

FACTORS BEHIND LOW
INFLATION IN ALBANIA
2019

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45 (84) 2019 **WORKING PAPER**



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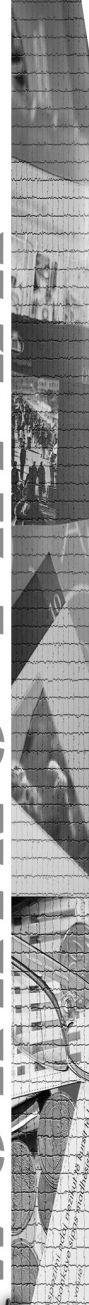
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BANK OF ALBANIA



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Note: The views reflected in this paper are of the authors alone and do not represent views or policy stances of the Bank of Albania.

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ABSTRACT

This working paper explores the main factors contributing to low inflation in Albania in the post-crises years in an environment characterized by relatively stronger economic growth, lower unemployment rates and improved confidence. The results suggest that the weak inflation response to cyclical improvements in the economy reflect downward pressures from both cyclical and structural factors, originating from both domestic and global developments. Lingering high unemployment rates have contributed to the instability of the Phillips curve.

However, due to a structural shift since 2011, its slope has become flatter. On the one side, the low labour productivity and the shrinkage of profit margins have been limiting the space for wage and unit labour cost growth. On the other side, the analysis of the labour market suggests that spare capacities could be larger than those associated only with the “unemployed”, implying subdued wage pressures. Even when accounting for positive structural changes, as reflected by higher female labour participation rates in the labour market, the present gender wage gaps keep on contributing to downward inflationary pressures. In addition, inflation expectations have become more adaptive and, since 2013, the persistency of low inflation has increased. This phenomenon, observed also in other economies, has added up to the downside inflationary pressures, de-anchoring inflation expectations from the central bank’s target.

Other factors with limited time effects, mainly related to the supply side, have generated significant downward shocks to inflation. Domestic inflationary pressures have been very sensitive to food price volatility, while the contribution of imported inflation has resulted negative since 2015. Low foreign prices, coupled with a continuous appreciation of the exchange rate, have affected inflation directly and indirectly. Average price gaps between Albania and the EU, as well as the EU candidate countries have narrowed, but still remain high, particularly in the case of services.

The paper concludes that the presence of contingent factors and structural ones does not break down the traditional monetary policy transmission mechanism. The accommodative monetary policy is being transmitted, but the full effects on inflation are inhibited by the factors identified in this research.

Key words: Low Inflation, Phillips-Curve, Expectations, Structural Issues.

JEL classification: E31, E32, J21, J31, E52.

EXECUTIVE SUMMARY

In the aftermath of the recent global crisis, while economic activity is set on an upward trajectory as a result of cyclical improvement, inflation remains low, representing a concerning phenomenon for both advanced and emerging economies in Europe and beyond. In this regard, the hypothesis of “stable relationship between inflation and output gap or inflation and unemployment rate gap” is particularly addressed in different reports of the European Commission and various studies presented in international forums.

Regarding ECB’s assessments, the severity and length of the recession was reflected in a poorer intensity of lower inflation than would otherwise be forecasted by different “Phillips Curve” approaches. Inflation did not fall as much as expected, compared with the fast growth of spare capacities in production and labour markets. During the first stage of the recession, 2009-2012, European economies and Albania’s as well, driven by country-specific developments, were characterized by lack of disinflation, versus the deepening of negative gaps in output and unemployment rate.

Despite the cyclical improvement in the period 2013-2017, headline and core inflation rates remained low, below the projections and mid-term inflation targets of central banks. Inflation expectations formed under low inflation pressures and in an environment with heightened uncertainties, became more adaptive, signalling a “de-anchoring” behaviour. Similar trends have also been identified in the Albanian economy. The improvements in the real sector after 2015 - such as accelerating GDP and employment growth rates - were not transmitted at the expected intensity through the productivity and wage channels, to consumer prices. These developments have occurred despite the easing monetary policy.

Purpose: The relationship between inflation and output gap is not translated into the expected build-up of inflationary pressures, motivating us to study some important hypotheses regarding this relationship in a deeper and more structural way. Research has

been undertaken during 2017 focusing on the identification of main determinants of low inflation in Albania in the post-crises period.

More specifically, the project aims to identify the main sources and drivers of inflation in Albania, revealing the causes of the divergence between low inflation and cyclical improvement of economic activity. In addition, we try to assess the importance of the structural and cyclical factors for keeping inflation at low rates. We categorize them into domestic and foreign origin. We compare the low inflation rates in Albania versus EU and regional inflation rates by trying to assess their convergence.

The conclusions of this project support the processes of analysis, forecasting and communication of monetary policy decisions. In this context, it contributes to a clearer formulation of messages regarding uncertainties surrounding the return of inflation to the target, and a more structured explanation of the reasons hampering the inflation to rise.

Key findings: low inflationary pressures in Albania are conditioned by the combined action of domestic and foreign factors, specific and more structural ones. Some of them have been part of our analyses, some are conducted by the authors independently, and some others have been specifically realized for this working paper, and might be further explored in the future. All together, they are structured, filtered, re-evaluated and re-organized for the purpose of this working paper. The main conclusions of this paper are summarized below. The low inflation rate and weak reaction to cyclical improvements reflect both foreign and domestic cyclical and structural factors, as follows:

- The presence of the negative output gap, which demonstrated a narrowing trend after 2015, but has not been able yet to sufficiently improve the fragile domestic business cycle;
- Specific developments in labour market and productivity inhibit the faster increases in wages;
- Time-varying or in-stability of the Phillips curve. Since the end of 2011, the Phillips curve slope is lower than before, representing a flattening behaviour. Empirical evidences

suggest lower response to price and wage inflation versus unemployment rates. Shocks in the variables over time and the presence of non-linearity have moderately modified, but have not broken this relationship;

- The presence of higher inflation persistence versus recent developments and increased uncertainties during and after the crisis have shifted inflation rates and inflation expectations downward. As a result, since 2014, inflation expectations have exhibited a “de-anchoring” behaviour;
- The high supply-side shocks have not been offset over time by the positive contributions from cyclical improvements. Domestically, inflation remained highly dependent on food price volatility. In terms of external developments, low inflationary pressures have been also generated from commodity prices coupled with prolonged exchange rate appreciation;
- The analysis highlights that downward and low inflation rates represent a European and regional phenomenon. In general, headline and core inflation developments in Albania have been in line with inflation developments in the EU and regional countries. The gap between the average price levels in Albania vis-à-vis EU and regional countries is still considerable, especially for non-durable consumer goods and services suggesting low inflationary pressures compared to other countries.

Some of the factors mentioned above produce temporary effects on inflation. Others, being more structural, might have implications to the long-term inflation trend. As such, it is necessary to recognize, identify and take proper measures for avoiding deviations in terms of medium-to-long run trend. In this context, monitoring inflationary factors in Albania and the sustainability of the Phillips curve relationship would support the consistency of the monetary policy decision-making.

I. LOW INFLATION: A PHENOMENON OF THE POST-CRISIS PERIOD

In the post-crisis period, inflation was expected to be more sensitive to improvements of economic activity and employment. For several years, the process of convergence towards macroeconomic equilibrium has been slow and challenging. Developments in some indicators have been more accelerated while responses from others have been weaker and with longer time lags. From a global perspective, inflation has fluctuated at low levels despite signals for cyclical improvements in different economies.

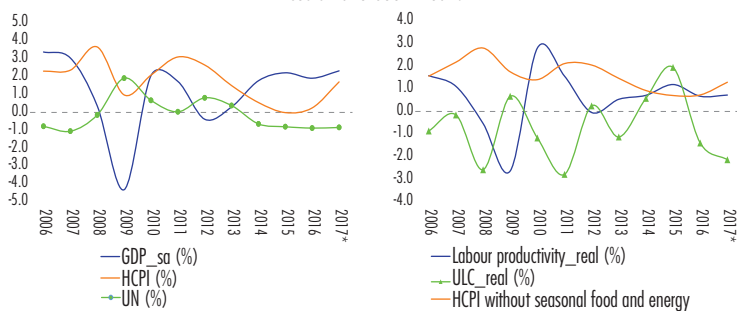
Since 2013, this divergence has become concerning, for the euro area, especially. The “conflict” between accelerating economic growth and positive employment performance versus a slower inflation rate and low inflation expectations show that the effects of the crisis have been more severe than expected by estimates. At the same time, the materialization of the positive effects from structural reforms implementation would result slower than expected.

The sluggishness of inflation to react to the positive developments in economic growth and employment and the persistence of this “divergence” in the post-crisis period, has been at the heart of a global debate as well as the low inflation itself. The ECB’s economists and the policy maker, have tried to explain the main causes of the low inflation rates since 2013. They have analysed this development as a phenomenon originated from the prolonged and contagious nature of this crisis.

Inflation has been persistently low since the beginning of 2017 and its return to central bank targets has been assessed as a longer process than expected, but achievable in the medium term. In spite of accelerated economic activity and labour market improvements recorded since mid-2016, inflation rose at a slower pace compared to what would be expected in a recovery period (Chart 1, left).

On one hand, growth has been supported by the coordination of macroeconomic policies. The expansionary monetary policy has encouraged the economic recovery at times even by implementing

Chart 1. Annual GDP growth and inflation in Euro area during 2013-2017, suggested the divergences between them. The annual inflationary pressures from labour productivity and labour costs have been weak.*



Source: Eurostat (extracted 06/12/17) and authors' calculations;
 Note: *] Indicators referred to January-October 2017.

non-conventional measures. Macro-prudential actions along with consolidating fiscal policy have maintained and strengthened financial stability. On the other hand, the measures for faster implementation of structural reforms in order to increase production toward the potential have been revised and encouraged. These reforms were aimed to enhance competitiveness, boost new jobs creation, and provide new impulses to total and labour productivity, in particular. Consequently, more favourable preconditions would be in place for increasing the use of spare capacities and promoting growth of productivity and wages in the economy.

Despite measures and efforts, inflation expectations have remained at low rates, for several reasons: firstly, because of strengthening their adaptive component due to increased uncertainties that associated the crisis and post-crisis periods and secondly, the trend of labour productivity has improved only slightly and unsustainably, it has failed to turn into a promoter for real growth in wages. Increases in the latter indicator have not been as substantial to shift significantly upwards the inflationary expectations, long-term inflation component, demand and inflationary pressures (Chart 1, right).

Meanwhile, the period 2014-2017 has been characterized by downwards shocks from low prices of commodities and foodstuffs,

diminishing the positive contribution from improved economic activity.

Inflation in Albania was not immune to the global trend of low inflation against the recovering economic activity, summarized in this introductory section. The working paper is organised as follows: Chapter II deals with macroeconomic aspects and stylized facts concerning inflation developments in Albania over 2013-2017; In the Chapters III and IV the main drivers of low inflation are analysed, focusing on domestic and foreign ones, with long-term or transitory impacts. In order to assess the inflation profile in a broader geographic perspective, Chapter V presents a comparative analysis of the inflation trends in Albania and other economies. The paper concludes with implications and recommendations regarding monetary policy-making process.

II. INFLATION IN ALBANIA OVER 2013-2017: STYLIZED FACTS

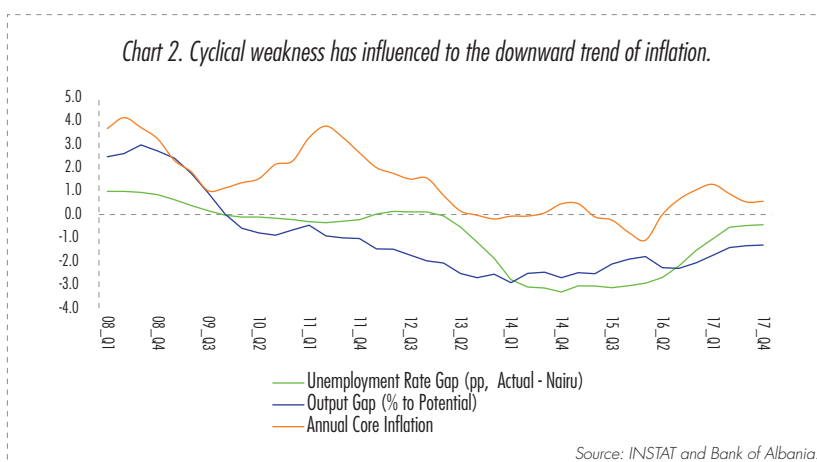
Low inflation has accompanied the Albanian economy over the period 2013-2017. Before spill over effects from the crisis hit our economy, it was characterized by overheating activity, rising asset and consumption prices, significant levels of current account and fiscal deficits, and a rapid growth of capital accumulation. On the ground of these developments, along with country transition specifics, significant disproportions in the allocation of growth resources according factors and sectors have been also present.

The Albanian economy has been growing over the period 2000-2017, though unevenly. The convergence process, the re-allocation of resources from the less productive sectors (agriculture) to the more productive ones (services and construction), the fast involvement of the innovation technology in communication, the increase of financial intermediation from the banking sector to the more productive sectors, have been important factors that have stimulated growth.

- **Period 2009-2015**

The economy demonstrated a prolonged slowed down trajectory with growth rates hovering at around 2%, in average terms, over the period 2009-2015. Economic performance was weak and the country was faced with the increased uncertainty due to the global crisis. Implications from foreign economy were reflected in the exports' deceleration and significantly slowed down credit growth, especially due to the tightening of financing standards from banks. The crisis led to lower confidence of economic agents, higher uncertainty of domestic and foreign investors, increasing the risk premium in financial markets. The crisis emphasized even more the sectorial imbalances in the activities that previously had determined the positive dynamics of growth. The expected results from undertaken reforms did not sufficiently encourage the strengthening of long-term growth resources. Consequently, economic slowdown in real terms was also reflected in the potential ones meanwhile the unemployment rate exceeded the equilibrium rate.

The slowdown of economic activity was reflected in rising unemployment, public debt and financial difficulties for firms and households. As a consequence, non-performing loans were also augmented. The cyclical weakness gradually deepened, producing non-negligible negative output gaps. The latter was followed by a negative unemployment rate gap¹. Since 2011, inflationary pressures from demand side diminished by materializing in downward trend and low rates of headline and core inflation (Chart 2).

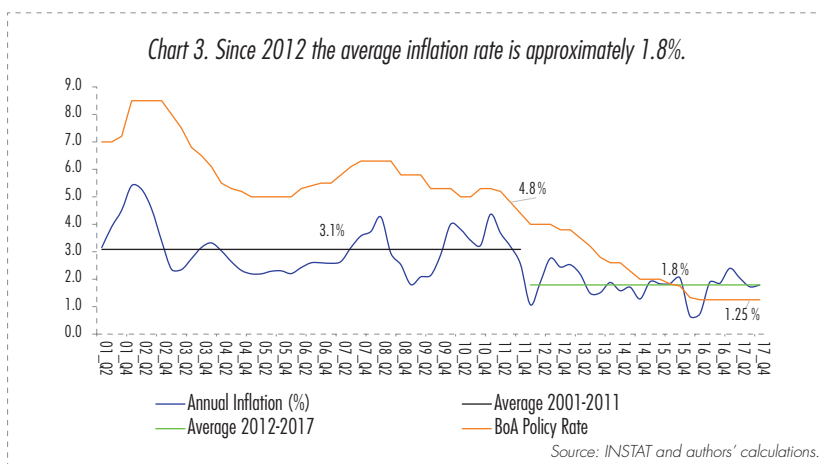


The capacity utilization rate in the economy fell below the historical average. The general uncertainty was materialized in the continuous decline of lending activity caused by both demand and supply-side factors. Despite the easing monetary conditions since mid-2011, aggregate demand continued to suffer from: highly volatile consumption contributions due to increased uncertainties; low private and public investments; unsustainable contributions of external components. Initially, the fall in exports reflected the contraction of foreign demand. Then uncertainties from the external environment increased with the fall in commodity prices. One of the main implications of this development was reflected in the reduction of exports of important production sectors in the economy.

¹ Calculated as a difference between NAIRU and actual unemployment rate (combining Quarterly IFS and administrative sources data).

Developments in the labour and production market have been accompanied by a negative performance of the total productivity factor in 2015 exerting low inflationary pressures from labour costs. At the same time, inflationary pressures from production costs also reflected the low historical levels and slow growth rates of commodity prices.

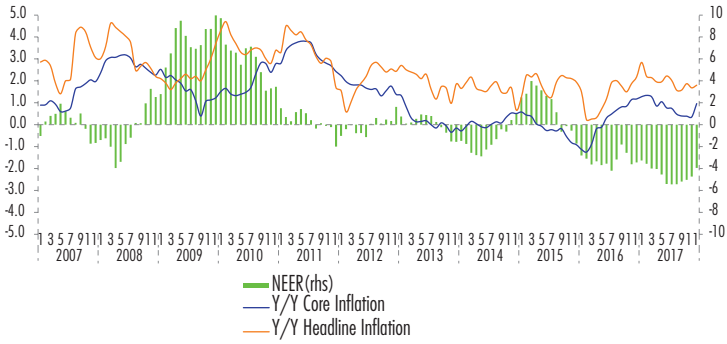
The implications of the cyclical weakness - materialized in the deepening of negative gaps in terms of output and unemployment - were reflected in a general subsiding inflationary pressures and inflation rates undershooting Bank of Albania's target. The accommodative monetary policy played a proactive role in the economic recovery by boosting domestic demand for the return of inflation to the target in the medium term (Chart 3).



Low inflation was not only result of long-term factors related to domestic demand, but also of supply shocks originating domestically or internationally. The imported inflationary pressures from low commodity prices, coupled with the appreciation of the exchange rate have been rather weak, particularly during 2016-2017 (Chart 4).

In addition to the above developments, the modification of the seasonal profile has been verified in terms of time shifts and relative

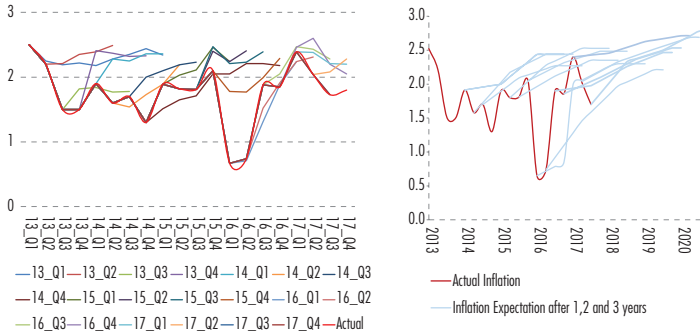
Chart 4. Exchange rate pressures have reduced headline inflation after 2015.



Source: INSTAT and Bank of Albania.

intensity compared to historical developments. Short-term supply-side shocks have also been frequent and sometimes quite strong on the downward side. The presence of a negative output gap for a considerable period of time has contributed to strengthening the inertia component in inflation and in inflation expectations, as well. Headline inflation remained below both the target and the forecasted levels, especially from the beginning of 2016 and onward. The short-term shocks of this period were not captured either by expectations or short-term forecasts. The falling effect of oil prices in international and domestic markets have been combined with the impact of exchange rate appreciation.

Chart 5. The highest deviation in forecast and expectation is driven by the downward shock of the beginning 2016



Source: INSTAT, Bank of Albania and authors' estimations.

Short-term forecasts and inflation expectations have been consecutively revised approaching to the actual inflation values (Chart 5). As a result, the convergence of inflation toward the target is assessed as an achievable process in the medium-term horizon, but longer than would be suggested by the historical estimates.

- **Period 2016-2017**

After 2013, when the GDP growth was 1% only, the macroeconomic framework has been relatively supportive for the economic recovery. This assessment is confirmed by the cyclical improvement during 2016-2017. The economy has expanded at an average rate of 3.5% with the unemployment rate dropping to 13.9%. The capacity utilization rates increased close to the historical average level and confidence indicators have improved.

Economic growth has reflected the global recovery trend already confirmed by international institutions (ECB)² and the effects of: easing monetary policy; high level of foreign direct investments; decline of economic uncertainties. The growth of the last years has been broad-based by components of aggregate demand and economic sectors. The main challenging issue is to ensure a sustainable growth in the long term, while the potential growth has been revised at 3.5%, slightly higher than the previous one (3.2%).

According to historical estimates, the dynamics of inflation has remained more sluggish than expected from the actual narrowing of the negative output gap. A full diagnosis of this persisting divergence is important to find the causes and to design the appropriate economic policies. According to our estimates we conclude that the monetary policy has functioned building up inflationary pressures from demand side. Yet, this process is hampered by: shocks from foreign prices and effects of the prolonged exchange rate appreciation; a possible higher slack in the labour market and a deeper output gap; a change in the Phillips curve elasticity, materialized in weakened relationship between inflation and output gap/unemployment rate. The inflation slowdown was driven by the strengthening of the inertia component that has led to increasing

² *Introductory speech by Mario Draghi, President of the ECB, at the ECB Forum on Central Banking, Sintra, 27 June 2017.*

the inflation persistence and lowering inflation expectations during the post-crisis period and beyond. However, these effects, partly temporary and partly related to more structural developments should be identified in order to take measures for avoiding the structural deviations of inflation from the medium-term trend. In order to ensure the anchoring of inflationary expectation to the target, the monetary policy will continue to ease monetary conditions.

Monetary policy is being transmitted, but its full effects on inflation are expected to be materialized more gradually. The pressures from the real economy require more time to be translated into rising inflation after a long period of slowdown. According to Draghi (2017), in order to stimulate this materialization, the monetary policy must be consistent and careful in adjusting the parameters of its rule, aiming to improve economic conditions.

III. LOW INFLATION - THE ROLE OF LONG AND SHORT-TERM DOMESTIC FACTORS

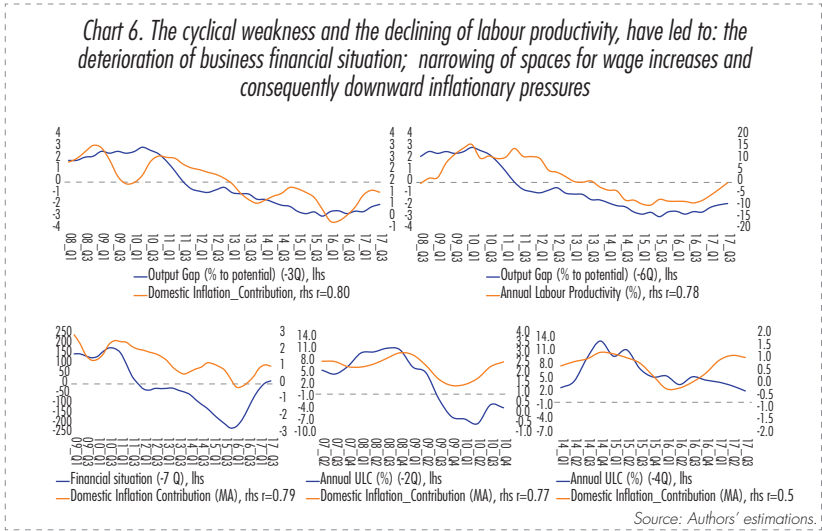
The upward pressures passed through the following channels: production - employment - labour productivity - wages and unit labour costs have been transmitted to headline inflation at low intensity. Inflationary pressures from the accelerating aggregate demand was better transmitted, but according to our assessments the effects from labour market and wages have been weaker than expected. The sizeable and prolonged economic slowdown, high informality and other features in the domestic labour market have retained wages too low to generate significant inflationary pressures from labour costs.

III.1. Output gap, business cycle in the economy and domestic inflationary pressures

Domestic inflation has reflected the weak pressures from the business cycle in the country. The output gap was in negative territory by mid-2011, but with an earlier downward trend. Even though the spare production capacity rates were increasing and investments shrinking, the reduction of human resource capacities has occurred later. The unemployment rate rose gradually with a noticeable negative gap after 2012. As a result, the total labour productivity slowed down continuously recording negative dynamics. The cyclical weakness was followed by the reduction of profit margins expressed in the downward trend of businesses' financial situation and, therefore, of the real wage in average terms and unit labour cost indicators. In order to maintain the market shares, businesses lowered prices or at least did not change them, without generating additional costs from labour inputs to the economy.

In this regard, the weakening of the business cycle and of the economy as a whole was materialized in declining domestic inflation, with certain time lags. As a result, the resources of households to finance consumption and purchases of durable goods suffered significant limitations. Meanwhile, employees had less opportunities to negotiate wages. The reaction of domestic

inflationary pressures with certain time lags to the weakening of business cycles since 2010, is illustrated in Chart 6.



Linear correlations are positively strong but with different time lags. Domestic inflation reflects lower demand pressures and losses in labour productivity dynamics (Chart 6 – upper charts). Its trend reflects the behaviour of businesses, which have lowered prices due to demand slowdown, leading in turn to the reduction of profit margins. This development is suggested by the deterioration of the financial situation and narrowing window to wage increases (Charts 6 - lower charts). The weaker relationship between the annual changes of unit labour costs (ULC) and the domestic inflation for the period 2014-2017 has been accompanied by a slower domestic inflation response versus movements in the ULC (from 2 to 4 quarter lags). Meanwhile, the period 2011-2013 is characterized by a lack of this relationship.

Domestic inflation has been slightly affected by the ULC, because their annual growth from an average of 8.2% in 2013-2014 fell by about 4 percentage points over 2015. Taking into account the time lags, this development is assessed to have contributed to the slowdown of domestic inflation during 2016-2017.

In addition to cyclical weakness during and post-crisis period, the correlations intensity of the relationships have also changed. Consequently, inflation is taking more time to absorb the positive effects from accelerating domestic demand and improvements in the business cycle.

III.2. The Phillips curve stability over time

The inflation dynamics during and after the financial crisis brought again in the centre of debates the Phillips's curve stability. After the crisis, interpreting inflationary pressures through the Phillips curve has become more difficult, because the curve has become flatter. Based on different approaches, the structural changes according to the Phillips curve specifications are verified to have occurred after 2011.

Most of the literature has focused on studying the links between inflation, consumer prices, labour, and production costs – with cyclical indicators in the economy. Literature also confirms that estimates of the Phillips curve slope depend on: the estimated period; the set of indicators that assess the cyclical position of the economy; and shocks to these indicators over time. In the global economy, the Phillips curve has been carefully analysed in the classical specification: the relationship between total inflation and core inflation with the unemployment rate, its gap and output gap. In the euro area, the Phillips's curve has examined the link between wage growth and cyclical indicators in the economy. This has been due to the fact that, in the euro area, domestic factors have played an important role in the stability of this relationship, besides the presence of disinflationary external factors. In addition, in some of euro area economies, labour markets have been reformed, generating shocks to specific variables and causing as such non-linearity in the relationships represented by the Phillips curve.

In the case of the Albanian economy, the empirical relationship between consumer price inflation and wages with output gap, unemployment rate and its gap has become flatter in the post-crisis period. Despite the smoothening tendency, the relationship between these indicators has not disappeared, but has, however, changed.

Firstly, this is because shocks to the variables have affected the behaviour of consumer prices and wage inflation against the unemployment rate “by weakening” the intensity of this relationship. Secondly, the presence of non-linearity has caused changes in the Phillips curve parameters over time. This relationship has different specifications for different periods of time in terms of period lags, parameter size and significance.

Discussions regarding the stability of the Phillips curve slope will be based on estimates from traditional approaches of the relationship between price and wage inflation with unemployment rate and its gap.

We discuss first a summary of the results related to short-run Phillips curve linear model (Eliasson, 2001). In the following specifications, the annual headline and core inflation rates respectively noted *P* and *Core*, in terms of gaps, depend on the persistence term, output gap and NEER gap variables, with different time-lags.

$$1. P_{gap_t} = \beta_0 + \beta_1 * P_{gap(t-k)} + \beta_2 * Output_{gap(t-l)} + \beta_3 * NEER_{gap(t-m)} + \varepsilon_t$$

$$2. Core_{gap_t} = \beta'_0 + \beta'_1 * Core_{gap(t-k)} + \beta'_2 * Output_{gap(t-l)} + \beta'_3 * NEER_{gap(t-m)} + \varepsilon_t$$

Initially, this model is tested for the presence of structural breaks. The estimates show that the relationship between the respective total inflation gap and core inflation with the output gap and exchange rate gap in NEER terms, has changed over time. The results of Chow-breakpoint test verify the presence of a structural break after 2011:Q4 in the headline inflation equation and after 2012:Q1 in the core inflation equation. This again confirms the fact that structural breaks in economic activity caused by the crisis (2009:Q4) led to changes in the relationship between inflation and output in gap terms, within a certain time span. Core inflation reflects this change in relationship later in time, but this is more pronounced. Final estimate results are presented in Table 1.

In both cases, the persistence intensified during the second period compared to the assessment for the entire period. Persistence is higher in the case of core inflation, since it is the most stable component

over time, and is, therefore, characterised by higher inertia. This makes core inflation less sensitive to short-term developments.

In both cases, persistence in the post-crisis period has been stronger, accompanied by a weaker effect of the output gap on total inflation (a smaller parameter) and less significant in the core inflation equation.

The period before the structural change, characterized by an output and inflation gaps around zero, showed different behaviours and time lags, generating different model specifications. For this reason, in Table 1, estimates are presented for the entire period 2001 – 2017 and for the last sub-period, following the respective structural breaks. The core inflation model has a higher adjusted R2 compared to the headline inflation one for both periods. Estimation results show higher persistence of core inflation than in the headline model.

Changes in the relationship between core inflation gap with output gap and the exchange rate gap signal the presence of time non-linearity. The strengthening of persistence and the decline of statistical significance of the output gap in the last period, demonstrate a change in the linearity of the relationship. The time-lag of the output gap has been extended from -2 to -4 quarters, signalling slower movements of inflation versus the output-gap changes. The parameter of the exchange rate gap has also increased in both specifications.

We can conclude that the relationship between inflation gap and output gap: (i) is present, but transformed in time due to the presence of non-linearity in the independent variables; (ii) has not preserved its stability throughout the estimated period; (iii) has strengthened the persistence of low inflation over the period of negative output gap. Furthermore, the gradual narrowing effect of the output gap after 2015 is partly offset by the sizable impact of the exchange rate appreciation, since the end of 2015 and onwards.

Table 1. Results show a structural break in the relationship inflation gap – output gap

	2002 – 2017	2011:Q4 – 2017
1. Total annual inflation (gap)	Dependent variable	
Independent variables		
a. Persistence Total annual inflation (gap) (-1)	0.400***	0.50***
b. Output gap (-2);(-4)	0.072***	0.058***
c. NEER_annual gap (-3)	0.068***	0.079***
d. constant	-0.66	-0.52
R2 adj.	0.53	0.602
	2004 – 2017	2012:Q1 – 2017
2. Core inflation annual (gap)	Dependent variable	
Independent variables		
a. Persistence Core gap (-2);(-1)	0.8***	0.85**
b. Output gap (-2);(-4)	0.04***	0.035**
c. NEER_annual gap (-3);(-3)	0.06***	0.065***
d. constant	-0.28**	0.008
R2 adj.	0.84	0.86

Source: Authors' estimations.

Note: (*) indicates statistical significance of parameters.

If there are different time lags according periods, they are both presented in parenthesis, besides the variables.

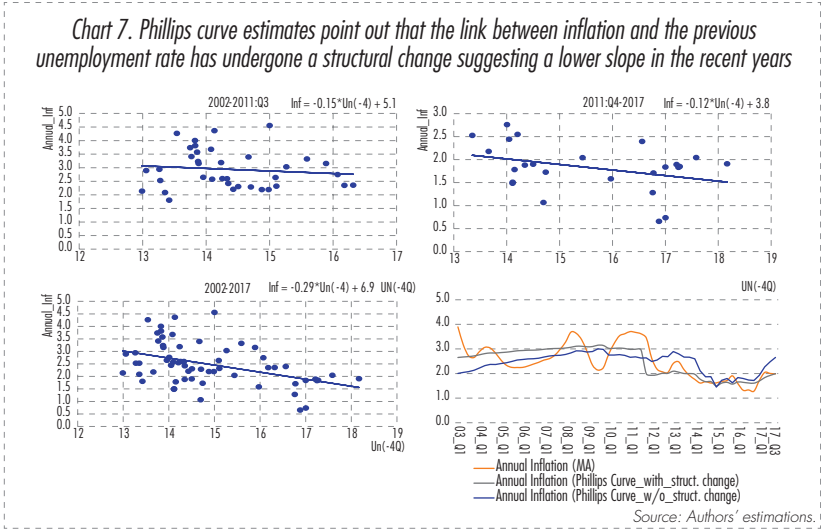
III.2.1. The Phillips curve slope: inflation– unemployment rate approach

The Phillips curve, estimated by the traditional relationship between inflation and unemployment rate, is estimated to be flatter after the crisis.

Inflation continued to be affected by the unemployment rate developments of the four previous quarters. The stability of the Phillips curve has also been modified suggesting weakening of this relationship. Past developments in the labour market and upward natural and actual unemployment rates have led to weakening inflationary pressures. In the post-crises period, the intensity was slower than expected from the cyclical improvements of the economy, mainly due to some features of the labour market³.

³ As will be explained in section III.3 and III.4, certain developments in the labour market might have contributed keeping the low level of wage growth rates.

The relationship is not stable, demonstrating also an asymmetry when the unemployment rate increases compared to cases when it is near or below the equilibrium rate. The coefficients that explain inflation developments depended on the recent unemployment rates, according to two sub-periods are significantly different. The coefficient resulted (-0.15) and (-0.12) for periods 2002: Q2-2011:Q3 and 2011: Q4-2017, respectively. The changes of the Phillips curve slope is presented in Chart 7/1.2. Excluding the structural break, the coefficient in the Phillips curve would be approximately (-0.29) (Chart 7/3). Under this condition, over the period 2012-2017, a higher inflation rate would be expected, according to the Phillips curve (Chart 7/4).



The Phillips curve demonstrates a slower response of inflation compared to the downward trend of the unemployment rate. Based on the Phillips curve and estimates considering structural changes, inflation explained by the unemployment rates only would result at about 3% and 1.8% for the two sub-periods, respectively. Fluctuations around these values are largely caused by the transitory shocks, and other factors not included in this regression.

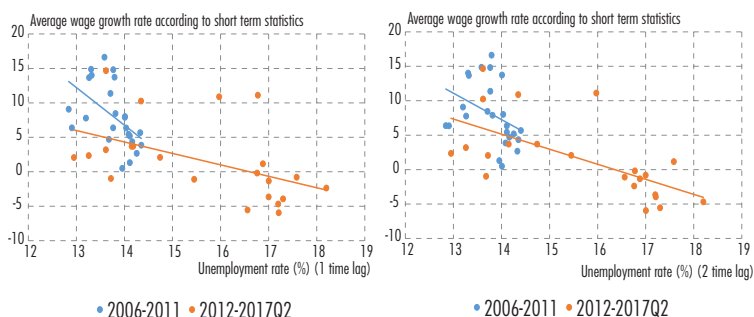
Estimates indicate that, if effects from factors mainly related to exchange rate, foreign prices and other short-term shocks were not considered during 2016-2017 (a period of cyclical improvements and falling of unemployment rates) then inflation would result higher than the actual one (1.6%). The above-mentioned factors have shifted the average actual inflation of this period downwards.

III.2.2. The Phillips curve slope: the wage – cyclical indicators link approach

The Phillips curve slope is estimated to have flattened after 2011 even according to the relationship between wages and indicators of the cyclical position of the economy.

In a domestic economic environment, in recent years, characterized by weak wage growth and rapid decline in the unemployment rate, there is a growing interest in studying this relationship in terms of its stability over time. Initially, the presence of a negative correlation between the average nominal wage growth rate according to short-term statistics data and the unemployment rate has been verified. Chart 8 shows their relationship over two different periods. At the beginning of 2012, a structural break is identified suggesting a potential weakening of the unemployment rate effect on the wage growth over the years 2012 – 2017. The wage channel has been slow to react and has been characterised by weak growth rates for the inflationary pressures in the economy to increase.

Chart 8. The Phillips curve, as a relationship between the wage growth and the unemployment rate, shows that the inflation reaction to the unemployment rate has been low particularly after the crisis



Source: INSTAT and authors' estimations.

To test for the slope of this relationship the following equation is estimated:

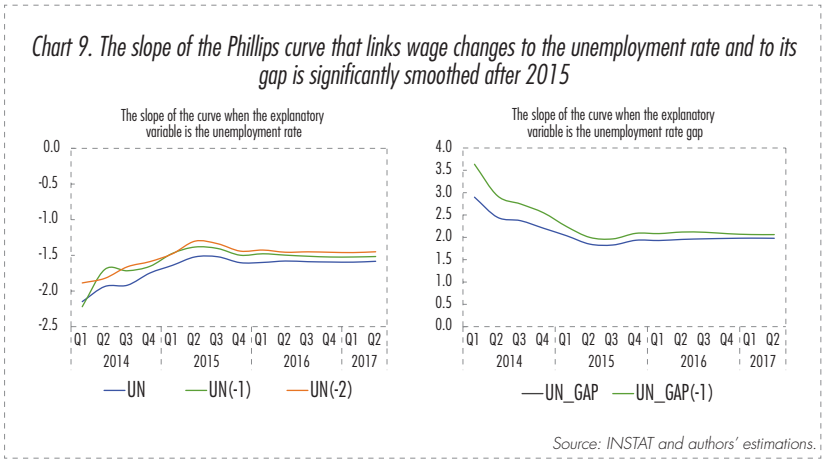
$$\Delta w_t = c + \beta \Delta w_{t-1} + \gamma U_{t-k} + \varepsilon_t$$

Where: Δw_t – the annual change of average nominal wage according to short term statistics;

Δw_{t-1} the annual change of average nominal wage a period before (persistence);

U_{t-k} – the unemployment rate k periods before.

Except for the unemployment rate, the equation has been tested for the unemployment rate gap, as well as the output gap.⁴ Initially, the equation is estimated for the period 2006 – 2014Q1. Then the time period has been gradually extended by one quarter in order to get the estimated slope of this curve for each year. Results show a slight smoothening of the slope of the curve over time, as presented in Chart 9.



⁴ In the equation a dummy variable for 2013 has been also used. As regards the unemployment rate, several specifications of the equation have been checked, where the unemployment rate has been tested for both its simultaneous impact on wage dynamics, as well as its impacts with 1, 2, 3 and 4 quarters time lags. All equation specifications show a smoothening of the slope, despite the differences in the coefficient size. Even the unemployment rate gap has been tested for the simultaneous impact and the impact with 1 quarter time lag. For more than 1 quarter time lag, the wage variable with 1 time lag results to be insignificant when in the equation the unemployment rate gap is used.

Empirical evidence for the instability of the Phillips curve, explained above, shows that low inflation is a process resulting mainly from a weaker reaction to labour market developments and relatively long time period with a negative unemployment rate gap. The latter has kept wages at low levels and low growth rates.

The relationship between total inflation gap and core inflation gap with the output gap and the nominal effective exchange rate gap is not stable over time. The persistence is higher during 2012 – 2017. This development might have been due to the non – linearity in other variables: such as unemployment rate, wages, inflation expectations, which in recent years have kept inflation at low levels.

III.3. Labour market and wage development

Labour market developments have exerted moderate pressures on wage growth.

Labour market developments have been among the most discussed macroeconomic issues during and after the financial crisis in advanced economies. Forecasts have underestimated employment growth rates and at the same time have overestimated the growth rate of wages. As such, these dynamics have raised questions regarding the use of the standard labour market indicators to assess conditions and spare capacities in this market. If standard indicators, such as employment and unemployment rate, suggest that labour market conditions are tight, other indicators might signal that there are still spare capacities.⁵

In theory, spare capacities in the labour market signal the presence of individuals looking for a job, which could reduce the labour force negotiating power regarding wages. On the one hand, if unemployment rate fall is not accompanied by wage increases, this may suggest that this rate will have to fall further until it generates upward pressure on wages to bring inflation back to target. On

⁵ As for instance, employees working hours generally tend to increase with the consolidation of the economic recovery. In addition, employees who have previously agreed to work part – time, might want to increase the number of hours worked or receive permanent employment contracts.

the other hand, this phenomenon might signal that the equilibrium unemployment rate is even lower. The presence of spare capacities combined with a lower equilibrium unemployment rate weakens the inflationary pressures generated by improvements in the labour market.

In the domestic economy, the improvement of economic activity and employment growth has not yet been reflected in a sufficient increase in the average wage. Domestic inflationary pressures have been subdued, keeping core inflation and the domestic component at low levels. This phenomenon might reflect (a) the presence of cyclical weaknesses, as well as (b) developments of a structural nature. Based on the identified and analysed factors, as well as the arguments offered by advanced economies that have also acknowledged the presence of this phenomenon, in this part of the analysis are discussed labour market developments for their potential impact on the moderate wage growth in the country.

III.3.1. Cyclical factors

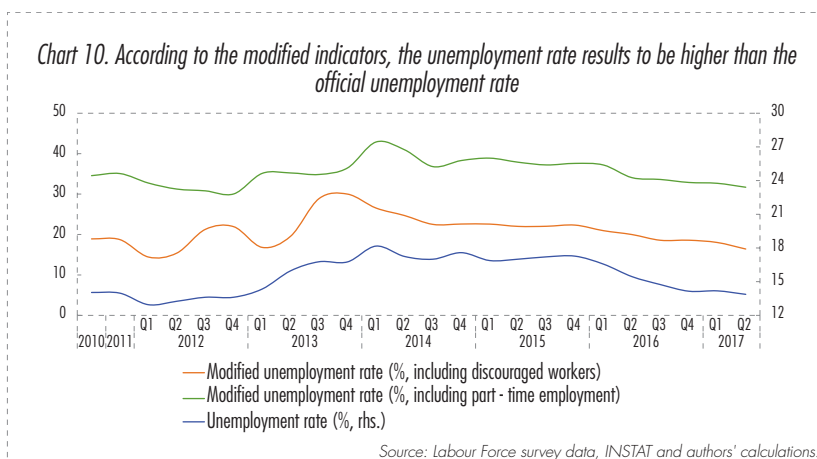
Alternative indicators of the unemployment rate suggest that spare capacities in the labour market might be at significant levels.

Economic literature proves that in reality the inflation and wage Phillips-curve model has a low explanatory meaning (Ciccarelli and Osbat, 2017). This signals a need to review other factors that might explain wage dynamics. In Europe, the analysis of moderate wage growth suggests that this might be due to both changes in the labour market structure, as well as in the wage setting process. One of the accepted arguments in the literature is that traditional variables that serve to estimate the degree of spare capacities in the labour market, such as the unemployment rate, are not showing accurately the degree of labour utilisation. Motivated by this, alternative unemployment rate indicators are constructed, taking into account certain categories of individuals who are not included in the calculation of the unemployment rate.⁶ These categories include discouraged individuals seeking employment, individuals who are

⁶ *These indicators are widely used by the US Bureau of Labour Statistics (referred to as the U6 indicator) and the OECD.*

looking for a job but are not ready to start work right away and individuals who work part-time⁷ and who would like to work more hours.

Two alternative indicators of the unemployment rate are built for the Albanian economy. One indicator takes into account discouraged persons, who are part of the inactive, while the other indicator includes persons who work part – time.⁸ The first indicator calculates the unemployment rate as a ratio of the sum of unemployed persons with discouraged persons to the higher potential labour force (as the discouraged category is added).⁹ Meanwhile, the second indicator is the ratio of the sum of unemployed people with part – time workers¹⁰ to the labour force according to the standard definition.



These alternative unemployment rate indicators suggest that spare capacities in the labour market might be more, affecting from around 16% (with discouraged persons) to about 30% (with part – time

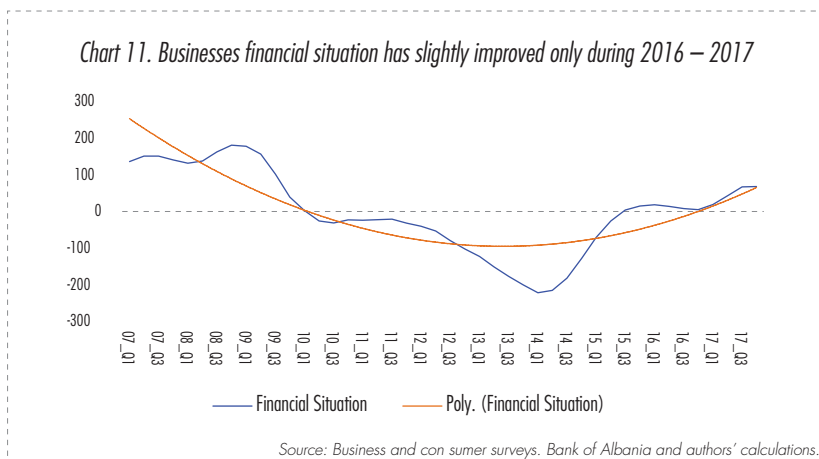
⁷ In the Eurozone economies, part – time employment has increased over a decade mainly as a result of structural factors (such as growth of the service sector and partly due to the increase in the participation rate of women in the labour force).

⁸ In the absence of data on part – time employees who have expressed their wish to work more hours.

⁹ The category of discouraged persons to find work accounts for about 3.6% of the working age population in the period 2014 - 2017 Q2.

¹⁰ They are treated as unemployed, in the sense that they represent individuals who would like to work more.

employment) of the labour force during the first half of 2017. This fraction is almost double the level suggested by the unemployment rate of about 14%, which might signal that spare capacities continue to limit the growth rate of wages in the economy. However, the two alternatives of indicators show similar trends with the unemployment rate and point to a higher utilisation of spare capacities.



Another explanatory factor discussed by advanced economies in the context of low wage growth, is the reluctance of employers to raise wages as long as profit margins are shrinking. In the domestic economy, these signals are given from the businesses financial situation indicator.¹¹ The trend of this indicator has improved over the period 2016 – 2017, after five years of fluctuating below the historical average. A simple correlation analysis¹² confirms the presence of the relationship between this indicator and wages with a lag not less than six quarters. Wage growth might follow a stronger amelioration of businesses financial situation.

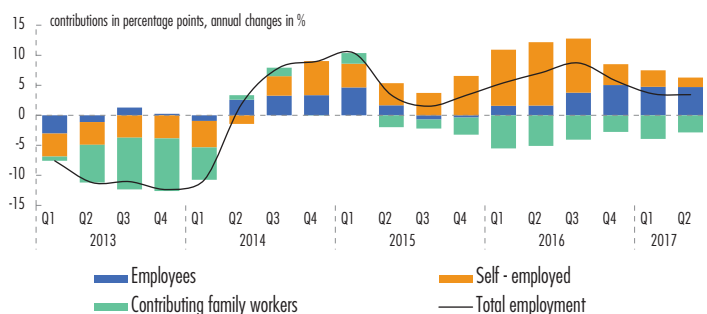
Self – employed represent a potential category of spare capacities in the labour market.

¹¹ As an indirect indicator for profit margins in Albania. The indicator is generated from businesses confidence survey data.

¹² The correlation of this indicator with the annual growth of the average wage in the economy is about 0.52.

Despite the strong employment growth and the rapid unemployment decline, wage growth in the country remains low suggesting the presence of potentially more spare capacities in the labour market, above the level suggested by the unemployment rate. Theoretically, self – employed (Appendix 1) could be included in the spare capacities in the labour market, and as such exert pressure that might slow down wage growth through two channels: firstly, this category might work less hours than they would like; secondly, they might prefer to work for a company, and as a result, be competitive in the labour market¹³ and reduce opportunities for wage growth. Employment growth over the period 2014 – 2016 has been significantly affected by the self – employed category. During this period, self – employment accounts on average about 70% of the employment growth rate.

Chart 12. Low wage growth was influenced by the increased contribution of self – employed to the employment growth during 2014:Q2 – 2016:Q3

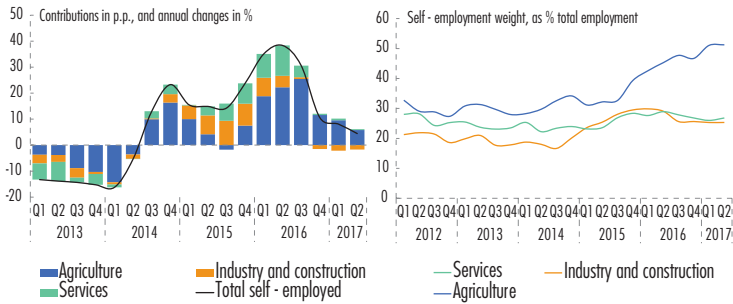


Source: Labour Force survey data, INSTAT and authors' calculations.

As self – employment is a phenomenon more present among the elderly compared to younger people, self – employment growth might also reflect the aging population. According to Labour Force Survey data, the share of those aged “65 years old and older” in employment shows an upward tendency after 2015, on average terms, and stays above the level during the period 2007 – 2011 (Appendix 2).

¹³ We do not dispose data from the labour force survey regarding the number of self – employed who would like to work more than what they are actually working, or those self – employed who are looking for work in businesses.

Chart 13. The agricultural sector is the main contributor in annual growth rate of the self – employment category, since 2016.



Source: Labour Force survey data, INSTAT and authors' calculations.

In sectorial terms, agricultural activity continues to be the main contributor to the self – employed category growth in the economy. However, an increase in self-employment can be noticed even in the industry and construction sectors, after 2014, a period of time that has been characterized by higher value added particularly in the construction sector. It must be mentioned that in 2015 Q3, the government undertook action against informality in the economy, which might have affected initially the formal declaration of this category of employees.¹⁴

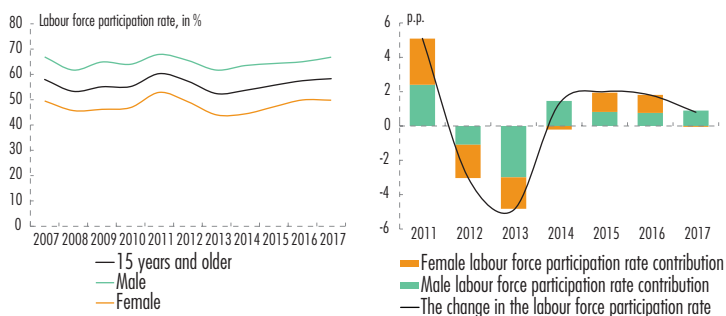
III.3.2. Structural factors

The participation rate among women and the gender pay gap has affected the wage growth slowdown in the economy.

Another factor that could explain the low growth of average wage in the economy seems to be the increase in the labour force participation rate driven mainly by the raising participation of women. This development would be translated into subdued growth in the average wage as result of the persistence of gender pay gap between women and men.

¹⁴ Various empirical studies aimed to assess the effects of formalizing the economy in employment, examine dynamics of self – employment and contributing family – workers.

Chart 14. The labour force participation rate by gender and the contributions of each category in the participation rate in the economy



Source: INSTAT and authors' calculations.

The labour force participation rate has been increasing since 2013, affected also by the active policies undertaken in the labour market.¹⁵ Despite the highest level of male participation in the labour force during the years 2015 – 2016, the increase in the participation rate among women has largely contributed to the labour participation rate in the economy. Even accounting for the slight narrowing tendency of the gender pay gap during 2017, the average monthly wage for a female employee is about 10.5% lower than the wage of a male employee.¹⁶

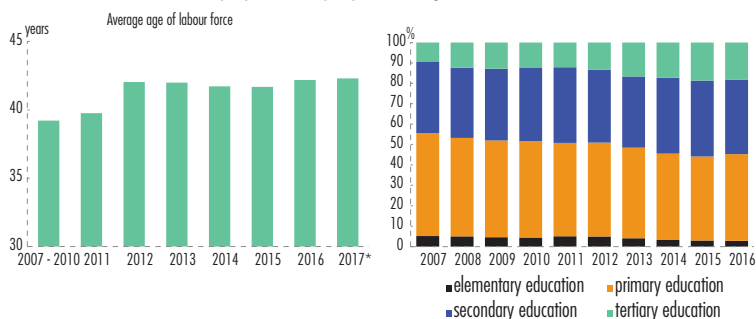
Specific developments suggest a decline in the equilibrium unemployment rate.

The increase in the average age of the labour force and the higher level of education are generally developments that tend to correspond to lower levels of unemployment. In addition, the tax – benefit systems reforms can decrease the equilibrium unemployment rate by adding incentives and skills to move from the status of unemployment to employment.

¹⁵ Related to job training or vocational training aimed at raising the economically active population and the training of individuals to adapt to labour market requirements

¹⁶ According to data in the annual publications related to the labour market. The gender pay gap has been slightly narrowing since 2015, when the average monthly gross wage for a female employee was about 11.5% lower than that for a male employee, and about 11.4% and 10.5% lower in 2016 and 2017 respectively.

Chart 15. Average age of the labour force has increased in parallel with the increase in the proportion of people with higher education



Source: Labour Force Survey data, INSTAT and authors' calculations.

Data from the Labour Force Survey show an increase in the estimated average age of the labour force from 39.2 years during the period 2007 – 2010 to 42.3 years in the first half of 2017.¹⁷ During the period under review, it can be noticed that the share of skilled labour force with higher education and postgraduate degree, though being low, has gradually increased. Meanwhile, concerning labour market reforms, one of the measures that might have had an impact is linked to the decision to increase the unemployment benefit.¹⁸

Despite the increase in the unemployment benefit income in 2016, rules for its eligibility have been strengthened since this payment is already a function of the period a person has contributed in the

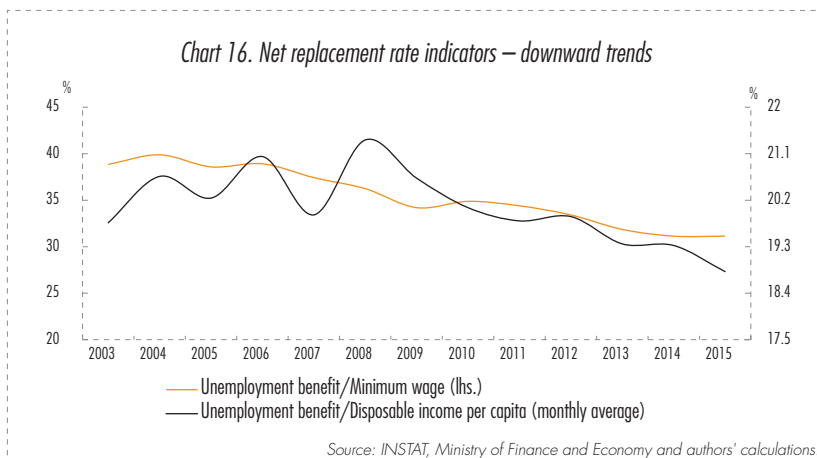
¹⁷ On the 1st January 2015, began to be implemented the gradual increase of the retirement age of women, one of the points of pension system reform in the country. Starting from this year, the retirement age of women will increase by 2 months each year. In 2015, women have retired at the age 60 years and 2 months, at the age 60 years and 4 months in 2016, 60 years and 6 months in 2017 and so on until the retirement age of women reaches 65. This affects the age structure of the workforce and in the medium term it is expected to impact the increase in the participation rate of women over the age of 60.

¹⁸ At the beginning of 2016, it was decided to increase the level of unemployment benefit, unchanged since the third quarter of 2011, from ALL 6,850 to ALL 11,000 (VKM No. 192, dated 09.03.2016 "On establishing the basic level of income from unemployment"; Guideline No. 13, dated 08.04.2016 regarding the implementation of VKM No. 223, dated 19.04.2006 "On the payment of the unemployment benefit" as amended).

social security scheme.¹⁹ Through this decision, among other things, a further reduction of the unemployment rate is aimed.²⁰

The drop in the net replacement rate indicator²¹ signals an augmentation of employees' incentives to find a job or to accept a job, even against a lower wage.

As a ratio to the disposable income per capita and the minimum wage level in the economy, the unemployment benefit has shown a downward tendency in time. These ratios approximate the net replacement rate indicator.



¹⁹ According to the new decision, individuals who have contributed more to the social security scheme will profit longer from the unemployment benefit. According to the government's decision, individuals with a contribution period of at least one year will receive only 3 months of unemployment benefit, those who have contributed for a period of at least 5 years will benefit for 9 months and those who have contributed in the scheme for more than 10 years will receive 12 months of unemployment benefit. According to the previous functional scheme the unemployed have received unemployment benefit for 12 months for the first time in this status, 10 months for the second time in the unemployment status and 8 months for the third time.

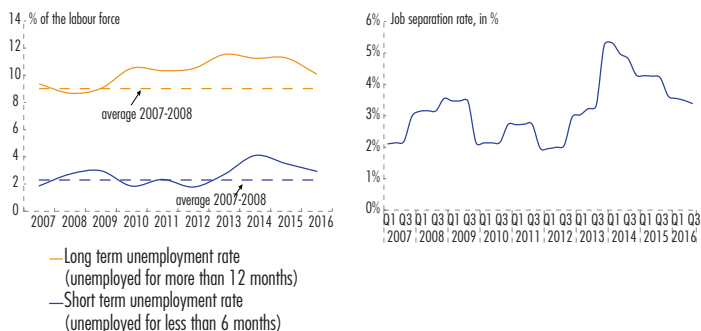
²⁰ In addition, employment offices all over Albania offer free of charge for each recipient of the unemployment benefit the opportunity to deepen their professional knowledge at vocational training centres.

²¹ It is calculated as a ratio of the unemployment benefit to net income.

Box 1. Labour force features that add uncertainties to the estimations of a lower equilibrium unemployment rate

Another indicator that shows how suitable the unemployed stock is to job vacancies in the economy is the period of time these individuals have been without work. Despite the downward trend of the short-term unemployment rate during 2015 – 2016, its level remains higher than the average during 2007 – 2008. This signals that a part of the young unemployed could not find a job for a shorter time than in the past. Likewise, the long – term unemployment rate has been higher in recent years, suggesting that this category of unemployed has encountered more difficulties in finding employment. As a result, it is expected to have exerted lower downward pressure on wages. However, the data show that also the long-term unemployment rate has a downward trend since 2015. These developments generally give signals for a higher equilibrium unemployment rate.

Chart 1. The unemployment rate by duration and the estimated job separation rate



Source: Labour Force Survey data, IINSTAT and authors' calculations.

Even the separation probability²² for an individual and its transition to the unemployment status is estimated at higher levels than in 2007 – 2008. Despite the downward trend over the period 2015 – 2016, the persistence of a higher job separation rate²³ might signal a higher level of the equilibrium unemployment rate.

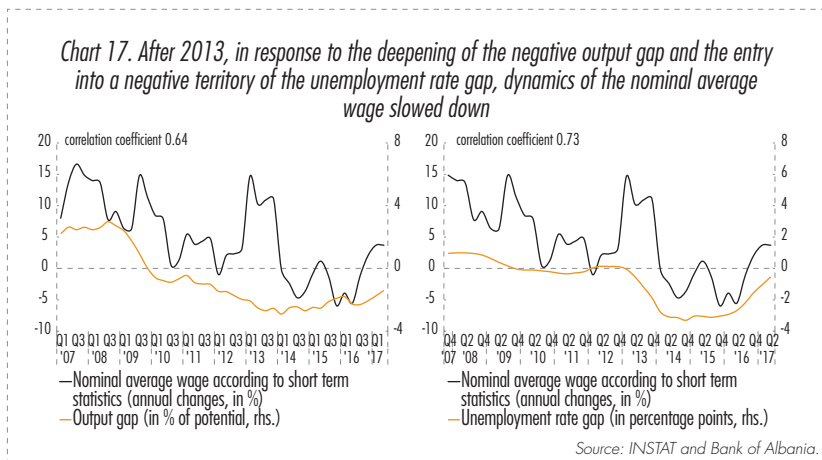
²² The separation probability. Authors' estimates, based on the Labour Force Survey data. The estimation takes into account short – term unemployment (unemployed less than 6 months), unemployment and employment in the economy.

²³ Job separation rate.

III.4. Wage inflationary pressures

Wage dynamics suggest that inflationary pressures are falling.

Despite the narrowing tendency of the negative output gap and the unemployment rate gap, the indicator used to approximate the average nominal wage²⁴ for the period 2014 – 2017 Q2 has decreased on average by 1.35% in annual terms against the increase by around 9.8% over the period 2006 – 2009. As such, inflationary pressures generated by wage dynamics are not only estimated to be low, but also at a slowing pace.



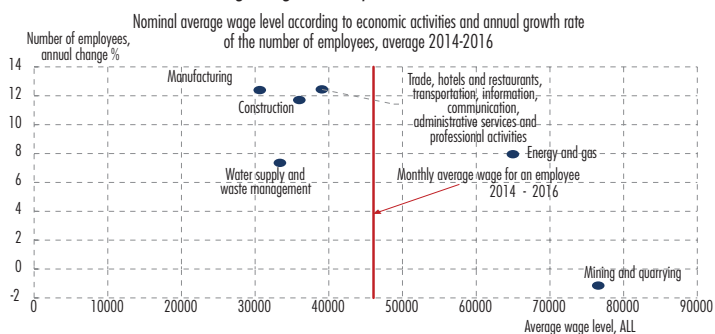
Developments in the estimated wage indicators have reflected continued measures undertaken by governments to reduce labour market informality. As a result, its dynamics have been significantly influenced by the effects of these decisions, which have been numerous until early 2014 and followed by the decision to increase minimum wage in Q2 2017 (Appendix 3).

Through the use of information from short – term statistics on the number of employees by economic activity, employment according to the labour force survey by sectors and the average monthly

²⁴ Estimated based on the economic activities covered by short – term statistics.

gross wage per employee for the period 2014 – 2016²⁵, we can form an idea regarding the concentration of employment by wage levels. This re – grouping would help us to understand whether low wage growth in the economy might also be reflecting the effect of employment composition.

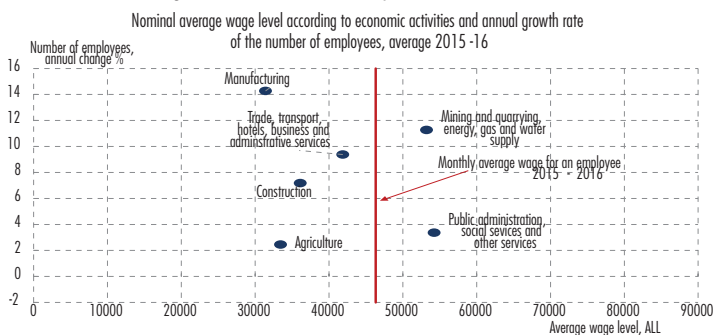
Chart 18. Employment growth has been higher in sectors with wage levels lower than the average wage for the period 2014 – 2016



Source: NSTAT and authors' calculations.

When analysing wage levels by economic activity in relation to the increasing number of employees according to short-term

Chart 19. The employment growth structure might have contributed to the slowdown of wage growth rates in the economy over 2015 – 2016



Source: Labour Force survey data, INSTAT and authors' calculations.

²⁵ The groups presented below by economic activities are conditioned on available data. For some of them, the average wage is calculated by maintaining the employment structure according to the General Directorate of Taxation, data from INSTAT (available only for 2015 – 2016).

statistics, it can be noticed that employment growth has shown higher rates in sectors with relatively lower average wage levels in the economy for the period 2014 – 2016 (Chart 18). Also, employment growth characterizes sectors such as services related to trade activity or business services that are characterized by lower productivity levels.

To get a better view of the economy, we combine employment data from the labour force survey with wages by sectors for the years 2015 – 2016. Even in this case, data confirm that the structure of employment growth might have contributed to some extent to the subdued wage growth in the economy over the recent years.

III.5. Inflation expectations

Inflation expectations have become more backward-looking in the post-crisis period, reflecting increasingly lower-than-before inflation rates.

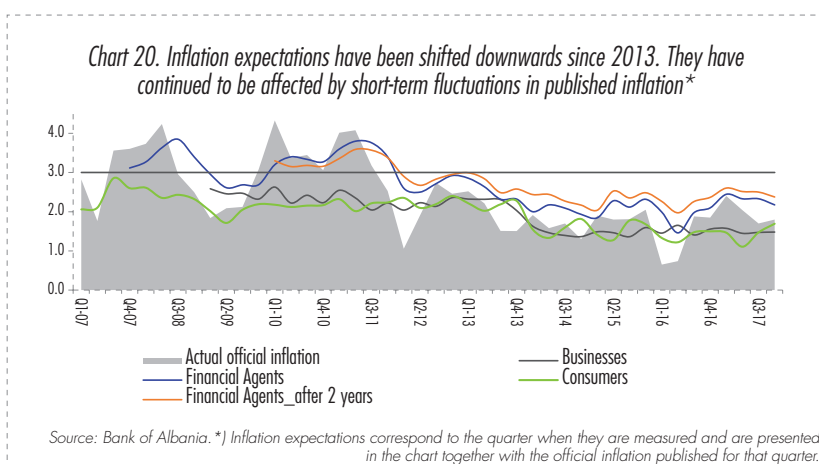
One of the factors explaining the weak relationship between cyclical improvements of EU economies and inflation is the de-anchoring of inflation expectations. The prolonged period of the crisis and the slow process towards recovery increased the uncertainty in the process of forming inflation expectations. The strengthening of the adaptive component has led inflation expectations to be more sensitive and they are affected more by low official inflation rates, showing de-anchoring signs. A greater degree of adjustment of expectations against the current low inflation rates is considered to have made more difficult the process of controlling inflation and thus achieving the monetary policy objective²⁶. If expectations are forward looking, businesses and consumers expect the central bank to bring inflation to the target in the medium term, despite its short-term fluctuation.

Various studies for other advanced economies have come to the conclusion that de-anchoring of inflation expectations began

²⁶ Vitor Constancio (2017): "Understanding inflation: lessons from the past, lessons for the future?", September 2017, ECB Conference, Frankfurt.

after 2014, reflecting a long period of low inflation rates. In the case of Albania, the results of recent tests on the rationality of the quantitative expectations of economic agents continue to verify the dominance of the adaptive component in their formation, without excluding the presence of a very weak rational component²⁷.

The strong adaptive behaviour of expectations in Albania is also underlined in the periodic assessments and analyses, suggesting that expectations, mainly short-term ones, fluctuated around the previous published inflation rates (Chart 20).



Has the adaptive nature of expectations in Albania been intensified in recent years, when inflation has experienced low historical rates?

To answer this question, the change in time of the rate of adaptation of inflation expectations to official inflation rates has been observed. The degree of adaption is measured by estimating a simple linear regression where actual expectations depend on the published previous period inflation. This equation is estimated on a rolling estimates window technique²⁸. The size of parameter β with

²⁷ Çeliku (June 2017) –Article presented at the International Conference, ISTI-VIII, June, 2017.

²⁸ For more details of the application in the case of inflation expectations see: Cicarelli, M. & Osbat, C., 2017, "Low inflation in the euro area: Causes and consequences".

every added quarter is recorded. That gives the evolution in time of the effect of past inflation on expectations:

$\pi_{t/t+n}^e = \alpha + \beta\pi_{t-1} + \varepsilon_t$, where: $\pi_{t/t+n}^e$ are inflation expectations formed in the period t for n periods in the future; π_{t-1} is inflation rate of the previous period.

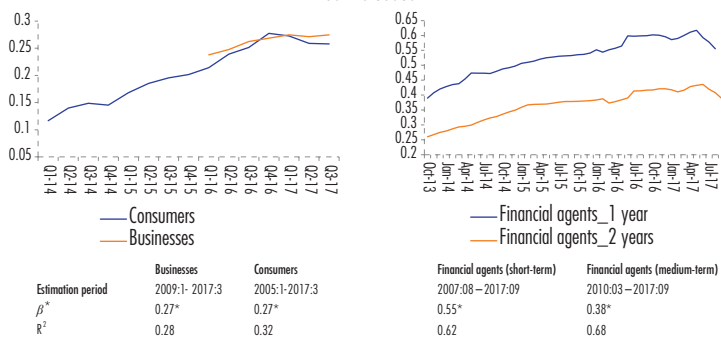
The above equation has been estimated for rolling windows of 4 to 9 years, depending on the length of time series²⁹. For a central bank this kind of analysis is more informative if it is done for medium to long term inflation expectations. At the Bank of Albania, only medium-term inflation expectations from financial agents are available. However, we will show the results of short term inflation expectations of businesses, consumers and financial agents in order to better understand if their behaviour has changed in the years after the crises.

Chart 21 shows how the size of the β coefficient has changed for inflation expectations of businesses, consumer and financial agents as well as some results from the regressions. In general, it is noted that the size of parameter β has increased for all three groups in line with finding of other authors in similar studies done for EU countries. It shows that inflation expectations have an adaptive nature, which has been increased with time. This means the inflation expectations have reacted more to the previous published inflation rates.

Increased dependency on past inflation is visible on inflation expectations of the three groups of economic agents. The largest change in behaviour is observed by consumers where the β parameter in 2016 Q4 (the highest value) is 1.7 times higher than the average for the period 2014-2015. For financial agents, the parameter β reaches the highest value in May 2017, resulting 1.3 times higher than the average for the period 2013-2015. However, beginning from the first and the second quarter of 2017, the sensitivity of expectations against published inflation has decreased. This is the more noticeable in the expectations of financial agents.

²⁹ In more detail, the rolling estimated window is 28 quarters for businesses; 36 quarters for consumers; 72 months for short-term expectations of financial agents; 43 months on the medium-term expectations of financial agents.

Chart 21. The dependence of inflation expectations on published inflation the previous period has increased



Source: Authors' estimations. Note: *Significance at 99% level.

In conclusion, the post-crisis period characterised by high uncertainties has made inflation expectations more adaptive to the published inflation, which has been particularly low after 2014. This has affected the degree of anchoring of inflation expectations or “de-anchoring” them, as in many other economies

III.6. Short-term shocks and their impact on inflation

Inflation experienced high volatility due to frequent short-term shocks. On average, their effects resulted in a reduction of total inflation over the period 2013-2017.

The downward trend of headline inflation in Albania after 2013, mainly influenced by long-term and structural factors, has been characterized by high volatility. In most cases, the volatility has reflected unexpected and short-term supply shocks. Inflation caused by supply-side factors (also known as cost-push inflation) is experienced in cases where there is an impact on production costs. During the period under review, several significant supply-side shocks have been identified, which further reduced the inflation rate. These include the reduction of commodity costs and transport

costs, etc. In small and open economies, supply shocks can also be transmitted by consumer price fluctuations in main trading partners or the exchange rate. Also, the added/reduced supply for seasonal food products can alter their seasonal effect. The alteration in timing and intensity of seasonal effects often causes downward/upward base effects on prices. During the period 2013-2017, there have been frequent episodes related to the single or combined presence of the above factors that affected the path of inflation. In general, they have impacted the downward trend of inflation. In other words, after strong shocks with downward effect, the inflation rate has not recovered to the former rates. Moreover, these effects have strengthened the long-term slowdown of inflation generated by the weakening of inflationary pressures due to negative output gap. This has pushed inflation away from target for a relatively long period of time.

Focusing on the last two years (2016-2017), the inflation rate was characterized by strong fluctuations as a result of supply-side shocks. During 2016, inflation had a rapid decline in the first quarter, low value stabilization in the second quarter and a progressive increase in the third and fourth quarter. The reduction of inflation in the first months of the year was a result of supply side shock combination: the fall in food price inflation and in oil prices which affected related services.

The rapid decline in inflation at the beginning of the year was not an isolated phenomenon of the Albanian economy: inflation in the euro area and the SEE region also fluctuated at very low and even negative rates (more detailed analysis in chapter 4). On the other hand, the growth of inflation in the second half of the year reflected weakening supply shocks and the strengthening of domestic inflationary pressures as a result of narrowing negative output gap.

The rise in inflation at the beginning of 2017 was mainly due to increasing prices of food products due to adverse weather condition. Fuel prices continued to be significantly higher than the previous year. Along with these developments, inflation rates also reflected the base effect of low inflation in the previous year (0.7%).

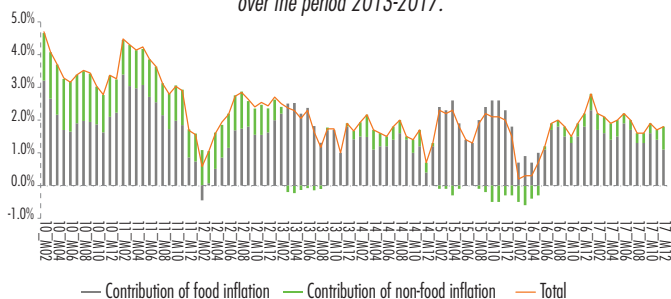
Meanwhile, inflation rates shrank in the third and fourth quarters of as a result of decelerating foreign inflationary pressures. This was a result of both exchange rate appreciation and the slow rise in foreign prices. At the same time, sluggish domestic inflationary pressures continued to be present in the economy, reflecting the negative output gap and slow wage growth.

The most persistent downtrend supply-side shocks have generated also a downward trend on inflation expectations. In the case of Albania, adaptive inflationary expectations may have created an environment with low inflationary pressures. Under these conditions, there is a risk of second-round effects which make supply-side shocks more long-lasting.

Box 2. Inflation’s contribution profile is dominated by “unprocessed food”, making headline inflation more sensitive to supply-side shocks.

Below is a more detailed information on the role and shift of contributions by categories and sub-categories of the CPI basket to the formation of the lowest inflation since 2012. Inflation build-up is dominated by the contribution of the food category, where “unprocessed food” contributions has been dominant since 2012. This sub-category has formed more than 70% of total inflation (1.3 pp. out of 1.8% inflation rate), determining the performance and fluctuations of total values. Meanwhile, in the period 2007-2011,

Chart 1. The “food” category has contributed for more than 2/3 of the total value of inflation over the period 2013-2017.



Source: INSTAT and authors' calculations

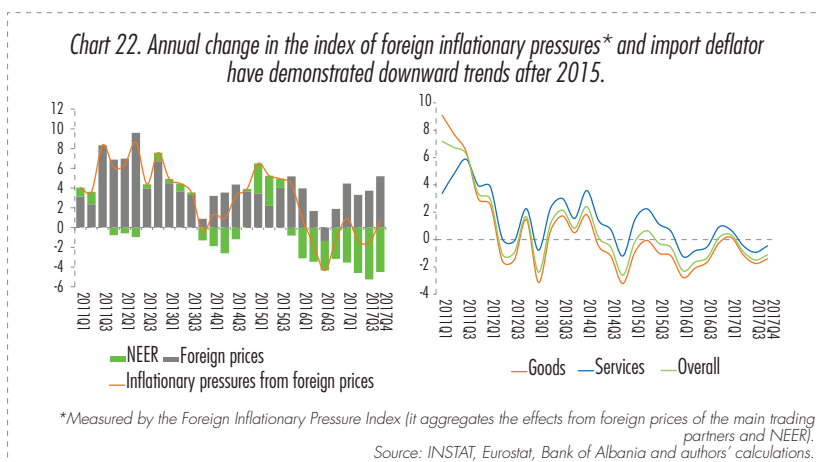
the underlying category formed only 20% of inflation (0.6pp. out of 3.1% inflation rate). The most noticeable drop in the contribution was demonstrated by the other sub category: processed food (0.3 pp. versus 1.4 pp. in the previous period). Contribution drops have also appeared in other categories. Thus, the "non-food consumer goods" has shrank from 0.2 pp. to negligible contributions. The same holds true for "housing" and "services". The decline was also significant in "regulated prices ", which fell from 0.4 pp. to 0.1 pp. on total. This development is influenced by the fact that the energy price that drives this category was only changed once after 2012.

IV. LOW INFLATION - ROLE OF FOREIGN FACTORS

Since 2013, imported inflation pressures have added to downside domestic contributions to overall inflation.

Global prices as well as exchange rate fluctuations have bearings on small open economies due to high import demand. In recent years, global as well as European economies have faced falling prices in terms of raw materials (oil, metals, and basic foodstuffs) and processed commodities. Low inflation has not spared services sub-categories including travel and tourism. Therefore, in spite of cyclical improvements, a special focus has to be extended on these international factors, which certainly contribute towards the falling overall inflation trend.

Post-crisis Albania has endured low and sometimes negative imported inflation rates. At the same time, since the end of 2015, the economy has experienced a continuous exchange rate appreciation both in terms of individual currencies (euro and US dollar) and nominal effective exchange rate. As a result, the Index for Foreign Inflationary Pressures has dropped by 3% on average for the past three years since 2015, mostly as a result of exchange rate effect overtaking the contributions stemming from foreign prices (Chart 22, left hand side). Low inflationary pressures are also reflected



from national accounts' import deflators (Chart 22, right hand side). Import deflators have been on a downtrend since 2011. Episodes of negative rates were visible in the years 2012-2014. Negative rates have been the standard in the years 2016-2017.

IV.1. Inflation decomposition – an alternative approach

Reduction has also been reinforced by the exchange rate appreciation since the end of 2015. Foreign inflationary pressures might have been transmitted both in terms of direct and indirect channels (through production costs) affecting the overall inflation rate in the process.

In light of these considerations, a deeper analysis of foreign inflation contributions is required. Actual estimations on foreign and domestic impacts are founded on the degree of product tradability according to the CPI basket. These estimations suggest that overall lower inflationary pressures are both a result of weaker domestic influences (based on factors analysed in Chapters II and III), as well as global components reflected in imported inflation.

In order to determine the impact from imported inflation, an alternative approach is proposed, independent from the CPI based approach. This alternative estimation is based on the method proposed by Sharify and Sancho (2011)³⁰. The approach enables the estimation of imported inflation, which includes both foreign prices and exchange rate effects based on the following statistics:

- Input-output tables;
- Disaggregated import deflators for goods;
- Overall import deflators for goods and services based on national account.

³⁰ E. Cela, September 2018, Forthcoming Study "An alternative approach for inflation decomposition in Albania in domestic and foreign contributions based on input-output matrices". This chapter summarizes the main results according this approach for Albania elaborated in the study.

Domestic inflation contributions are estimated as residual when imported contributions determined from the combination of the above-mentioned statistics are deducted from headline inflation.

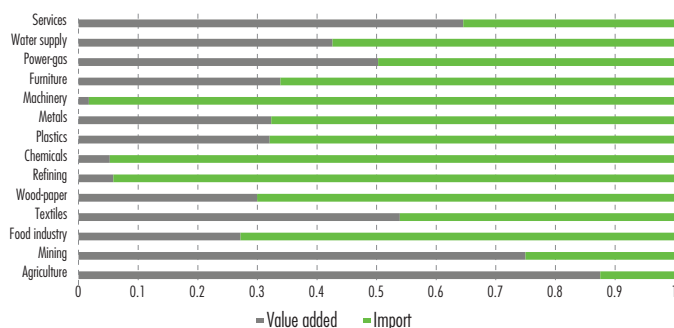
Box 3. Methodological steps in disaggregation of headline inflation

Detailed data from the National Accounts are applied in estimating imported inflation contribution by sector and overall. Disaggregated sectors are re-grouped in a way to resemble the CPI basket (based on 2016 structure). Inflation contribution by sector is disaggregated by the following formula:

$I_s = I_D * W_D + I_M * W_M$, where I_s – sector inflation (based on CPI basket re-aggregation); I_D – domestic inflation; W_D – share of domestic output on overall sector consumption; I_M – imported inflation; W_M – import share on overall sector consumption.

Domestic and foreign contributions are further disaggregated into direct and indirect. Direct contributions are related to value added or imported value ones associated with the commodities and services which is directly supplied into the market. Indirect contributions are associated with inputs employed in the production process as part of production cost.

Chart 1. Value added and import multipliers by sector



Source: INSTAT and authors' estimations.

Shares of imports in terms of direct supply or cost are based on sector-wise input-output multipliers. Estimating the contribution also requires the application of "prices", which are derived from import price index data. The direct impact is estimated by augmenting the portion of the multiplier that denotes the direct impact with the respective import price index belonging to the sector. In the case of indirect impact, the indirect components of the multipliers that denote the sector cost share are augmented with the respective import price index. The domestic contribution is estimated as a residual of total inflation less imported contribution.

Domestic contributions are not limited solely to domestic output. Domestic influences also include trade margins charged on imported products, which are not included in the import price. That is the case of certain commodities including "Fuels", "Machinery" and "Pharmaceuticals". Domestic contributions included also the impact associated with indirect net taxes or regulated prices.

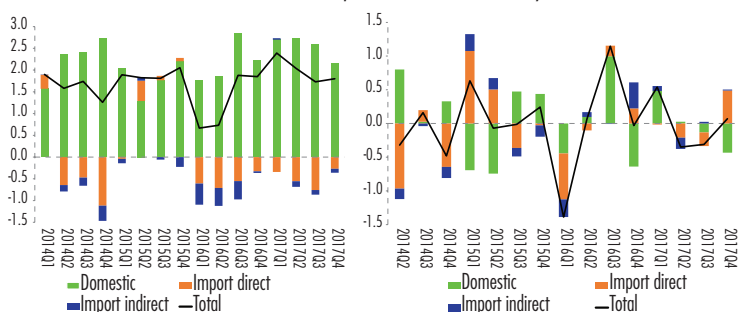
Domination of domestic inflationary pressures is clearly visible in: "Agricultural products" (unprocessed food categories represent the bulk); "Services" and "Textile, clothing, footwear and leather industry". In the last case, imported inflation contributions are transmitted both directly and indirectly channelled through input costs. Direct imported contribution becomes clearer in cases where imported output dominates e.g. "Machinery and equipment" and "Chemical and pharmaceuticals". In the case of fuels, domestic and foreign contributions are largely similar and also very much synchronized with one-another. Sector-specific contributions (both domestic and foreign) are weighted based on respective sector weights to determine contributions in terms of overall inflation.

IV.2. Inflation decomposition

Chart 23 (left) features overall inflation decomposition in terms of domestic and foreign contributions (direct and indirect effects outstanding). Based on these results, domestic contributions are

dominant throughout the sample. Imported inflation pressures feature mostly the decreasing side and are particularly significant in 2014 and in the years 2016-2017. Falling imported inflation pressures are also a result of a continuous pattern of exchange rate appreciation, which commenced in 2015 Q4. Generally, foreign contributions are smaller in magnitude compared with domestic ones. However, imported inflation (in particular the one channelled directly) has been instrumental in determining quarterly inflationary dynamics. In particular, the imported inflation impact has been considerable in 2016 Q1, when headline inflation stood at 0.67%, considerably lower from the previous quarter (2.05%). This particular quarter also featured a large negative cost-related imported inflation (generally related with falling fuel prices).

Chart 23. Disaggregated domestic and imported contributions on annual inflation (pp, left) and inflation quarterly differentials (pp, right), where the identification of the imported inflation sources helps to assess their intensity.



Source: INSTAT and authors' estimations.

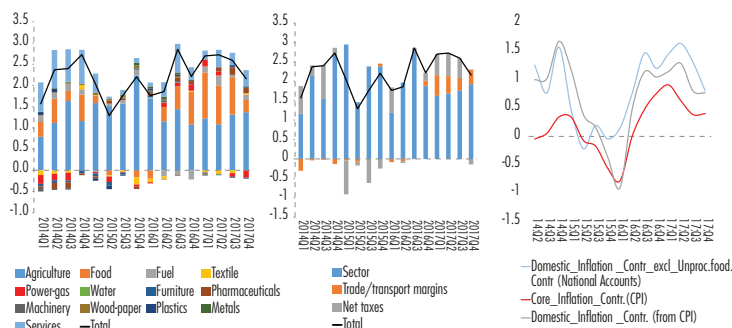
In terms of sector-based contributions, “the food industry”, which comprises mostly processed food, has been the main source of direct imported inflation contributions in the years 2014-2015. Meanwhile, in the years 2016-2017, negative imported contributions have been broad based. Except “Food industry”, “Fuels” and “Services” contributed negatively as well. Cost-based imported contributions show lower estimates in comparison with direct effects. They reflect, however, a larger magnitude in the period 2016:Q1-2016:Q3. In particular, costs associated with “Services” and “Food industry” were notably higher.

In the case of cost inflation, it is important to observe not only in terms of the sector that bears the costs but also in terms of the commodity that affects the costs of other sectors. Cost imported inflation decomposition reveals that the impact is mostly related to “Fuels”. Considering that fuels are an important component of production cost in the economy and that this commodity is mostly imported, it represents a very important channel for imported cost inflation transmission. Large negative impacts are observed mostly in the period 2016:Q1-2016:Q3. The impact is mostly observed in the case of “Services” as fuels represent a very important component of cost in the services sector. As of 2016 Q4, imported “Fuel” contributions have shifted into positive territory.

Box 4: Alternative approaches in the estimation of domestic inflation contributions and its decomposition based on national account statistics

Sector-based decomposition of domestic inflation contributions (with the assistance of national account statistics), reveals that domestic contributions are largely determined by food related sectors. According to domestic contributions decomposition by price-formation components, value-added related influences represent the major factor (left and middle chart). Falling contributions from value added points out towards the weakness of domestic inflationary pressures, which could turn out to be evens smaller in the absence of effects associated with trade-transport margins and net taxes.

Chart 1. A general convergence is observed between different estimations for domestic inflation.



Source: INSTAT and authors' estimations.

The comparison of the two approaches for determining domestic inflation and estimations on core inflation point out towards similar average rate and volatility in terms of domestic inflation. On the other hand, core inflation is generally more stable and features lower rates (right, Chart 1 in this box). That is associated with the fact that core inflation represents a narrower concept compared with domestic inflation.

IV.3. Exchange Rate

The exchange rate remains one of the main determinants of inflation in Albania, despite a weakening of pass-through over time. The appreciation of the exchange rate since 2015 Q4 has reduced headline inflation hampering upward pressures from the cyclical improvement.

Inflationary pressures are also weakened by the prolonged appreciation of the exchange rate. Since September 2015, the domestic currency has consistently experienced an appreciating trend both in nominal and in real terms against the main trading partners' currencies. This phenomenon is assessed to be mainly related to the creation of a surplus of foreign currency generated from high inflows (high growth rates of FDIs) on one hand, and the reduced need for financing (continued reduction of current account deficit) on the other.

The average annual rate of the exchange rate appreciation in nominal effective terms (NEER) over the period 2016 - 2017 was about 4%. The appreciation intensity has increased from 3.3% in 2016, to 4.2% and 5.1%, in 2017 H1 and H2, respectively. About 54% of the appreciation in the period January 2016 - June 2017 was caused by the appreciation of the domestic currency against the euro. Since August 2017, the domestic currency has also been significantly appreciated against the US dollar by approximately 8.2%.

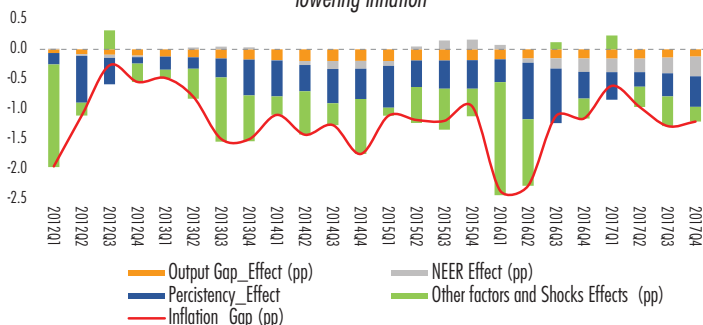
The appreciation of domestic currency can be transmitted through several channels in the economy, but the most important ones are:

(a) the direct channel through which exchange rate appreciation has subdued the inflationary pressures from the imported goods' prices of the CPI's basket; and (b) the indirect channel through which the appreciation of the exchange rate may have adversely affected the competitiveness of our products, lowering economic growth and, consequently, weakening inflationary pressures and widening the inflation gap.

Based on different approaches the estimates converge to pointing out that the exchange rate appreciation has had a direct effect in widening the inflation gap for the period 2016:Q2-2017:Q3, by about 0.22 percentage points, versus a negligible effect of the period 2013Q1-2016:Q1. This effect has resulted even higher (0.3 percentage points) by the end of 2017 (Chart 24).

In addition to the negative impact from the exchange rate, inflation has remained low by the presence of the negative output gap. The latter has contributed by about -0.15 percentage points to widening negative inflation gap over 2016-2017, compared with a stronger impact (-0.18 percentage points), in 2013-2015. The decomposition's exercise points out that the low inflation rates were also influenced by: a larger contribution generated by the higher persistence after 2016:Q1 (averaging at -0.6 percentage point); other factors from foreign prices, transitory, but strong supply-side shocks, etc., have also resulted with sizeable contribution to keeping inflation at the lowest historical rates, especially over 2016-2017.

Chart 24. The appreciation of the exchange rate has contributed to the reduction of inflation since Q2:2016 (-0.3 percentage points in H2:2017). The effect of the negative output has been weaker in lowering inflation



Source: Authors' estimations.

V. LOW INFLATION IN ALBANIA: A COMPARATIVE ANALYSIS

Albania, as well as other countries of the SEE region and the EU, has been characterized by improvement of economic activity during 2016-2017. In these countries, economic growth and employment indicators have been generally improving; meanwhile, the uptrend of inflation has not been stable. Above all, the core inflation trend, as the component that can signal the sustainability of the headline inflation rate in the future, has remained weak until October 2017³¹. This is reflected particularly in the services component of core inflation, which is more affected by domestic demand performance.

The following is a comparative analysis of headline inflation and its components for Albania and other European Union countries. For a comparison between countries, the consumer price index is disaggregated using the same methodology as the one used by the ECB for analysis and published by Eurostat³² (Chart 25). In the period after 2012, headline inflation in both Albania and EU countries has been undershooting the target. However, the lower rates of inflation in Albania and the EU are explained by different contribution from constituent groups.

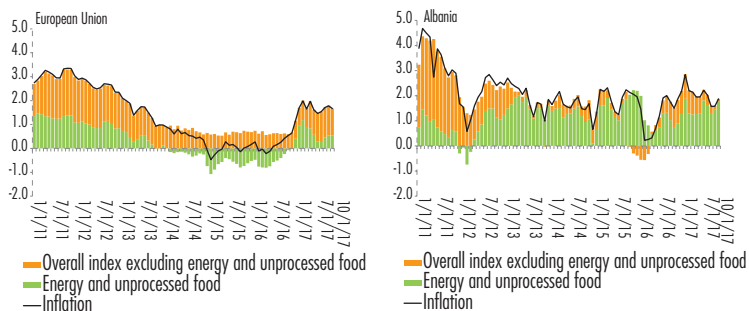
Starting from 2017, inflation has shown signs of improvement, but growth remains below target and pre-crisis levels. During the first ten months of 2017, headline inflation in the EU fluctuated from 1.7 to 2%. In terms of contributions, it is mainly formed by the services and energy price inflation. The exclusion of the effect on more volatile prices (energy and unprocessed food) creates an approximate measure of core inflation. The latter is low, but gradually increasing in the EU. After reaching 1% in 2017 Q1, it accelerated to 1.3 and 1.5% in the next two quarters. The recovery

³¹ Mario Draghi, November 2017, speech at Frankfurt European Banking Congress "Europe into e New Era – How to Seize the Opportunities".

³² The CPI is disaggregated into six groups: unprocessed foods, processed foods, energy goods, services, industrial goods and goods at administered prices. Comparison with the EU countries is done only for the first five groups. As a core inflation measure serves total inflation without the group of unprocessed food and energy and as a measure of non-core inflation serves the inflation of the energy group and unprocessed foods.

of core inflation in the EU has been driven by increased services price contribution. As shown in the charts, core inflation has formed 62% of total inflation in the EU.

Chart 25. The profile of the contributions in headline inflation in EU and Albania, according two main groups is quite different. The contribution in the EU inflation are almost balanced, while the formation of inflation in Albania is dominated by the contribution of more volatile food-components.

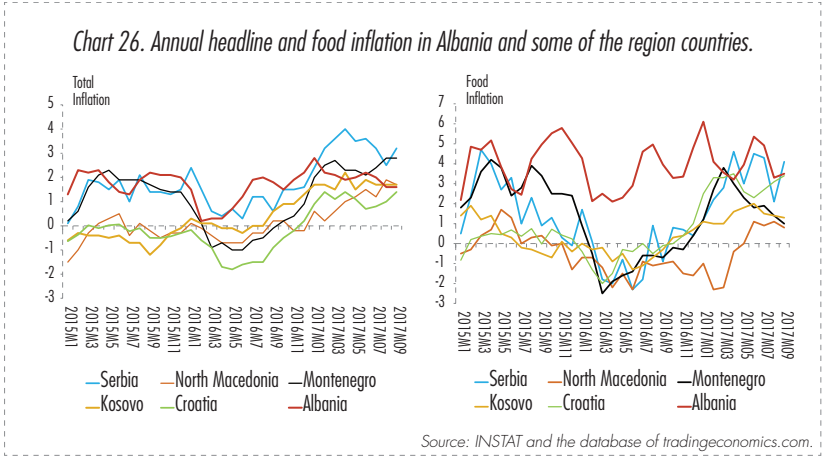


Source: Eurostat, INSTAT and authors' calculations.

In the case of Albania, headline inflation recorded 2.4% in 2017Q1 and then slowed down to 2 and 1.7% in the next two quarters. Unlike inflation in the EU, inflation in our economy was largely formed by the contribution of unprocessed food inflation. The core inflation measured as headline inflation less unprocessed food and energy, unlike in the EU, has been following a downward trend over the first three quarters of 2017. Thus, it reached 1.3% in the first quarter and slowed down to 0.8% and 0.4% in the following quarters of 2017. In terms of contributions, unlike the EU's inflation, core inflation in Albania accounted for about 27% of headline inflation during 2017 (Appendix 4).

Compared to the countries of the region, inflation rates development are similar begging from 2017 (Chart 26). During this period, inflation increased mostly due to the lower comparative base with the previous year. During 2016, deflation was registered in most of the countries of the SEE region. In contrast to Albania, inflation in these countries continued to increase in the next two quarters and was mainly determined by services price inflation. In Albania, the main contributor to inflation was food price inflation.

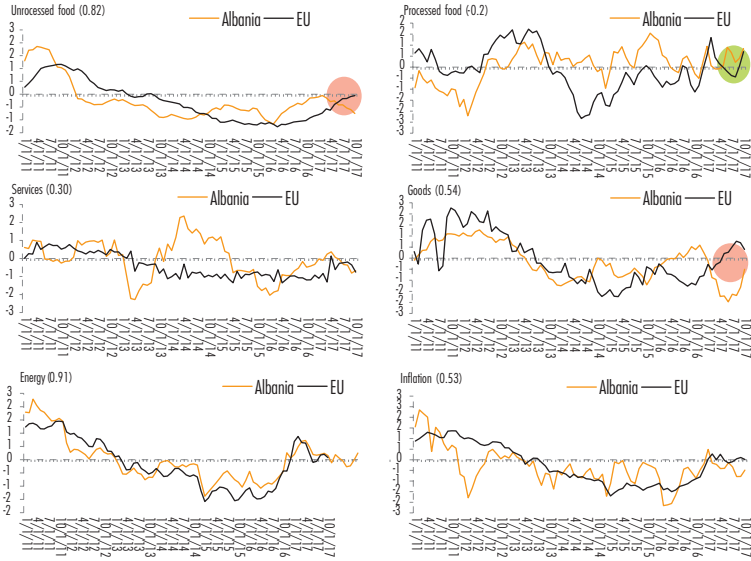
The latter have affected the decline in inflation during the second and third quarters of the year, because of temporary supply shocks.



In more detail, the developments of the components of total inflation of EU and Albania are presented in chart 27. Inflation rates of different groups are standardized, to facilitate comparison³³. In this way the chart is interpreted as standard deviation point distance of inflation from historical average. Similarly to both the EU and Albania, inflation of the two most volatile groups: non-processed and energy, are above average during 2017. Similarly, the group of processed food and services has fallen below the long-term average. In the case of processed food inflation, the difference from the historical average is most noticeable for Albania affected by the appreciation currency from the end of 2015 and onwards. The most pronounced divergence between the EU and Albania is the behaviour of industrial goods inflation, where Albania's level is significantly below the long-term average. However, as will be shown later, this group has achieved the highest level of convergence of prices with the average of EU countries.

³³ For every group the long-term average is subtracted from annual inflation and then divided by its standard deviation.

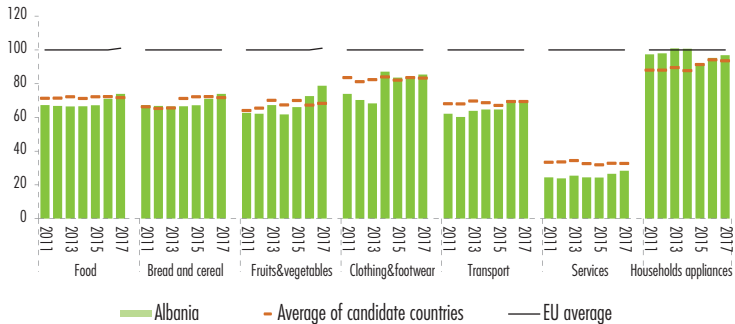
Chart 27. Headline and groups inflation, standardized annual rates (in brackets are the correlation coefficients).



Source: Eurostat INSTAT and authors' calculations.

Part of the comparative analysis is also the comparison of price levels in Albania with the average price levels in the EU countries and other EU candidate countries. Chart 28 illustrates this comparative analysis for Albania. It is based on the price level indices published for some categories by Eurostat until 2016. These indices show

Chart 28. Price level index in Albania shows higher convergence for the durables group, while the most obvious difference is in the services level price index



Source: Eurostat.

where the price levels of different countries are positioned compared to the EU average. If the price level index is greater than 100 (the EU average), then this would indicate a relatively more expensive country than the EU and vice versa.

The group with price level near the EU level is that of durable goods as well as clothing and footwear (tradable goods of the CPI basket). The level of food prices in general is below the EU average and the SEE region starting in 2011. In 2016, food prices in Albania converged, approaching the average of the price level of candidate countries. The largest deviance of price level compared to the EU and the average of other countries is noted in the service group prices.

VI. CONCLUSIONS AND RECOMMENDATION FOR MONETARY POLICY

This paper attempts to structurally analyse the sources behind lower inflation in Albania in the years 2013-2017. Further, it focuses on factors leading to low inflation since 2015, at a time when economic recovery in terms of growth and employment should have produced higher inflation rates. Although the phenomenon is not made in Albania, it is important to analyse the factors leading to this "divergence", their nature and, whether they are temporary, structural or a combination of both. Deepened knowledge of the facts would determine the future lifespan of this occurrence. At the same time, it would be useful to advance policy recommendation in order to overcome this condition of low inflation in the economy.

The analysis focuses on major factors leading to inflationary developments. The structural factors associated with the labour market, output gap, wage dynamics and inflation expectations are the first to be taken under consideration. At the same time, shock-related factors, e.g. domestic supply, foreign prices and exchange rate, are also included to complement the analysis.

The overview of all factors concerned reflects a position of fundamentally low inflation similar with development in the EU and neighbouring economies.

- First, the income and cost channel represented by wages and unit labour cost respectively, are defined as long-term factors inhibiting inflationary revitalization. This is associated with a general feeling of economic insecurity as employers struggle to increase wages in view of profit margins remaining low. At the same time, labour and general factor productivities persist on negative dynamics. Last, in spite of improved economic conditions, spare capacities are still persistent both in output and labour markets procrastinating growth.
- The second structural factor concerns the fundamental explanatory variables of inflation. Neo-Keynesian and Philips Curve based models suggest the presence of shifting relationships between variables in the Albanian economy. The

relationship between price and wage inflation on one side, and the output gap and unemployment gap on the other has weakened in particular since 2011. This shift is evidenced in all Phillips Curve based approaches suggesting the presence of a flatter curve. Therefore, inflation has become less reactive to output and employment developments.

- The persistence of weak cyclical conditions for comparatively long periods of time has produced low inflation persistence. This further inhibits inflation pick up under economic improvements. Additionally, this led to a general “de-anchoring” of inflation expectations and their divergence from the inflation target. All this points out toward a deep structural problem in the economy, which is not to fade out in the immediate future.
- Structural factors were joined by negative shock development. Domestically, food categories (both processed and unprocessed) generated the primary contributions on overall inflation. In recent years, these contributions have been a constant target of predominantly negative shocks. In the case of unprocessed food, a new factor affecting domestic prices has emerged recently: exports. For some time, exports of unprocessed food mainly towards neighbouring countries have expanded substantially reaching 10% share of overall commodity exports. Nevertheless, export flows reflect large patterns of seasonality. This translates into major occurring of surplus or deficit in the domestic market with major impact on prices in response to strong or weak export performance. Considering the unexpected nature of the phenomenon, it has the potential to compromise the quality of inflation forecasts in the short-run.
- The country has faced continuously negative imported inflation contribution for more than three years. A general drop in foreign prices associated with major production inputs (including fuels and metals) coupled with a long period of domestic currency appreciation were the factors behind low and even negative imported inflation. Strong negative shocks were recorded in the first quarters of 2016, at a time when inflation rates rock-bottomed. The impact associated with fuel prices might had been stronger in this period due to certain regulatory developments in the domestic market. At the same time, direct

low import prices emerged in the case of “processed food” and “services”. Although large negative contributions from import prices thawed in recent quarters, imported inflation rates remain low also as a result of continuous currency appreciation.

Low inflation is defined as a structural problem in the economy.

- The accommodative monetary policy has the purpose of bringing inflation back to target. Pass-through is slowed down from both structural and cyclical factors.
- Cyclical factors emerge from spare capacities in the economy reflected in negative output and unemployment gaps. There is evidence that both gaps are shrinking. However, gap closure has to be joined by certain structural factors if inflation is to return to target. This requires deeper intervention through long-term measures which have long-term sustainable impacts. These measures would include:
 - Structural reforms in the labour market including employment and wage-setting formalization;
 - Productivity represent a major structural issues. Feeble productivity in the economy is unable to generate economic security and promote higher income, profit and as a result stronger demand-pulling inflationary pressures;
 - The economy requires major interventions in terms of determining the right economic development model and afterwards in pinpointing the necessary investment (both public and private) to sustain it.

Ultimately, the conclusions of this paper will assist in the analysis, forecast and communication processes of monetary policy. It is, therefore, crucial that they are fully addressed and implemented in all these spheres.

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APPENDIX ³⁴

Appendix 1 (A.1)

*Self – employed**

According to OECD, self – employment can be considered as a strategy of individuals who have no other alternative to generate income, or as a desire to engage in entrepreneurship and to manage a business activity. Meanwhile, ILO specifies that wage income for self – employed is a function of profits (or potential to generate profits) triggered from the production of goods and services³⁵ of a business activity. Self – employment categories differ according to the nature of the authority individuals have in the production unit they represent or for which they work.

More specifically, self – employed can be grouped into **“Employers”** who hire one or more individuals to work for them as employees; **“Own – account workers”** are those who have the same authority in the entity as well as an employer, with the difference that they do not employ employees; **“Members of producer’s cooperatives”** who participate with equal rights with other members in the management of the production process and other functions; **“Contributing family workers”** cannot be considered as partners in the functioning of the production unit, as the scale of their engagement in the unit both in terms of working time, as well as in terms of other factors, is not at a level comparable to that of the manager of the unit. This category of workers is considered unpaid, because they do not have a formal contract, which sets a fixed amount of income at a regular basis, but are paid as a function of the income generated by the enterprise. **“Contributing family workers”** are particularly important in agriculture and retail trade activities.

Meanwhile, Eurostat groups employment into two major categories: employees and self – employed. The latter represents the employed persons or co-owner in an enterprise, which is not

³⁴ Appendix 1-3 from I. Metani; Appendix 4 from E. Kristo and G. Hashorva

³⁵ Self – consumption of these goods and services is also considered part of the profits.

legally established as a corporation. Self – employed include contributing family workers, individuals working in environments **“out – of – work”** such as at home and workers who are engaged in the production process, which is entirely destined for final use or capital formation (both individually and collectively).

INSTAT, in the Labour Force Survey, categorizes employment by status in employment in **“Employees”, “Employers”, “Own – account workers”** and **“Contributing family workers”**. In this analysis, employment by status is grouped into **“Employees”, “Self-employed”** and **“Contributing family workers”**.

Appendix 2 (A.2)

Since self – employment is a phenomenon more present in older ages relatively to younger people, the self – employment growth may also reflect the aging population. According to Labour Force Survey data, the share of the group **“65 year old and older”** in total employment shows moderate growth rates after 2015 and stays above the level for 2007 – 2011.

A.2.Table 1. Employment according to age – groups (% of total employment)

Employment (% of total employment)	2007 – 2011	2012	2013	2014	2015	2016	2017*
15 – 29 years	24.6	19.5	19.5	19.2	18.9	18.3	18.4
30 – 64 years	73.7	76.7	77.2	77.8	78.3	78.5	78.2
65 years and older	1.7	3.8	3.3	3.0	2.8	3.2	3.4

Source: Labour Force survey data, INSTAT. Authors' calculations. For 2017, the data are disposed up to the second quarter.

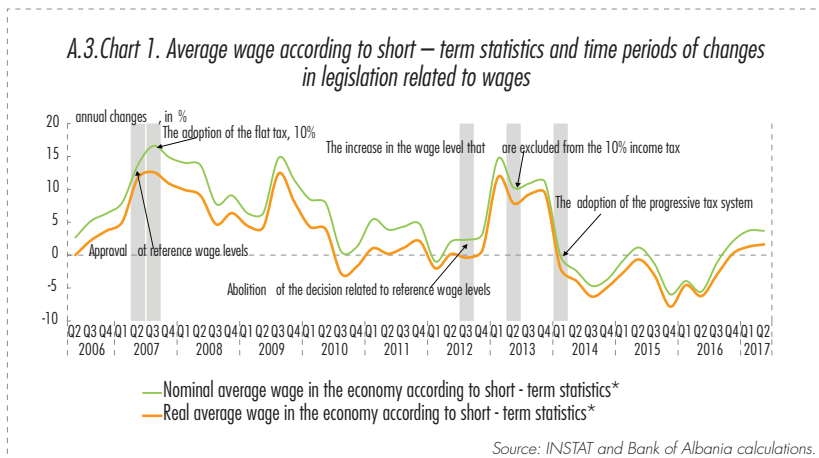
Beside the demographic developments, self – employment growth might also reflect the increase in the share of self – employment among different age groups, including the elderly. The chart below shows an upward trend in the share of self – employment in line with the increasing age of individuals since 2012.³⁶



³⁶ In advanced economies it is argued that this phenomenon may reflect the effects of the financial crisis and the consequences associated with the economic slowdown. Thus, for example, weak labour demand is likely to have driven part of individuals who couldn't find a job to get self – employed. Also, the low level of household income in real terms is likely to have encouraged the participation of individuals near the retirement age in the labour market, where some might be self – employed.

Appendix 3 (A.3)

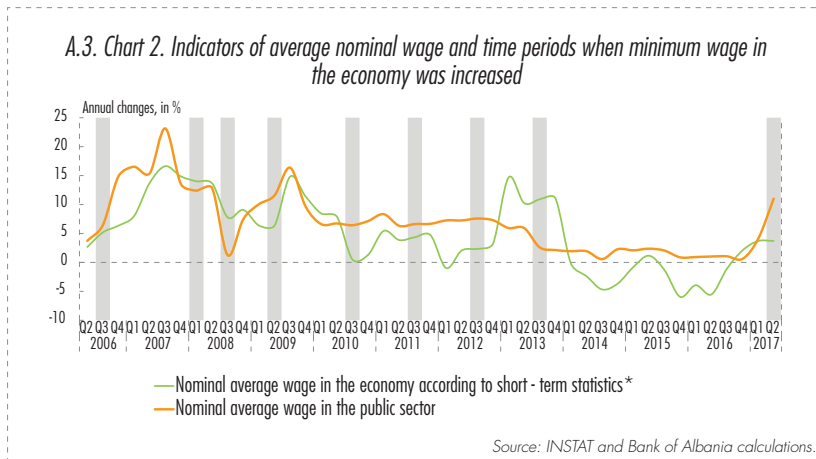
The quarterly indicator that approximates average wage is computed as the ratio of the wages and salaries index to the index of the number of employees according to the data of short – term statistics published by INSTAT. This generated indicator of average wage provides information only for the activities covered by the survey³⁷ and only for wage earners in the surveyed units excluding “Employers” category. The indicator seems to have reflected in time the measures taken by governments according to the relevant years (the following chart) to promote formalization in the labour market (in terms of salary and employee declaration).



This approximate average wage ratio in the economy appears to be related to the performance of the average monthly gross wage in the public sector (the correlation coefficient of their annual changes is about 0.7), but this shows a relatively weak relationship to minimum wage in the economy (the correlation coefficient is about 0.42).

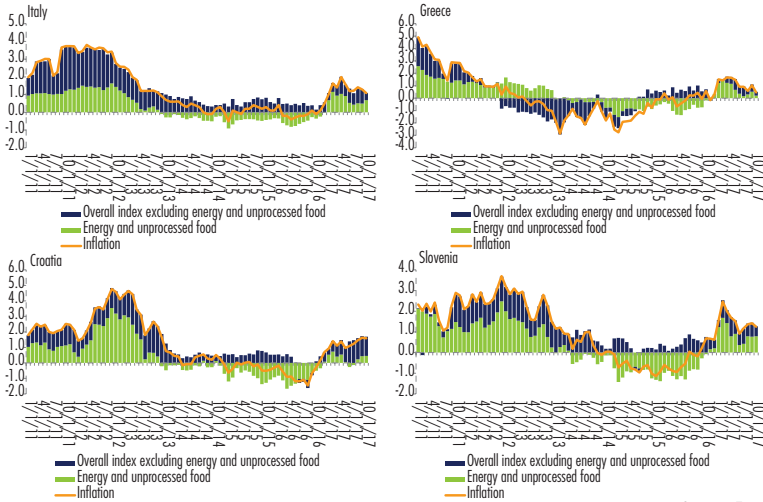
³⁷ The economic activities included are: “Mining and quarrying and Manufacturing industry” (05 – 33), “Electricity, gas and steam” (35), “Water supply, sewerage, waste management and remediation activities” (36 – 39), “Construction” (41, 42, 43), “Total sale and repair of motor vehicles” (45), “Wholesale” (46), “Transportation and storage (including postal and courier activities)” (49 – 53), “Accommodation and food services, hotels” (55.1), “Information and communication” (58, 61, 62), “Architectural and engineering activities” (71) and “Administrative services and ancillary activities – Travel agencies” (79).

At a more representative scale in the economy, INSTAT has reported and calculated in the annual labour market publications a gross monthly average wage for an employee with data from General Directorate of Taxation. This indicator covers all activities in the economy, but this information is available at an annual frequency and covers the period 2014 – 2016.



Appendix 4 (A.4)

A.4. Chart 1. Inflation performance in several EU countries (annual changes in %) and contribution of two main components inflation (contribution in p.p.).



Source: Eurostat.

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