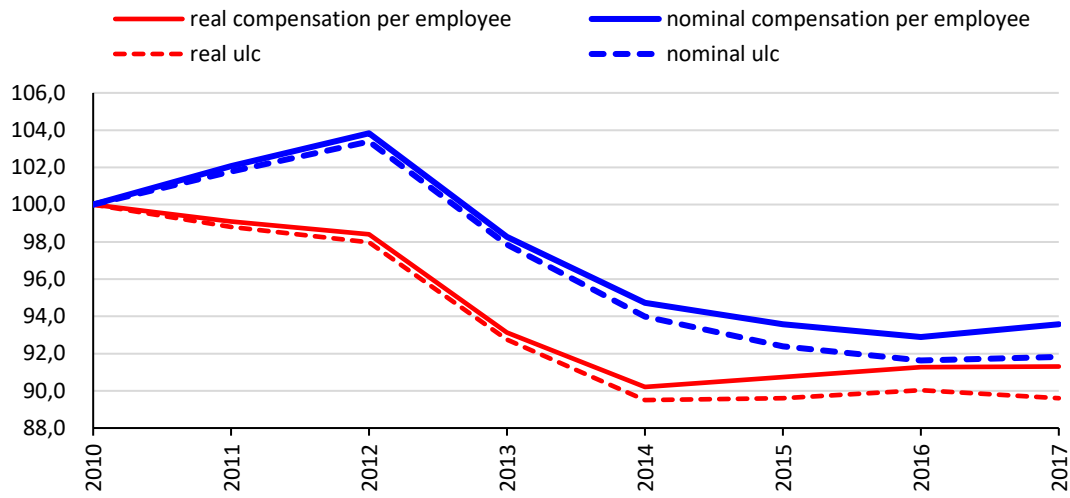
An examination of developments in the labour compensation component and the labour productivity component of the nominal ULC index since 2010, confirms that developments are basically attributable to the path of the labour compensation component. In particular, an increase in the level of nominal ULC index is observed until 2012, in line with the rise in nominal compensation per employee, followed by a decline in both the level of the index and in nominal compensation per employee thereafter (**Chart 2**). Regarding the labour productivity index, a relatively flat profile is observed. Looking ahead, further increases in labour productivity could be expected provided that the Cypriot authorities push ahead with the reform programme, whilst acknowledging that more time is needed to fully reap the benefits of the reforms implemented to date.

CHART 2 Nominal labour costs and productivity developments
(index, 2010=100)



It is informative to look at developments in the *real* ULC index, whereby the index in nominal terms is adjusted for the impact of prices. There are various deflators that can be used to deflate the labour compensation component, with the private final consumption deflator often being used. Focusing on the period 2010 to 2017, **Chart 3** confirms that once wages are adjusted for the impact of prices using the private final consumption deflator, real ULC demonstrate an earlier and more pronounced correction in the level of the index compared with the nominal one. Note that in the period 2014-2016, a small increase is observed in the level of the real ULC index, compared with the ongoing decline in the nominal index, given the marginal increase observed in real compensation per employee. In 2017 the level of the real ULC index exhibited a small decline given nil growth in real compensation per employee (coupled with the small positive growth in labour productivity), while the nominal ULC index registered a small rise due to a small growth in nominal compensation per employee.

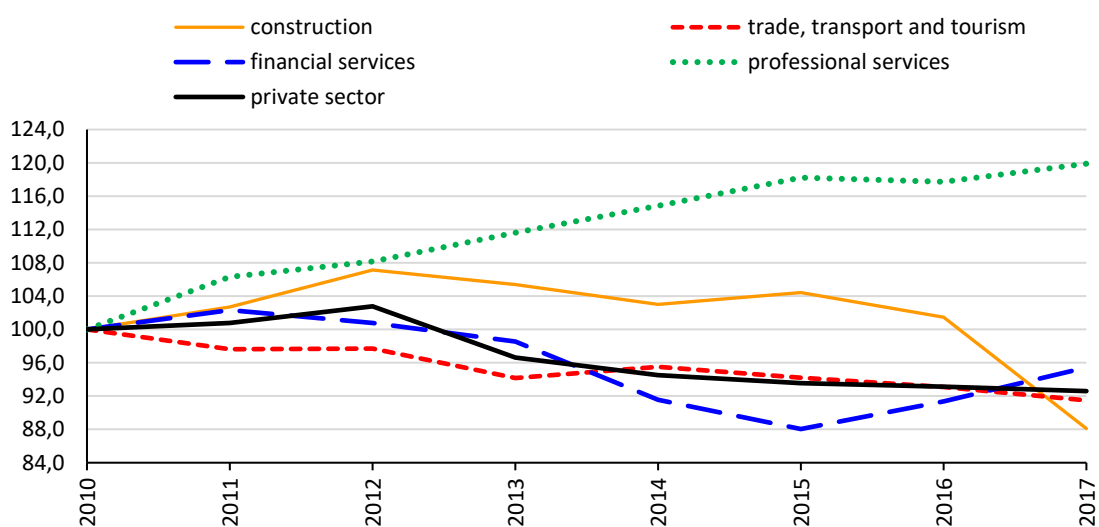
CHART 3 Nominal and real labour costs
(index, 2010=100)



Source: ECB (SDW), CBC calculations.

Focusing on sectoral developments in the nominal ULC index as from 2010, the observed declines in construction as well as the trade, transport and tourism sectors contributed most to the decline in the private sector ULC (**Chart 4**). The ULC index in the financial and insurance activities sector exhibited a downward trajectory until 2015 and an increase thereafter, returning relatively close to the 2013 level. The professional services sector is the only sector exhibiting increases over the period 2010-2017.

CHART 4 Private sector ULC by economic activity (main categories)
(index, 2010=100)



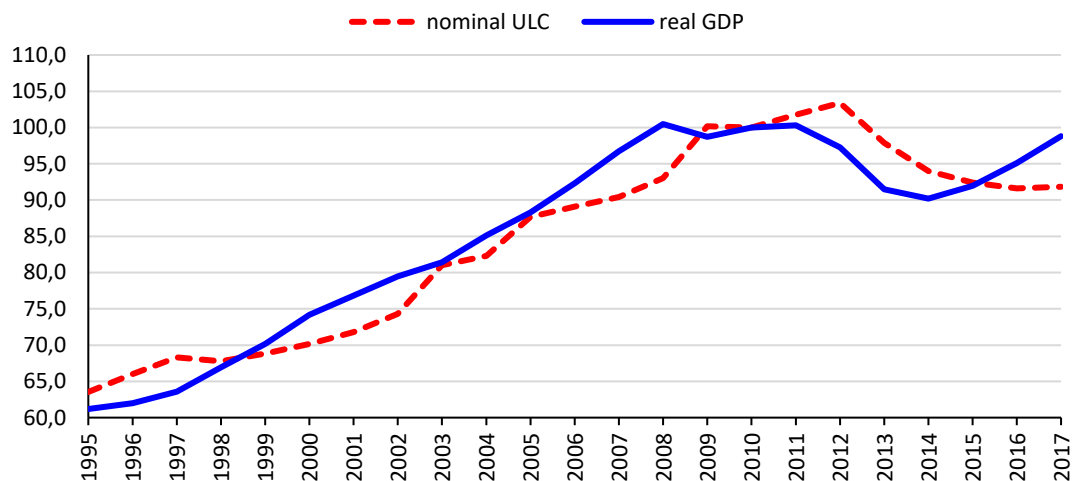
Source: SDW (ECB).

The decline in the ULC of the trade, transport and tourism sector (which accounted for about 26% of GVA in 2017) is attributed to the significant correction in wages, which more than offset the decline in labour productivity of the aforementioned sector. The increase in ULC of the professional services sector can be explained by the important decline in its labour productivity (driven by more significant employment gains than improvements in GVA) coupled with a much smaller decline in compensation per employee. The decline in the labour productivity of the professional services sector could be explained by labour hoarding coupled with employment creation despite the contraction in output, in an attempt to retain and pass on to new employees skills and experience in the expectation of a pick-up in activity. Also, the fact that Cyprus is widely recognised as a reputable international financial and business centre, with an abundance of highly-skilled and experienced multilingual professionals (lawyers, attorneys, auditors, tax advisers, financial advisers, etc.) and offering a full range of modern and high-quality professional services, could explain why wages in the sector exhibited only a relatively small decline in the period 2010-2017. Regarding the financial services sector, the increase observed since 2015 is attributed to the larger decline in the labour productivity component compared with the decline observed in wages. The decline in the labour productivity component is driven by the decline in the sector's GVA, mainly due to loan deleveraging within the context of the ongoing consolidation of the banking sector and the continuous adjustment of private sector balance sheets, coupled with the employment

creation observed in the financial and insurance services sector for the period under review. It should be stressed that employment creation in the financial and insurance services sector is concentrated in the non-banking and non-insurance parts, i.e. asset management, foreign exchange, binary options, etc.

Overall, the ULC developments described earlier suggest a significant improvement in Cyprus' competitiveness. These findings are in line with Cyprus' recent macroeconomic performance. In fact, the Cyprus economy began recovering in 2015, following the peak of the banking crisis in 2013, with real GDP reaching levels observed in 2007 (**Chart 5**).

CHART 5 Nominal ULC and real GDP
(index, 2010=100)



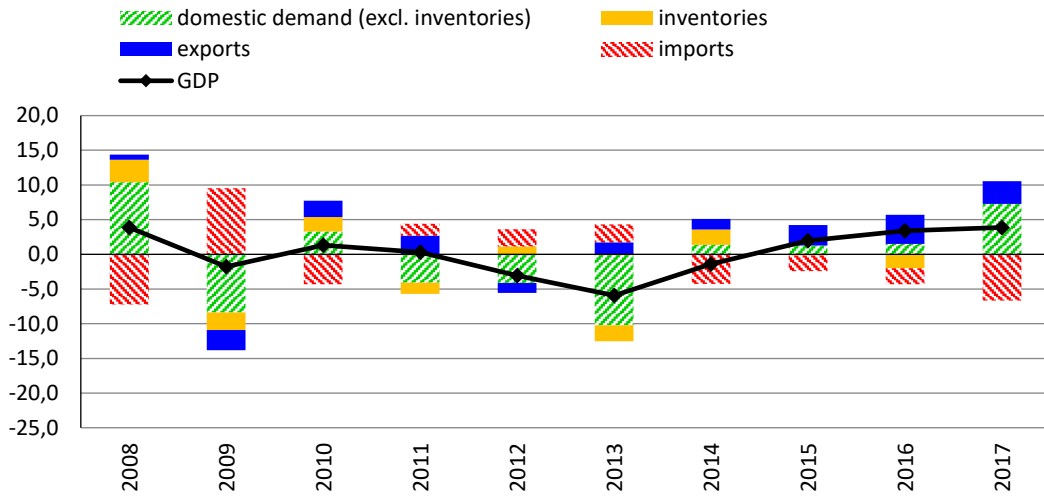
Sources: Eurostat, CBC calculations.

Moreover, exports featured as a key contributor behind the rebound (**Chart 6**). Adjusted for the impact of Special Purpose Entities (SPEs)¹⁵, Cyprus' external trade balance¹⁶ have improved since 2012. This is primarily driven by the improvement in the services balance, in particular by about 6 percentage points since 2012 (**Chart 7**).

¹⁵ With the introduction of the ESA 2010 and BPM6 statistical methods, total exports and imports of Cyprus as well as gross fixed capital formation include, *inter alia*, the transfer of economic ownership of mobile transport equipment (mainly ships) of SPEs, which affect the aforementioned GDP expenditure sub-categories. However, given the double entry accounting system they do not affect the level and growth rate of GDP.

¹⁶ Data based on the ESA 2010 and BPM6 statistical methods are available as from 2008.

CHART 6 Contributions to real GDP growth
(percentage points)



Source: Eurostat.

Note: data on exports, imports and domestic demand are adjusted for the impact of SPEs.

CHART 7 Goods & services balance
(% of GDP)

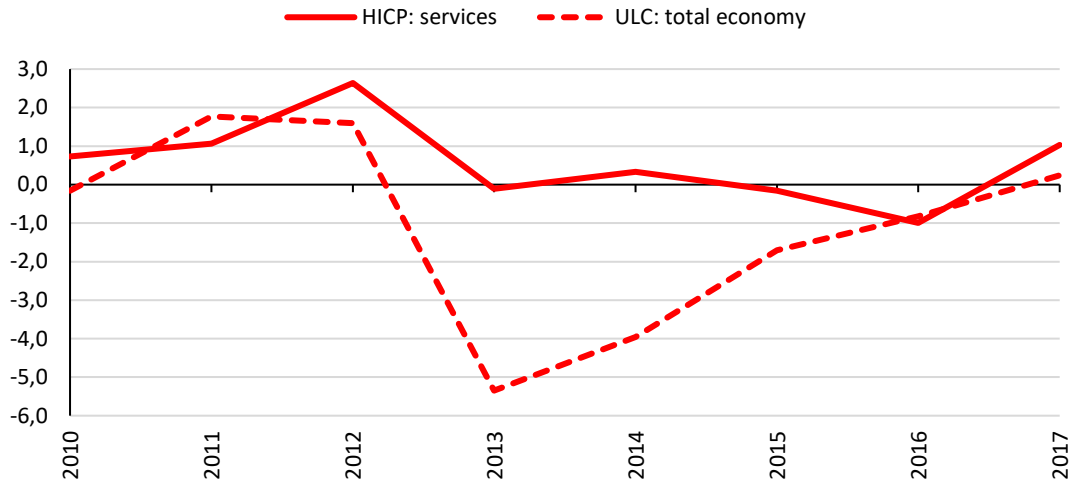


Source: Cystat, CBC calculations.

Note: external statistics are adjusted for the impact of SPEs.

The reduction in ULC is evident in the prices of services, in particular tourism-related services. In particular, **Chart 8** demonstrates the pass through from reductions in the total economy ULC on prices of services. This reduction has been aided via entry of new firms in various markets, which increased competition amongst service providers and has subsequently driven down production costs and thus prices. The marginal increase in the ULC for the total economy in 2017 is in line with macroeconomic activity and the small rise in prices of services for the year in question.

CHART 8 ULC and HICP developments
(annual change, %)

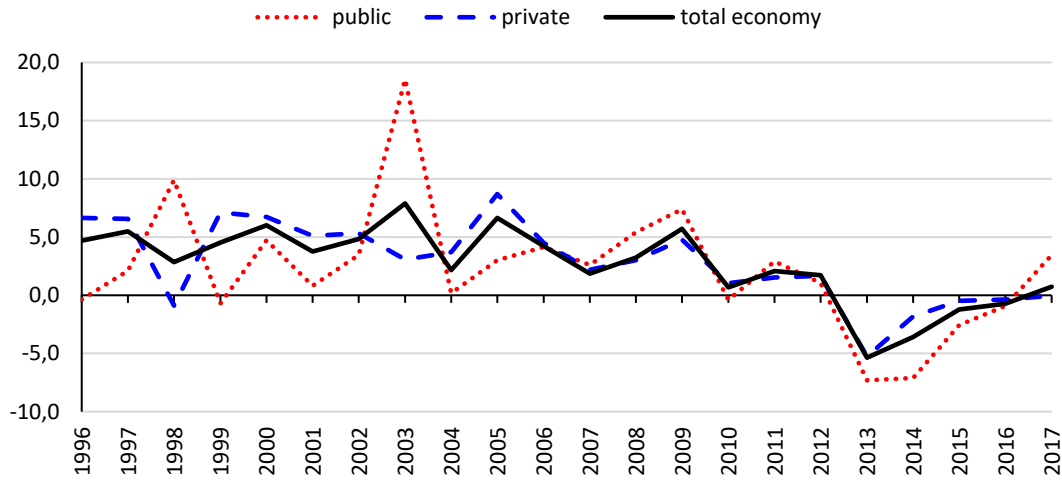


Sources: SDW (ECB), Eurostat.

The rest of this section analyses separately the individual factors driving the labour compensation and labour productivity components of the ULC index. Regarding the labour compensation component, growth in total economy compensation per employee was positive for the period 1996-2012, averaging at about 4% per annum. As can be seen in **Chart 9**, the peak was reached in 2003, as civil servants received retroactive wage increases for the period 2001-2003. As from 2013, compensation per employee growth turned negative on account of the significant wage restraint in the public but more importantly the private sector, following measures implemented both prior and following the adoption of the economic adjustment programme¹⁷. Regarding the private sector, following significant wage restraint observed prior to the peak of the banking crisis, further significant wage cuts were observed immediately following the March 2013 crisis, with the sectors of trade, transport and tourism, construction as well as financial and insurance activities contributing most to the decrease in compensation per private sector employee.

¹⁷ Note that the private sector has a weight of about 70% in total economy compensation of employees.

CHART 9 Compensation per employee
(annual change, %)



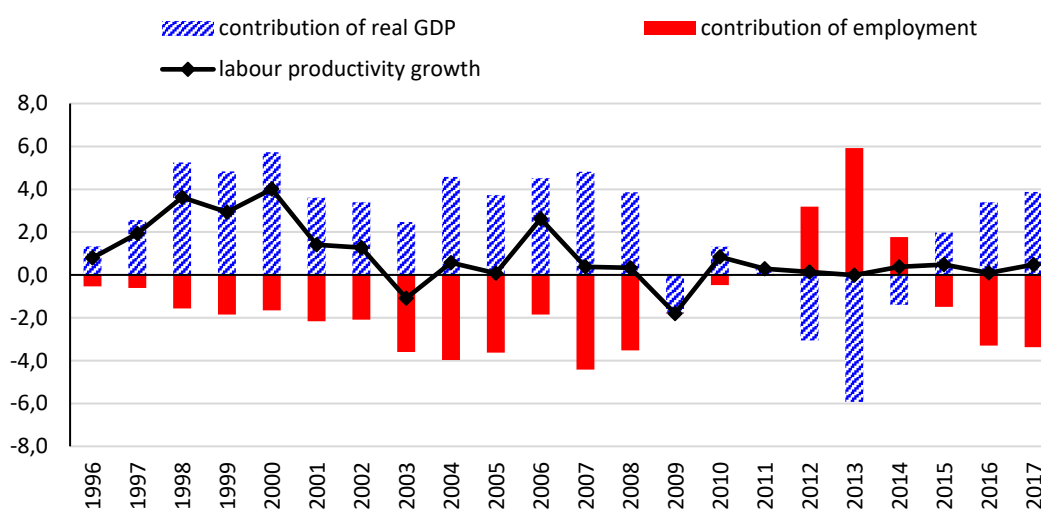
Sources: Eurostat, CBC calculations.

It is important to describe in more detail the significant wage cuts observed both in the public and private sectors in the run up and during the economic adjustment programme. Regarding the public sector, relevant measures included a complete wage freeze on COLA and incremental and general increases from 2012 to 2016. Also, additional measures imposed as of December 2012 included a scaled reduction in the emoluments of broader public sector pensioners and employees and a 3% flat wage cut as of January 2014. In relation to the private sector, the three highly unionised sectors (i.e. banking, construction and tourism), covering around 80% of the wage negotiations, experienced substantial wage cuts. Most banking institutions agreed to scaled wage reductions ranging between 5% and 14% (around 8,5% per employee on average). In the case of co-operative credit institutions, the agreed wage cuts were closer to 15% per employee on average. In the construction sector, the agreement signed in June 2013 incorporated wage cuts of the order of 9% and, in effect, is still in force given that discussions associated with its renewal have not been finalised yet. In the tourism sector, the agreement signed in May 2013 was associated with average wage cuts of 9%. Overall, the significant wage cuts imposed on account of the extraordinary economic environment prevailing at the time, and especially following the March 2013 events, demonstrate the significant flexibility of the Cyprus labour market which has been increasing over time, despite unionisation levels observed.

As regards the public sector wage rises registered in 2017, which are responsible for the marginal rise in the ULC index for the total economy for the year in question, these are attributable to a number of factors. First, the termination of the wage and state pensions freeze, in place until end-2016, which was followed by the resumption of the policy of granting increments. Second, the granting of wage rises as of January 2017 to those civil servants receiving a promotion during the period over which the complete wage freeze was in place. Third, the replacement of conscripts with professional soldiers in the National Guard, whose wages are higher than the average wage of conscripts.

Regarding the labour productivity component of the ULC index for the total economy, with the exception of 2003, this was positive over the period 1996-2008, on the back of strong economic performance with real GDP growth per annum averaging about 3,9% during this period (**Chart 10**). A decline of 1,8% was recorded in labour productivity in 2009, on account of the implications of the global financial crisis. In particular, real GDP contracted in 2009 for the first time since the Turkish invasion in 1974, on account of the significant decline in private consumption and investment. Since then, labour productivity has remained broadly stagnant, as developments in real GDP and employment broadly offset each other. In the period 2012-2017, both GDP and employment changed by approximately the same magnitude, thus leaving labour productivity hovering slightly above zero.

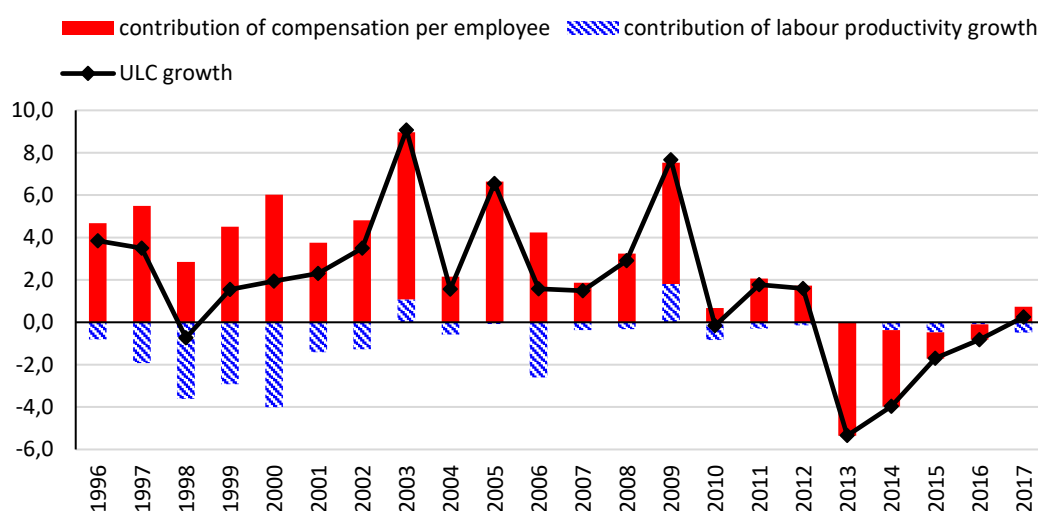
CHART 10 Contributions to labour productivity growth
(percentage points)



Sources: Eurostat, CBC calculations.

Given the broadly stagnant productivity developments as from 2010, **Chart 11** confirms that developments in ULC were driven by developments in labour compensation. In particular, the declines observed in the ULC index for the total economy in the period 2013-2016 were driven by the previously mentioned significant cuts in wages. The marginal increase in ULC growth in 2017 was driven by the rise in labour compensation, attributable to wage developments in the public sector, which was partly offset by the associated growth in labour productivity.

CHART 11 Contributions to total economy unit labour costs growth
(percentage points)



Source: Eurostat, CBC calculations.

It is important to mention that the correction in ULC, driven by the significant downward adjustment in wages previously mentioned, has supported the rebound in the labour market. Employment growth reached 3,4% in 2017, exceeding pre-crisis rates (which averaged around 2,4% over 1996-2008). Following a peak of 16,1% in 2014, the unemployment rate has been on a downward trajectory, reaching 10,1% in 2017Q4. Further declines are envisaged in the coming years. Regarding the labour force, its level peaked in 2012, with annual declines registered in subsequent years, partly driven by the outflow of foreign workers and the increase in the number of discouraged workers. This trend reversed as of 2016, with increases envisaged on account of employment creation in line with the GDP recovery path as well as the return of foreign workers.

Overall, the results presented in this section suggest that the Cyprus economy has managed to improve its competitiveness via the introduction of significant wage cuts, both in the public and, more importantly, the private sector. It is important to note that significant wage

restraint was observed prior to the peak of the banking crisis, with the decline in private sector wages being pronounced following the March 2013 events. Even when the public sector developments are stripped out of the data so as to eliminate the effect of fiscal consolidation measures on public sector emoluments, the material improvement in competitiveness, measured in terms of the private sector ULC index, is still evident. Looking at ULC developments at the sectoral level, the observed declines in the ULC of construction as well as the trade, transport and tourism sectors contributed most to the decline in the private sector ULC over the period 2013-2016. The marginal increase in the level of the ULC index for the total economy in 2017 is attributed to the small rises in wages. More importantly, the rise in the ULC index for the total economy emanated from public sector wage increases so that when the contribution of the public sector from the ULC for the total economy is excluded, the private sector ULC index continued to register a correction in 2017. At the same time, it is clear that one needs to be careful when drawing conclusions just by looking at developments in the index, either at the total economy or sectoral levels, as it is important to look at developments in both the labour compensation and the labour productivity components.

5. Conclusions

Whilst competitiveness is a key driver of sustainable economic growth, it is a broad concept associated with a key analytical and policy challenge. It can be defined either from a long-run or short-run perspective. In the long run, the competitiveness of an economy is usually assessed in terms of the performance of its key macroeconomic indicators, some often regard as being qualitative in nature, whilst the short-run aspect defines competitiveness in terms of misalignments in relative prices and costs. Due to the difficulties usually encountered when measuring qualitative aspects of competitiveness, researchers and policymakers have focused on the short-run perspective. A very popular indicator is the nominal ULC index, defined as the ratio of workers' compensation per employee to labour productivity, the subject matter of this paper. A rise (fall) in ULC implies an increase (decrease) in the labour costs of production relative to productivity, and thus a loss (gain) in competitiveness.

It is important to acknowledge that no single measure can be regarded as *the* appropriate indicator for the time series analysis of competitiveness developments or for relevant cross-country comparisons. Nevertheless, the monitoring of ULC still remains a useful tool to track

a country's economic performance relative to competitors despite its limitations. In particular, the measure is useful when decomposed into the effects of the labour compensation and labour productivity components. Moreover, the appropriate policy mix to bring about a correction of ULC matters given that a decline in ULC due to labour productivity gains has different implications than a similar decline, which is due to a cut in wages. It is also important to note that policy approaches to affect the labour compensation component of the ULC index can affect the labour productivity component and vice versa. For instance, policies aiming at persistently reducing wages may discourage innovation and investment in human capital, thus hampering long-term productivity and competitiveness (van Ark et al., 2005). As such, an effective strategy is a balanced policy mix which depends on country-specific circumstances.

Focusing on the case of Cyprus, it is important to stress the important correction in the nominal ULC index for the period 2013-2016. This has been driven by significant wage declines observed both in the public but, more importantly, the private sector, with the private sector decline driven by the construction as well as the trade, transport and tourism sectors. Once the index is adjusted for the impact of prices to arrive at the real ULC index, an earlier and more pronounced correction in the level of the index is observed. The marginal rise in the ULC index in 2017 was due to the small rise in wages in the public sector, which still leaves the level of the index well below its pre-crisis level. Also, developments in the ULC index are in line with recent macroeconomic performance in terms of real GDP, trade balance and labour market developments. More importantly, any future wage increases should remain relatively small and in line with macroeconomic activity, thus avoiding reaching levels close to those observed prior to the crisis, which would jeopardise competitiveness gains. Overall, the speedy and continuous adjustment of wages (as well as that of prices) following the unprecedented March 2013 events, as well as the significant wage restraint observed in the run-up to the peak of the crisis, demonstrate the Cyprus economy's potential to achieve internal devaluation as a mechanism for the correction of macroeconomic imbalances, despite the short-term social cost.

References

Broeck, M. D., Guscina, A. and G. Mehrez (2012) "Assessing competitiveness using industry unit labor costs: an application to Slovakia", *IMF Working Paper* 107.

Central Bank of Cyprus (2016) *Economic Bulletin*, June.

European Central Bank (2004) *Monthly Bulletin*, September.

European Commission (2012) "Scoreboard for the surveillance of macroeconomic imbalances", *Occasional Papers* 92.

Felipe, J. and U. Kumar (2011) "Unit labour costs in the eurozone: the competitiveness debate again", *Levy Economics Institute Working Paper* No. 651.

Lipschitz, L. and D. McDonald (1991) "Real exchange rates and competitiveness: a clarification of concepts, and some measurements for Europe", *Empirica*, 19(1): 37–69.

Republic of Cyprus Presidency Unit for Administrative Reform (2017) "Europe 2020: Cyprus National Reform Programme 2017".

Turner, P. and J. Van t'dack (1993) "Measuring international price and cost competitiveness", *Bank for International Settlements Economic Papers* No. 39.

Van Ark, B., Stuivenwold, E. and G. Ypma (2005) "Unit labour costs, productivity and international competitiveness", Research Memorandum GD-80.