



ROMANIA

SELECTED ISSUES

May 2016

This paper on Romania was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on the information available at the time it was completed on April 22, 2016.

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: <http://www.imf.org>
Price: \$18.00 per printed copy

International Monetary Fund
Washington, D.C.



ROMANIA

April 22, 2016

SELECTED ISSUES

Approved By
**The European
Department**

Prepared by Li Lin, Piyaporn Sodsriwiboon, Vahram Stepanyan (EUR) and Ivohasina Razafimahefa (FAD).

CONTENTS

INFLATION AND INFLATION EXPECTATIONS IN ROMANIA	4
A. Introduction	4
B. Drivers of Headline Inflation	6
C. Drivers of the Two-year Ahead Inflation Expectations	9
D. Inflation Outlook and Policy Implications	10
E. Conclusion	12
BOX	
1. Prices Wage Dynamics in Romania	13
ANNEX	
I. Methodology and Data	15
References	17
THE NEED TO BOLSTER EXPENDITURE EFFICIENCY IN ROMANIA	18
A. Introduction	19
B. Economic Classification	20
C. Functional Classification	24
FIGURES	
1. Fiscal Adjustment	19
2. Total Spending: 2013 vs. 2008	19
3. Cumulative Change in Wage Bill 10 Years After First Year of Measures	21
4. Interest Payments, 2006–14	22
5. Expenditure by Economic Classification, 2013	22

6. Capital Spending _____	23
7. Education Spending and Outcome _____	25
8. Education Inputs _____	25
9. Health Spending _____	26

TABLES

1. General Government Expenditure, 2005–14 _____	20
2. Pension _____	27
References _____	28

MINIMUM WAGE POLICY IN ROMANIA _____ 29

A. Minimum Wage Setting in Romania _____	29
B. Minimum Wage Developments and Its Interactions with Relevant Macroeconomic Variables _____	30
C. Economic Impacts of Minimum Wage Increases _____	32
D. Minimum Wage Policy: International Experiences and Policy Recommendations _____	39

TABLES

1. Minimum Wage _____	29
2. Wage and Income Distribution _____	36

APPENDICES

I. Wage and Income Distribution _____	41
II. The Impact of Minimum Wage on Export Performance _____	42
References _____	43

FINANCIAL SECTOR DEVELOPMENT IN ROMANIA: AT A CROSSROADS? _____ 45

A. An Overview of Romania's Financial Sector _____	45
B. Financial Development and Inclusion: A Cross-Country Perspective _____	49
C. Determinants of Bank Credit in Romania _____	52
D. Financial Sector Policies: The Past and Priorities for Future _____	56

BOX

1. Progress with NPL Reduction _____	49
--------------------------------------	----

TABLES

1. Regression Results Under Benchmark Specification _____	53
2. Regression Results Under Alternative Specifications _____	54

ANNEX

I. Construction of the Financial Development Index	59
References	60

INFLATION AND INFLATION EXPECTATIONS IN ROMANIA¹

Core Questions and Findings

- **Is the negative inflation in Romania a concern?** Unlikely. Key factors behind the fall in inflation were oil and food price developments and especially the recent reduction in the VAT rate. Despite the fall in headline inflation, underlying inflation is positive and rising, and inflation expectations are close to target. Going forward, a number of domestic factors point to a potential buildup of inflationary pressure that should be carefully monitored.
- **What have been the key driving forces of inflation in Romania?** We estimate an augmented Phillips Curve to investigate the determinants of headline inflation. The estimated model suggests that headline inflation follows closely the developments of inflation expectations. Changes in supply-side factors (including euro area core inflation, international oil and food prices, and exchanges rates) also explained the inflation dynamics. The model estimated a pass-through coefficient for changes in indirect tax at around 75 percent.
- **What have been the key drivers of inflation expectations in Romania?** We find that inflation expectations are largely linked to the inflation target and the pass-through from past inflation to inflation expectations is small, which suggests that a severe “inflationary/deflationary spiral” is unlikely. It also implies that the current negative headline inflation would likely have a small and transitory effect on inflation expectations.
- **What are the prospects for headline inflation in the next two years?** The estimated model suggests that inflation will return to positive territory in the second half of 2016 when the impact of the June 2015 VAT cut on food items fades out. It is expected to stay at the upper part of the variation band in 2017. Upside risks derive from further populist measures in an election year, such as further increases in public sector wages and minimum wages, which could create inflationary pressure in Romania without corresponding advancement in productivity gains.
- **What should be the policy responses?** Going forward, monetary policy tools could be usefully deployed to guard inflation and inflation expectations. If inflation projections rise considerably above the upper target bound, a combination of policy tools and communication could usefully be deployed.

A. Introduction

1. Headline inflation has come down markedly in Romania over recent years. Romania experienced elevated levels of inflation in early 2000s which it was able to bring down on account of successful wage policies to decelerate nominal wage growth and relying on exchange rate as a nominal anchor to contain

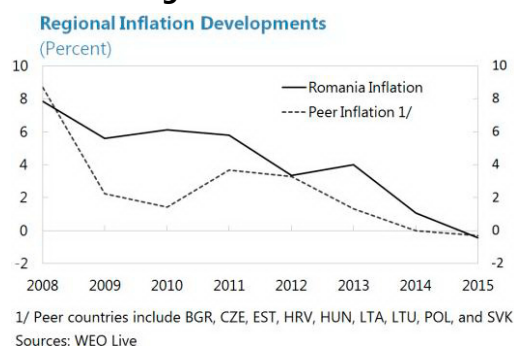


¹ Prepared by Li Lin.

depreciation. Direct inflation targeting was introduced in August 2005 and since then inflation has been close, though mostly slightly above, the target range. In the very recent period, headline inflation has declined in Romania further and fell below the target in 2014 before entering the negative territory in June 2015.

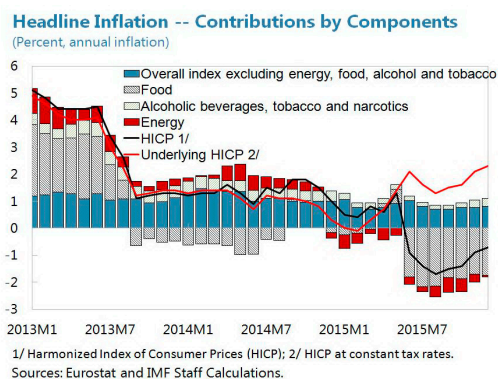
2. The recent inflation dynamics in Romania followed the regional disinflation tide.

Iossifov and Podpiera (2015) analyzed the post-2011 disinflation across EU countries outside the euro area and found that falling world prices of food and energy had been the main explanatory factor. Disinflationary spillovers from the euro area had also been a key factor. They also found that exchange rate movements had played an important role in inflation targeters and second-round effects via forward-looking inflation expectations had been non-negligible. In this paper, we follow their approach to examine in details the inflation dynamics in Romania.

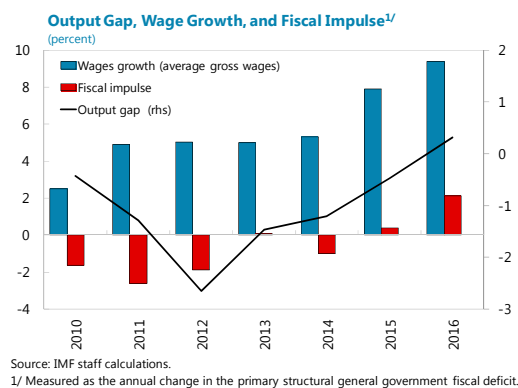


3. Key factors behind the recent fall in inflation were oil and food price developments and especially the recent reduction in the VAT rate.

Three episodes of a noticeable fall in inflation can be identified. The first in mid-2013 was largely due to lower food prices following an abundant harvest and a reduction in VAT on some food products. The second episode, since autumn 2014, was mainly the result of declining international energy prices. And most recently, the key reason why the inflation rate turned negative in mid-2015 was the VAT rate reduction on food items from 24 to 9 percent.



4. Despite the fall in headline inflation, underlying inflation is positive, and inflation expectations are close to target. Headline inflation in the first half of this year is expected to fall lower, following the standard VAT rate reduction (from 24 to 20 percent) and the decrease of tariffs for electricity. Underlying inflation—adjusted for the VAT cut but nevertheless incorporating lower international food and energy prices—has been rising in recent months and reached 2.3 percent in December 2015. Based on the latest projections by the NBR, underlying inflation is projected to reach 3.7 percent by end-2017. So far, consensus forecasts for 2017 and 2018 have stayed close to the target.



5. Going forward, a number of domestic factors point to a potential buildup of inflationary pressure that should be carefully monitored. The output gap is projected to turn positive this year on the back of a cyclical upswing in growth; wage pressure is growing, following the announced, large-scale upward adjustment in minimum wages and public wages; moreover, the fiscal impulse of about 2 percent of GDP is likely to drive up inflation expectations. Besides the pressures from demand factors, inflation is expected to rise as a number of supply shocks would likely reverse or phase out over the next 12 months.

6. Against this background, to support policy formulation, the paper uses a quantitative approach to study the relative importance of various drivers of inflation and inflation expectations. It aims to shed light on inflation outlook, which is critical for setting monetary policy stance.

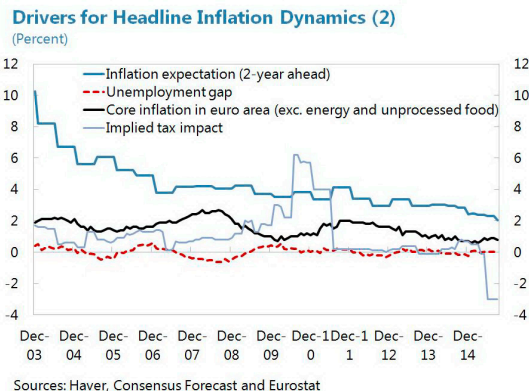
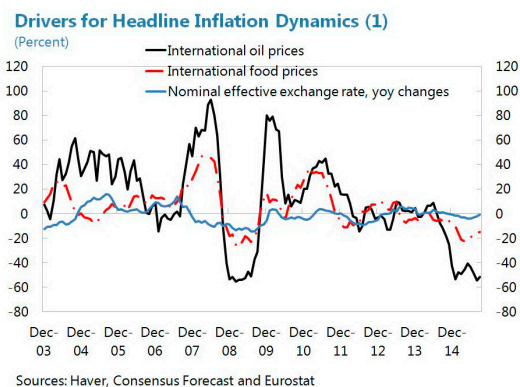
B. Drivers of Headline Inflation

7. To investigate formally the determinants of headline inflation, we estimated an augmented Phillips curve. Following the approach of Gali and Gertler (1999), Gordon (1981, 2013), Iossifov and Podpiera (2014) and Arnold et al. (2015), we estimated an augmented Phillips curve for Romania for the period 2003M12–2015M9 using monthly data. In particular, headline inflation is explained by the following explanatory variables: (i) inflation expectations;² (ii) a demand side factor which measures economic slackness;³ (iii) supply-side factors, including international oil and food prices, euro area core inflation, and nominal effective exchange rate (NEER); and (iv) an idiosyncratic factor, namely indirect tax changes.⁴

² This paper uses the two-year ahead inflation expectations in the model estimation. The two-year ahead inflation expectations are forecast of inflation rate in year T+2 by professional forecasters in year T. It is a measure less likely to be affected by tax changes, as compared to the one-year ahead inflation expectations. It includes valuable information accumulated by professional forecasters who closely monitor the Romanian economy. As shown in the estimated Phillips Curve, the two-year inflation expectations are very useful in explaining the inflation dynamic in Romania. Alternative measures of inflation expectations are available. The EC survey of price development in the next 12 months or in the next three months provides information on short-term inflation expectations by local firms and consumers. However, the survey is in percent balance, which is the difference between the percentage of responses expecting higher prices and the percentage of responses expecting lower prices. It is not a direct measure of expected inflation rates. To use this measure, additional assumptions need to be made to quantitatively derive a series for inflation expectations, see Calson and Parkin (1975) and Batchelor and Orr (1988). The NBR also surveyed local financial analyst for one-year and two-year ahead inflation expectations.

³ Unemployment gap is introduced to measure demand pressure. Output gap is not used as it is available only in quarterly frequency.

⁴ See the Appendix for details on the definition and sources of the variables as well as the methodology.



8. The empirical findings show that the above variables are useful in explaining the developments of headline inflation in Romania.⁵

- The estimated model suggests that headline inflation follows closely the developments of inflation expectations. And a one standard deviation change in inflation expectation will lead to about a 0.5 standard deviation response in headline inflation. Moreover, it implies that, without changes in supply/demand/tax factors, headline inflation will be at the target, if inflation expectations are at 2.5 percent. Since inflation expectations are close to target, headline inflation is likely to return to target as soon as the current negative transitory impacts from the supply factors/tax changes fade out.
- Indirect tax changes are important driver of inflation with high pass-through. The pass-through of the changes in indirect tax is about 75 percent over the sample period of 2003M12 to 2015M9. A one standard deviation in indirect tax changes leads to a third of a standard deviation change in headline inflation. And, tax changes explain 20 percent of variations in inflation over the sample period. The large pass-through, together with the large magnitude of tax changes, caused headline inflation to plunge into negative area in June 2015 and drop even lower in January 2016.
- Demand side factor, captured by unemployment gap, has an impact on inflation as expected.⁶ A one standard deviation change in unemployment gap leads to a 0.9 standard deviation change in headline inflation. It explains more than 10 percent of variations in headline inflation during the sample period.

⁵ Newey-West standard error is used to replace the potentially biased standard error estimates caused by the serial correlation in the residual. Unit root test confirms that the residual is stationary.

⁶ Iordache, Militaru and Pandioniu (2015) estimate a coefficient on unemployment gap of only -0.8, much smaller than the estimate in this paper. This could be due to the different model set up. The model in this paper does not include lagged dependent variables in the model while Iordache, Militaru and Pandioniu (2015) do.

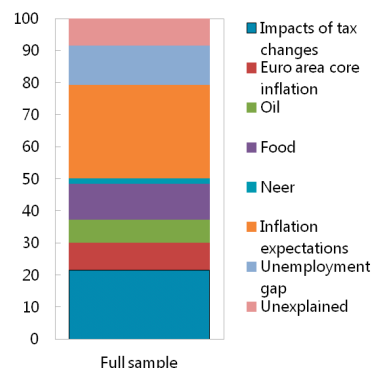
Dependent Variable: Annual CPI Inflation

Variable	Lags	OLS	2stage OLS
		Coefficients	Coefficients
Constant		-2.00 ***	-1.65 ***
Impacts of tax changes	0	0.74 ***	0.79 ***
Euro area core inflation (yoy)	0	0.88 ***	0.64 *
International oil prices (yoy changes)	0	0.01 **	0.01 *
International food prices (yoy changes)	0	0.04 ***	0.05 ***
Neer (yoy changes)	1 to 12	-0.05 ***	-0.05 *
Inflation expectations (two-year ahead)	1 to 11	1.08 ***	1.02 ***
Unemployment gap	0 to 4	-5.05 ***	-7.18 ***
Adj. R-squared		0.95	0.93
Sample		2003M12 to 2015M9	2003M12 to 2015M9
Included observations		142	142

* Indicates coefficient or sum of coefficients is statistically significant at the 1 percent level; ** indicates significance at the 5 percent level; and * indicates significance at the 10 percent level.

The estimation used Newey-West HAC standard errors.

The 2 stage OLS estimation used unemployment rate as an instrument for unemployment gap.

Variance Decompositions (in percent)

Sources: IMF Staff Estimations.

- Imported inflation is another key driver of headline inflation. Headline inflation follows closely the developments in euro area core inflation. The pass-through from changes of other supply-side factors (including international oil and food prices, and NEER) is small.^{7,8} This is likely linked to the fact that gas and electricity prices have been administered in the past and not all of the deregulation has been completed. Moreover, a large portion of food is produced domestically, which reduces the impact of changes in international food prices on domestic food prices. However, large movements in prices of the above factors, as illustrated by the variance decomposition, could still have important impacts on the domestic inflation. Together, imported inflation explains about 30 percent of variations in headline inflation.

9. The estimated model highlights the importance of understanding the dynamic of inflation expectations. The result shows that, similar to other advanced countries such as U.S., inflation dynamic in Romania follows a trend with deviations caused by (i) economic slack; (ii) changes in imported prices; and (iii) idiosyncratic shocks. This trend is ultimately determined by inflation expectations. Thus the important questions become: "Are inflation expectations well anchored?", "Are there risks of inflationary/deflationary spiral?", and "What is the likely path for inflation expectations and hence headline inflation going forward?", which we turn to in the next section.

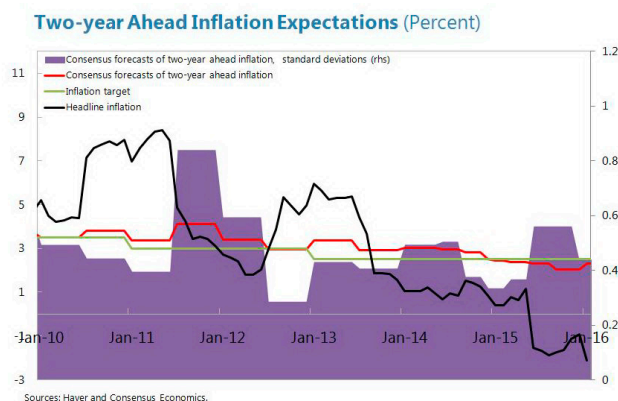
⁷ One standard deviation in euro area core inflation, in international oil prices, in international food prices and in NEER leads to, respectively, a 0.1, 0.1, 0.2 and -0.1 standard deviation change in headline inflation.

⁸ The exchange rate pass-through is relatively smaller than the finding in Stoian and Muraruşu (2015). The difference could be due to the different samples for estimation and the different model set-up: Stoian and Muraruşu (2015) take into account that model variables like NEER or measures of economic slack are likely endogenous by estimating a VAR. Using a more recent sample, as in this paper, results in lower exchange pass-through estimate.

C. Drivers of the Two-year Ahead Inflation Expectations

10. Two-year ahead inflation expectations appeared well anchored, despite the negative and low headline inflation.

The two-year ahead inflation expectations by professional forecasters, a measure less likely to be affected by tax changes,⁹ stayed close to the inflation target even though headline inflation is below negative 2 percent, owing to the June 2015 VAT rate reduction for food items and the new round of standard VAT rate reduction implemented in early 2016. The dispersion in inflation expectations among professional forecasters, measured as the standard deviation of inflation forecasts across forecasters, increased following the June 2015 VAT rate reduction but has declined most recently.



11. We use an empirical quantitative approach to understand the drivers of the two-year ahead inflation expectations.¹⁰

There are relatively limited studies in this area, as compared with research on the determinants of headline inflation. Our main reference is Cerisola and Gelos (2005), who used an econometric model to study inflation expectations in Brazil. Besides the demand and supply-side factors discussed in the previous section,¹¹ we introduced three additional types of variables that potentially affect pricing decisions to explain the formation of inflation expectations: (i) fiscal and monetary policy variables, including the fiscal deficit, the monetary policy rate and money supply; (ii) wage variables, including unit labor cost and real wages, as proxies for the real marginal cost

Dependent Variable: Two-Year Ahead Inflation Expectations

Variable	Coefficient	
Constant	1.08	***
Inflation target	0.54	***
Headline inflation (-1)	0.10	***
EA core inflation (-1)	0.19	**
R-squared	0.93	
Sample	2005Q3–2015Q4	
# of observations	42	

* indicates coefficient or sum of coefficients is statistically significant at the 1 percent level;
 ** indicates significance at the 5 percent level; and
 * indicates significance at the 10 percent level.

Note: The estimation used Newey-West HAC standard errors.

⁹ The recent decline from 2.3 percent to 2.0 percent in the October 2015 survey was likely affected by the legislated reduction in the standard VAT rate from 20 percent to 19 percent starting from January 2017.

¹⁰ Although the two-year ahead inflation expectations are well anchored to the NBR target, they do have variations. In the most recent period, the two-year ahead inflation expectations have been trending down.

¹¹ We consider the core inflation measure in euro area instead of the headline inflation in euro area in explaining inflation expectations in Romania, as the impacts of non-core foreign price developments on inflation expectations are captured by the international food and oil prices in our model selection process.

in Calvo's price setting model (1983); and (iii) lagged inflation and the inflation target to allow for both backward-looking and forward-looking price setters as in Garli and Gertler (1999).¹² However, due to the shorter sample, a parsimonious model was estimated.

12. The model suggests that the current low and negative headline inflation would have only a small and transitory impact on inflation expectations. We choose to study the two-year ahead inflation expectations other than other measures of inflation expectations since the former is less likely to be affected by tax changes. The estimation is based on the sample of 2005Q3 to 2015Q4.¹³ The estimation indicates that:¹⁴

- The two-year ahead inflation expectations are not very backward looking, as the coefficient on the past inflation rate is relatively small.¹⁵ Therefore, even though a change in past inflation could lead to changes in inflation expectations, which in turn have an almost one-to-one impact on inflation (Section B), a severe scenario of “inflation or deflationary spiral” is unlikely due to the small pass-through from past inflation to inflation expectations. This also indicates that the current low and negative headline inflation would have only a small and transitory impact on inflation expectations.
- Inflation expectations are largely linked to the inflation target, although the estimated coefficient of only 0.5 could be an indication that further efforts could be made to ensure a fully credible inflation target and fully anchored inflation expectations.
- Finally, inflation expectations respond to changes in euro area core inflation.

D. Inflation Outlook and Policy Implications

13. Since a number of the supply shocks are expected to reverse or phase out over the next two years, the model predicts headline inflation to reach the upper part of the inflation

¹² See the Appendix for details on the definition and sources of the variables as well as the methodology.

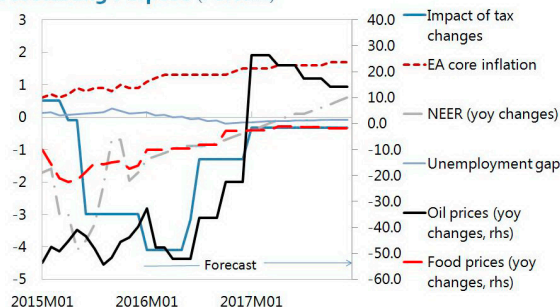
¹³ Quarterly frequency is used to estimate the model for the two-year ahead inflation expectations from Consensus Economics, which are not available in monthly frequency. For estimating the model for headline inflation (i.e., the Phillips Curve), the series is interpolated to obtain monthly frequency.

¹⁴ The policy variables are excluded in the final model since they are not significantly different from zero or even have the wrong signs. The results are tested with longer lags. A VAR model with inflation expectations, lagged inflation, euro area core inflation, inflation target, policy rate and budget balance confirm that policy rate and budget balance are not significant in explaining inflation expectations.

¹⁵ The finding applies for the two-year ahead inflation expectations from Consensus Forecasts. NBR research on the subject shows that EC's consumer inflation expectations (1Y ahead) are purely backward looking, while expectations by financial analysts (also 1Y ahead) are of hybrid nature, being both forward and backward looking, see Bojesteanu, Manu, Stanca (2011). Surveys among non-financial corporations reveal that most companies in Romania base their pricing decisions on comprehensive information set covering both the recent past and forecasts (Copaciu et al., 2010; Iordache and Pandioniu, 2015). For EC's qualitative survey data, high correlation coefficients between the balance statistics of expected and of observed/perceived CPI inflation indicates less forward-looking respondents.

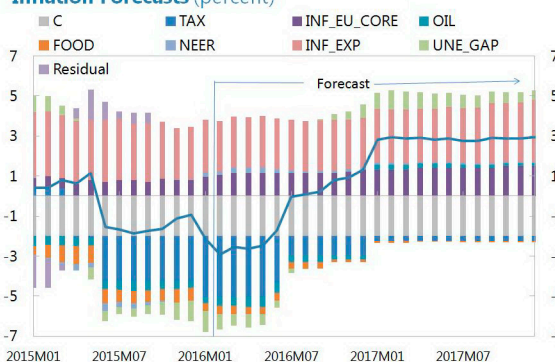
target band in 2017, and upside risk remains. The model suggests that inflation will return to the positive territory in the third quarter of 2016, when the impact of the June 2015 VAT cut on food items fades out, and reach the upper part of the variation band from 2017 to stay at around 3.0 percent. The upward-moving inflation is driven by the fading out of the negative impact from indirect tax changes in 2015 and 2016, the projected stabilization or recovery of international food and oil prices, and the widening of the negative unemployment gap as the Romanian economic growth is set to accelerate on the back of fiscal easing. These have both a first round and a second round impact (through inflation expectations) on headline inflation. The figure below shows the assumptions on the dynamic of the drivers during the forecast horizon.¹⁶ Although the current projections envisaged the headline inflation to be contained within the upper bound of the variation band of 3.5 percent, upside risk remains, in particular in light of potential populist measures in an election year. Further increase in minimum wages or public sector wages, for instance, is likely to push up inflation pressure without corresponding advancement in productivities (see box).

Assumptions on the Developments of Inflation Drivers for Forecasting Purpose (Percent)



Sources: IMF Global Assumptions; IMF WEO; ECB Staff Macroeconomic Projections for Euro Area; and IMF Staff Estimations.

Inflation Forecasts (percent)



Sources: IMF Staff Estimations/Forecasts.

14. Going forward, monetary policy tools could be usefully deployed to guard inflation and inflation expectations. Should inflation be expected to rise above the upper bound of the target band, a combination of tools could usefully be considered. Effective communication and actions by policy makers are important for anchoring inflation expectations, which are found to be related to but not fully linked to the inflation target. Further across the board wage hikes should be avoided in the near term as they would likely add to inflationary pressures and also undermine competitiveness.

¹⁶ The impact of tax changes includes the estimated impact of the legislated changes in the standard VAT rate from 24 to 20 percent in January 2016 and from 20 to 19 percent in January 2017. The assumptions on international food and oil prices were taken from the IMF Global Assumptions database as of February 2016. Assumptions on euro area inflation are from the "December ECB Staff Macroeconomic Projections for the Euro Area" (2015). The unemployment gap is projected to widen from 2016 following the closing output gap and declining unemployment rate, expecting continuing improvements in domestic economic activities, and NEER was from the latest WEO projections.

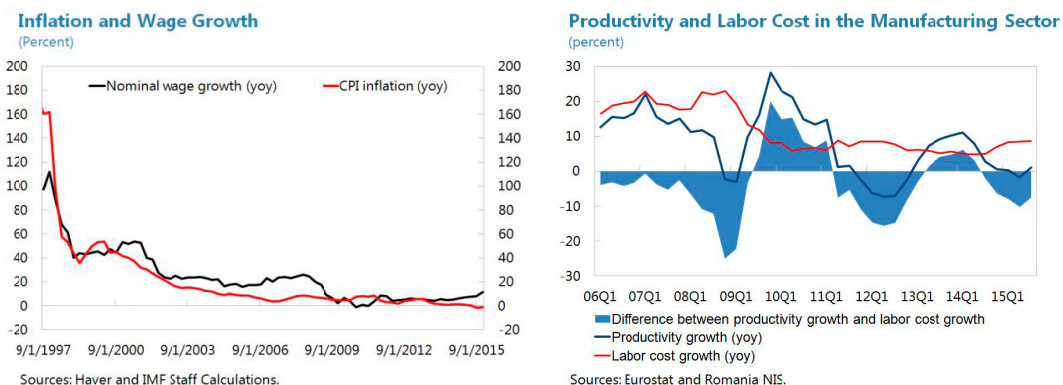
E. Conclusion

15. This paper uses quantitative approaches to study drivers of inflation and inflation expectations in Romania. It highlights the critical role of inflation expectations in shaping the path of headline inflation, which tends to follow closely the developments of inflation expectations with deviations caused by demand and supply side factors as well as indirect tax changes. A further study on inflation expectations indicates that inflation expectations are more forward looking (i.e., linked to the inflation target) than backward looking (i.e., linked to the past inflation), which reduces the likelihood of having a severe “inflationary/deflationary spiral.” It also suggests that the current low and negative headline inflation would likely have a small and transitory effect on inflation expectations.

16. Using the two models on inflation and inflation expectations, headline inflation is projected to return to positive territory in the second half of 2016 and stay at the upper part of the variation band in 2017, with upside risks. Headline inflation will turn positive and enter the lower bound of the inflation target band as a number of supply shocks (EA core inflation, international food/oil prices) are expected to reverse/phase out over the next two years and as the impacts of the 2015 and 2016 VAT rate reductions fade out. The model projects that inflation will reach 3.0 percent in late 2017, following the widening, negative unemployment gap and the recovering of the inflation expectations, as economic activity accelerates and wage growth picks up on the back of fiscal stimulus and populist wage policies.

Box 1. Price Wage Dynamics in Romania

Wage growth in Romania is accelerating, which hints at the buildup of inflation pressures. Overall wages grew by 13.5 percent by end 2015, reflecting public wage and minimum wage hikes. Moreover, minimum wage is expected to be raised again to 1,250 lei (about €265) in May 2016 from 1,050 lei. The considerably faster wage growth than productivity gains hints at the buildup of latent inflation pressures.

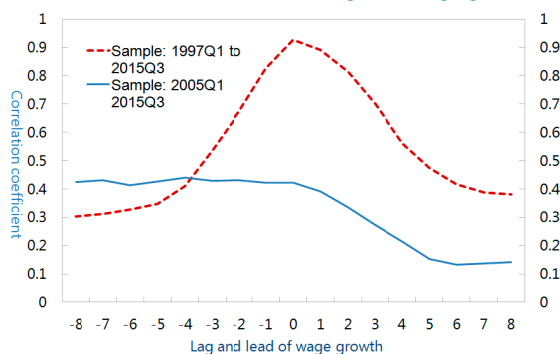


The literature has mixed evidence on the price wage relation. Goretta (2008) studied the wage pass-through to inflation in new EU member states and found large and significant pass-through effect from wage growth to inflation and a relatively smaller coefficient associated with productivity gains. However, Peneva and Rudd (2015) found little evidence that changes in labor costs have had a material effect on price inflation in recent years in U.S. This is consistent with some other research which suggests that wages Granger-cause prices, though the short-run relationship may have weakened since the early 1980s (Mehra, 2000).

We found that wage growth or the productivity-adjusted labor costs are statistically significant in explaining price developments in Romania.

Using a sample from 1997 to 2015, we found a strong correlation between wage growth and inflation. The correlation weakened since the adoption of inflation targeting from 2005 but nevertheless remained high. Moreover, wage growth appears to lead inflation, based on the recent sample from 2005 to 2015. To have a formal study, following the literature, we examined the short-term relation of price and labor costs by estimating a price equation.¹ It explains inflation using past inflation data, changes in unit labor cost (or both changes in wages and changes in productivities), output gap (or unemployment gap) and changes in import prices. The result supports the traditional cost-push view of the price-wage dynamic. A 1 percentage point change in unit labor cost could lead to 0.14 percentage point change in inflation rate with a lag of one quarter. And a 1 percentage point change in wage growth could lead to 0.2 percentage point change in inflation rate, also with a lag of one quarter.

Cross-correlation (inflation and lag/lead wage growth)



¹ A long-run or cointegration relation between wage and price could not be found.

Box 1. Price Wage Dynamics in Romania (concluded)**Dependent Variable: d(ln(cpi))**

	(1)		(2)		(3)		(4)	
	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
d(ln(ulc))								
lag1	0.14**	0.05	0.13**	0.05				
d(ln(wage))								
lag1					0.20***	0.06	0.17***	0.06
d(ln(productivity))								
lag1					0.01	0.09	-0.04	0.09
d(ln(cpi))								
lag 1	0.52***	0.08	0.53***	0.08	0.45***	0.09	0.49***	0.09
lag 2	0.18***	0.06	0.18***	0.06	0.18***	0.06	0.18***	0.06
lag 3								
output gap								
lag 1	-0.03	0.12			-0.17	0.14		
lag 2	-0.03	0.12			0.10	0.14		
unemployment gap								
lag 1			0.00	0.01			0.00	0.01
lag 2			0.00	0.01			0.00	0.01
d(ln(import deflator))								
lag 1	0.04	0.03	0.04	0.03	0.05	0.03	0.04	0.03
lag 2	0.06*	0.03	0.07**	0.03	0.06*	0.03	0.06*	0.03
constant	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	72		72		72		72	
Sample	1997Q4 2015Q3		1997Q4 2015Q3		1997Q4 2015Q3		1997Q4 2015Q3	
Adjusted R ²	0.88		0.88		0.88		0.88	

Note: d(ln(ulc)) is the first difference of the natural log of unit labor cost; d(ln(cpi)) is the first difference of the natural log of the CPI index; d(ln(import deflator)) is the first difference of the natural log of the import deflator. The model was estimated by first selecting the lags for the CPI series and other control variables using information criteria and then adding the labor cost indicators. The unit labor cost is calculated as the ratio of total wage bill, which equals to the number of total employees times nominal wages, and the real GDP. The productivity is calculated as the ratio of real GDP and the number of total employees. The output gap and unemployment gap are derived using the HP filter.

Annex I. Methodology and Data

Modeling Headline Inflation

1. To investigate formally the drivers of the headline inflation dynamics, we estimated an augmented Phillips curve, represented below.

$$\pi_t = \alpha + \sum_{i=1}^{12} \gamma_i \pi_{t-i}^* + \sum_{i=0}^{12} \delta_i \tilde{u}_{t-i} + \sum_{i=0}^{12} \theta_i \mathbf{Z}_{t-i} + tax_t + \varepsilon_t, t = 1, 2, \dots, T$$

Where π_t is the annual headline inflation, π_t^* is the two-year ahead inflation expectations by professional forecasters, \tilde{u}_t is the unemployment gap, \mathbf{Z}_t is a vector containing annual changes in international oil prices, annual changes in international food prices, annual euro area core inflation rate and annual changes in nominal effective exchange rate in Romania. We also include the impacts of tax changes on headline inflation.

We do not include the lagged inflation on the right hand side of the model to avoid making the impact of tax changes persistent. The tax variable measures the instantaneous impact of tax changes on inflation, assuming a full pass-through of tax changes to prices. Including the lagged inflation rate together with the tax measure would make the impact of tax changes persistent, which could cause bias in the model estimation.¹

The model is estimated using monthly data. For all explanatory variables (with the exception of π_t^* and the changes in nominal effective exchange rate), we consider lags up to 12. We consider longer lags to capture the persistent impact of some variables on headline inflation and also because it may take a few months for changes in some variables to affect headline inflation. For the inflation expectations and nominal effective exchange rate variables, we exclude lag 0 due to the potential contemporaneous feedback from headline inflation to the two variables.

2. We estimated the following model using both OLS and 2-stage OLS. The models are estimated using monthly data running from 2003M12, the earliest point when data on the impact of tax changes was available, to 2015M09. To address the endogeneity issue caused by the potential measurement error of unemployment gap, we use unemployment rate as an instrument for the unemployment gap and re-estimated the model using 2-stage OLS. The results are mostly robust across the models, with the exception that the 2-stage OLS models estimated smaller coefficients for euro area core inflation and for unemployment gap, and a larger constant.

¹ Excluding the tax variable is not a good option. As shown in main text, tax changes are important in explaining the dynamic of headline inflation. To exclude the tax impact, one could redefine the dependent variable by subtracting the tax impact from headline inflation. However, the tax impact was calculated by assuming a full pass-through of tax changes to prices, which could be different from the actual amount of pass-through.

Modeling Inflation Expectations

3. We estimated the following equation for inflation expectations.

$$\pi_t^* = \alpha + \beta\pi_t^T + \gamma\pi_{t-1} + \delta\tilde{u}_{t-1} + \theta\mathbf{Z}_{t-1} + \rho\mathbf{L}_{t-1} + \varphi\mathbf{P}_{t-1} + \varepsilon_t, t = 1, 2, \dots, T$$

Where π_t^* is the two-year ahead inflation expectations, π_t^T is the inflation target, π_t is the annual headline inflation, \tilde{u}_t is the unemployment gap, \mathbf{Z}_t are the supply-side factors, including annual changes in international oil and food prices, annual change in NEER and annual euro area core inflation, \mathbf{L}_t are the labor market variables, including real wages and unit labor cost, and \mathbf{P}_t are the policy variables, including the fiscal deficit, the monetary policy rate and money supply. With the exception on the inflation target and unit labor cost, we consider lagged one of all the other variables, assuming that contemporary information on those variables are not ready when the survey was made on inflation expectations. We consider the contemporary inflation target and lagged two of the unit labor cost, assuming that they are the latest available data for the two variables when the survey was conducted.

Data

4. **The main data sources are the National Institute of Statistics (NIS), the Eurostat and the IMF.** The annual headline CPI inflation rates are from the NIS. The annual HICP and annual HICP at constant tax are from Eurostat. The impact of tax changes are the difference of HICP and HICP at constant tax. The one-year ahead and two-year ahead inflation expectations by professional forecasters are from Consensus Economics. The consumer's expectations of the price trends over the next 12 months are from the European Commission Business and Consumer Survey. The unemployment rate is from the NIS, which is used to calculate the unemployment gap using the HP filter. The euro area core inflation is taken from the series "HICP excluding energy and unprocessed food" from the Eurostat. The nominal effective exchange rate is taken from the IMF database. The international food and oil prices are from the IMF Global Assumption (GAS) database. The monetary policy rate and M2 growth are from the NBR. The fiscal deficit in percent of GDP is from the IMF database. The unit labor cost is calculated as the product of total employment and nominal wages divided by the real GDP, by using employment, wages and output data from the NIS.

References

- Calvo, G., 1983, Staggered Prices in a Utility-Maximizing Framework. *Journal of Monetary Economics* 12 383–398.
- Cerisola, M., and Gelos, G., 2005. What Drive Inflation Expectations in Brazil? An Empirical Analysis. *IMF Working Paper* 05/109 (Washington: International Monetary Fund).
- Coibion, O., and Gorodnikenko, Y., 2013, Is The Phillips Curve Alive and Well After All? Inflation Expectations and the Missing Disinflation. *American Economic Journal: Macroeconomics* 7(1), 197–232.
- Gali, J., and Gertler, M., 1999, Inflation Dynamics: A Structural Econometric Analysis. *Journal of Monetary Economics* 44, 195–222.
- Goretti, M., 2008. Wage-Price Setting in New EU Member States. *IMF Working Paper* 08/243 (Washington: International Monetary Fund).
- Gordon, R. 1982. Price Inertia and Policy Ineffectiveness in the United States, 1890–1980, *Journal of Political Economy* 90 (December), 1087–1110.
- Gordon, R. 2013. The Phillips Curve is Alive and Well: Inflation and the NAIRU During the Slow Recovery. *NBER Working Paper* No. 19390.
- Iordache, S., Militaru, M., and Pandioniu, M. The inverse relationship between inflation and unemployment in Romania. How strong was it after the crisis? *National Bank of Romania Occasional Papers* No.19/2016.
- Iossifov, P., and Podpiera, J., 2014, Are Non-Euro Area EU Countries Importing Low Inflation from the Euro Area? *IMF Working Paper* No. 14/191 (Washington: International Monetary Fund).
- Iossifov, P., and Podpiera, J., 2015, Low Inflation and Deflation in EU Countries Outside the Euro Area: Should Policymakers be Concerned? *Swedish Institute for European Policy Studies*, September 2015.
- Mehra, Y., 2000, Wage-Price Dynamics: Are They Consistent with Cost Push? *Federal Reserve Bank of Richmond Economic Quarterly* Volume 86/3, Summer 2000.
- Peneva, E., and Rudd, J., 2015, The Passthrough of Labor Cost of Price Inflation. *Board of Governors of the Federal Reserve System Finance and Economics Discussion Series*, 2015–042.
- Stoian, A., and Murarușu, B., 2015, On the exchange rate pass-through in Romania. *National Bank of Romania Occasional Papers* No.18/2015.

THE NEED TO BOLSTER EXPENDITURE EFFICIENCY IN ROMANIA¹

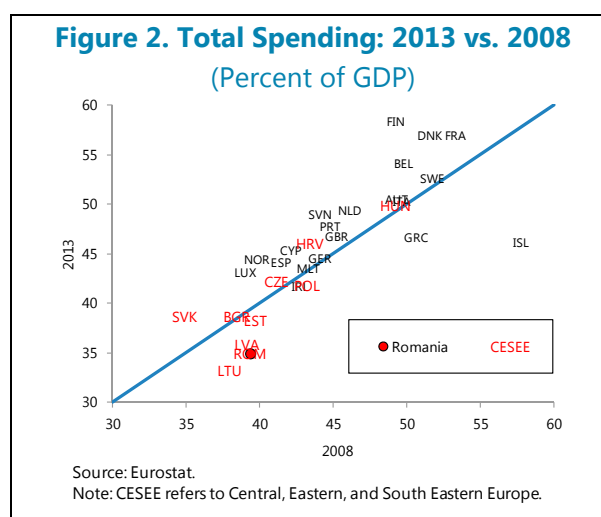
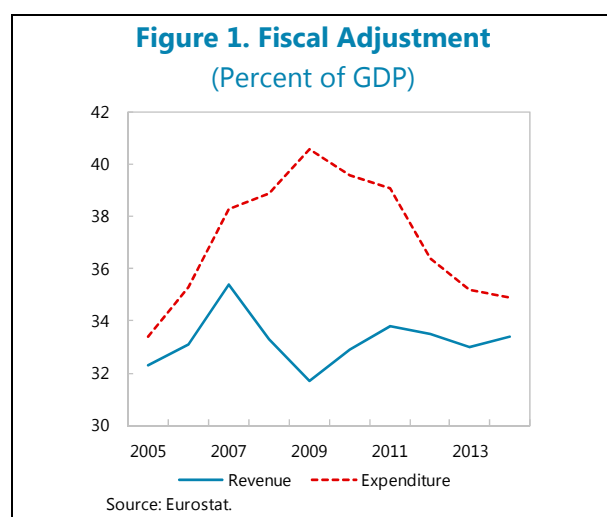
Core Questions

- What have been the main developments on public expenditure in Romania?** Expenditure dropped following the strong consolidation since 2010. Total expenditure was reduced by about 6 percentage points of GDP from 2009 to 2014. Expenditure-to-GDP ratio is now lower than in peer countries, by about 10 percentage points compared to the EU average and 5 percentage points compared to the average in Central, Eastern and South Eastern Europe.
- How can Romania address recent lowering of revenue while expenditure is already relatively low?** Recently, the authorities adopted a package of large tax cuts that may require further consolidation measures from the expenditure side. Against this background, expenditure efficiency needs to be bolstered to ensure provision of public goods and services and address economic and social needs. From an economic classification, the wage bill is below peer countries and close to the authorities' target; thus, the focus should turn to resisting pressures for a rebound and enhancing efficiency. Expenditure on goods and services is broadly in line with peer countries. Social benefits are lower than in peers. Investment spending seems to be the only area where Romania exceeds noticeably comparator countries. From a functional classification, spending in key sectors is generally lower than in comparator countries, including education, health, and social protection sectors.
- How can expenditure efficiency be improved from the perspective of economic classification?** The wage policy should ensure a strong link between pay and productivity and between wage increases and performance. Efforts should be made to ensure sufficient incentive structure in the public sector, including appropriate pay differentiation across skills and positions. On investment spending, the prioritization of large investment projects should be enforced and reflected in the annual budget formulation. This prioritization approach should be extended to medium-size investment projects, and thereafter to local government projects. Low priority and low efficiency investments, financed by national budget at the central and local levels, should be cancelled to allow allocating budgetary resources to high-efficiency projects. Moreover, bottleneck to EU Fund absorption should be addressed swiftly.
- How can expenditure efficiency be improved from the perspective of functional classification?** In the education sector, technical and vocational training could be enhanced to improve value-for-money from education spending. In the health sector, the shift from hospital-based treatments to primary care should be accelerated; the list and price of reimbursable medicines should be updated on a regular basis; and the centralized procurement system should be expanded, including to hospitals under the control of local governments. In the social protection sector, reforms should focus on ensuring progressivity by means-testing social transfers.

¹ Prepared by Ivohasina F. Razafimahefa.

A. Introduction

1. Romania has undertaken a strong fiscal consolidation since 2010, which reduced expenditure to among the lowest in the region. Following a rapid expansion of expenditure and the deficit from 2005 to 2009, the Romanian authorities embarked on a consolidation path from 2010. The fiscal consolidation came almost entirely from the expenditure side as revenue-to-GDP ratio remained broadly unchanged (Figure 1).² Total expenditure was reduced by about 6 percentage points of GDP from 2009 to 2014 (Table 1). Romania's expenditure-to-GDP ratio is lower than in peer countries, by about 10 percentage points compared to the EU average and 5 percentage points compared to the average in Central, Eastern and South Eastern Europe (Figure 2).



2. Expenditure may be subject to further reduction as the authorities recently adopted a package of large tax cuts, which is straining the near- and medium-term fiscal outlook. To date, much of the expenditure-based fiscal consolidation has relied on one-off measures and across-the-board cuts, which will be difficult to rely upon in the future. Some wage-related consolidation measures were phased out; in addition, some of those measures were ruled unconstitutional and the government has been ordered to pay compensation claims. Moreover, the recently adopted package of tax cuts adds to the fiscal pressures. Those tax cuts would widen the deficit and reverse the consolidation trend in 2016 and beyond, and may require offsetting measures from the expenditure side.

² Despite significant revenue measures (such as a VAT rate increase and introduction of new taxes), the revenue-to-GDP ratio remained broadly unchanged, possibly due in part to a large output gap during the consolidation period.

Table 1. General Government Expenditure, 2005–14
(In percent of GDP)

	2005	2008	2009	2010	2011	2012	2013	2014	Difference	Share
Economic Classification									2009–14	in 2014
Total general government expenditure	33.4	38.9	40.6	39.6	39.1	36.4	35.2	34.9	-5.7	100
Compensation of employees, payable	8.7	10.3	10.7	9.5	7.8	7.7	8.0	7.7	-3.0	22.1
Collective consumption expenditure	8.8	8.6	9.1	8.2	7.9	8.1	7.6	7.6	-1.5	21.8
Interest 1/	1.2	0.7	1.5	1.5	1.6	1.7	1.7	1.6	0.9	4.6
Social benefits and transfers	9.9	11.0	13.2	13.7	13.1	12.1	11.7	11.9	-1.3	34.1
Gross capital formation 1/	2.8	6.8	6.0	5.7	5.4	4.4	4.6	4.3	-2.5	12.3
Other expenditures	2.0	1.5	0.1	1.0	3.3	2.4	1.6	1.8	1.7	5.2
Functional Classification									2009–13	in 2013
Total	33.4	38.9	40.6	39.6	39.2	36.4	35.2		-5.4	100
General public services	3.7	4.8	4.3	4.5	4.8	4.9	4.9		0.6	13.9
Defence	2.7	1.5	1.5	1.4	0.8	0.7	0.8		-0.7	2.3
Public order and safety	2.0	2.2	2.1	2.4	2.2	2.2	2.2		0.1	6.3
Economic affairs	5.7	8.0	7.9	7.0	7.1	6.5	6.2		-1.7	17.6
Environment protection	0.3	0.5	0.6	0.8	0.9	0.8	0.7		0.1	2.0
Housing and community amenities	1.3	1.3	1.4	1.3	1.2	1.1	1.2		-0.2	3.4
Health	2.6	3.2	3.8	3.3	4.1	3.8	4.0		0.2	11.4
Recreation, culture and religion	0.8	1.1	1.1	1.0	1.1	1.0	0.9		-0.2	2.6
Education	3.6	4.5	4.1	3.3	4.1	3.0	2.8		-1.3	8.0
Social protection	10.7	11.9	14.0	14.6	12.8	12.3	11.5		-2.5	32.7

Source: Eurostat.

1/ The figure in the column "difference" corresponds to 2008–14.

3. The following analysis aims at benchmarking expenditures in Romania against peer countries to provide indications on areas where savings can be found and/or efficiency gains can be made.³ This high-level benchmarking analysis suggests that Romania's expenditure is relatively low at the aggregate level as well as in most economic and functional items. The analysis points to the need to primarily focus on improving efficiency and effectiveness, and in the meantime create fiscal space to address the growing fiscal pressures. Subsection B analyzes expenditure by economic classification, and subsection C examines expenditure by function focusing on the large spending sectors.

B. Economic Classification

Wages

4. Following a sharp expansion in the 2000s, public sector wage bills were drastically curtailed in the early 2010s. The wage bill expanded from 8.7 percent of GDP in mid-2000s to around 10.7 percent by the end of that decade. In 2010, the government introduced forceful measures: nominal wages were reduced by 25 percent, and employment was reduced through the one-to-seven rule (one hiring per seven departures). Consequently, the sharp increase of

³ The approach in this analysis follows a framework developed recently by the Fiscal Affairs Department of the IMF and already applied to some countries, including Lithuania (IMF, 2015a), Slovenia (IMF, 2015b), and France (IMF, 2016).

2 percentage points of GDP during 2004–09 was unwound in only two years; the wage bill dropped to 7.8 percent of GDP by 2011 and 7.7 percent in 2014.

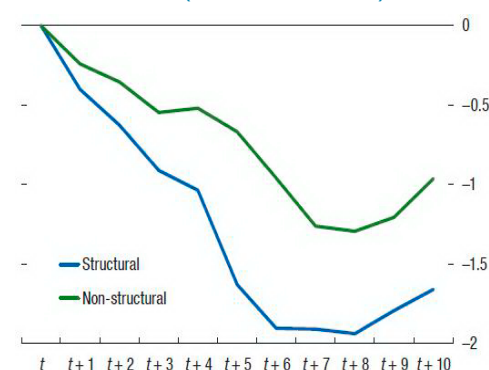
5. However, the consolidation measures were phased out or reversed. Wage increases resumed in 2013. The one-to-seven hiring policy was terminated in 2013 and replaced with a one-to-one rule. Furthermore, some wage-related consolidation measures were ruled unconstitutional and the government was ordered to pay compensation claims to be made over a number of years. As a result, wage bills rebounded in 2013, although to levels well below the previous peak.⁴ Furthermore, the minimum wage was raised from RON 600 to RON 1050 in 2015, and the government intends to increase it further to RON 1250 in May 2016. In addition to its direct spending pressures, this increase created distortions in the public sector wage system, as the salary of low-skilled public servants at the minimum wage level moved up to that of higher-skilled public servants whose salaries were not revised. The government intends to address these distortions through a unified wage law which would require some upward shift of the entire wage system and add to the spending pressures.

6. International experiences suggest that structural reforms of the wage system, instead of ad hoc measures, are required to lock in fiscal savings (IMF, Fiscal Monitor, April 2014).

Public wage bill reforms should aim at strengthening the link between pay and productivity, improve hiring processes, and ultimately enhance efficiency in the provision of public services. Eliminating “ghost workers” and reducing absenteeism can be the first step toward boosting efficiency. An important challenge for many countries, including Romania, is to attract and retain the necessary staff to ensure efficient provision of public services. Strengthening the link between wage increases and employee performance and periodically reassessing

employment levels in line with the functions of the government help ensure retention of skills and improve efficiency. Efforts should be made to ensure sufficient incentive structure in the public sector, including appropriate pay differentiation across skills and positions. Such an incentive structure could be reflected in a review of the wage grid. International experiences have shown that long-term fiscal savings from non-structural measures (such as wage and employment freezes) were about 0.7 percent of GDP smaller than savings from structural measures (such as decompressing the pay scale, restructuring the public sector based on functional reviews) (Figure 3).

Figure 3. Cumulative Change in Wage Bill 10 Years After First Year of Measures
(Percent of GDP)



Source: IMF, Fiscal Monitor, April 2014.

⁴ Nevertheless, the number of public employees is still below pre-crisis levels; and the real wage growth, other than from the minimum wage increases, was low and limited to a few groups.

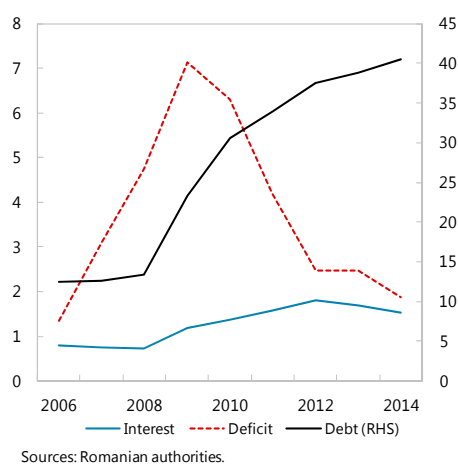
Goods and Services

7. Goods and services also contributed to the fiscal consolidation. Consumption expenditure was reduced from its peak of 9.1 percent of GDP in 2009 to about 7.6 percent in 2014. For instance, local governments curtailed expenditure for goods and services as their balanced budget rules were strictly enforced and arrears had to be reduced. The ratio is about 0.5 percentage points of GDP below the EU average. A systematic use of a centralized public procurement system may help improve efficiency.

Interest

8. The expanding fiscal deficit and the ensuing debt accumulation in the late 2000s and early 2010s led to an increase in debt service. The budget deficit deteriorated rapidly from 1.3 percent of GDP in 2006 to 7.1 percent of GDP in 2009 (in cash terms). As a result, debt more than doubled between 2006 and 2010, from 12.5 percent of GDP to 30.5 percent. This debt accumulation translated into larger interest bills, which expanded by about 1 percent of GDP between 2008 and 2013 and crowded out other expenditures (Figure 4). It would be advisable to ensure a downward trending debt profile to prevent soaring debt service payments.

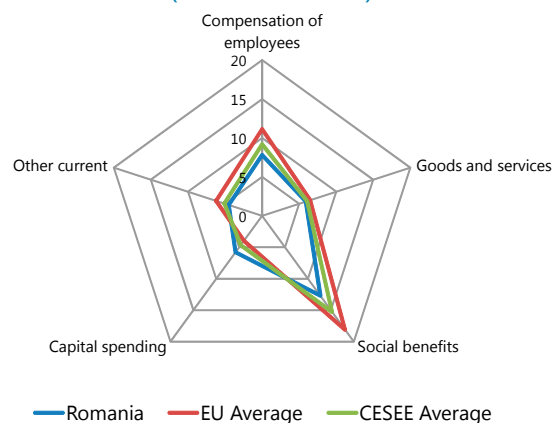
Figure 4. Interest Payments, 2006–14
(Percent of GDP)



Capital Expenditure

9. Although investment expenditure also contributed significantly to the fiscal consolidation, Romania's investment-to-GDP ratio is still higher than in other countries in the region. Public capital spending was reduced by 2.5 percentage points of GDP between 2008 and 2014. However, public capital spending in Romania is still about 1 percentage point of GDP higher than the average in Central, Eastern, and Southeastern Europe (CESEE) countries and 1.5 percentage points of GDP higher than the average in EU countries (Figure 5).⁵ Capital expenditure is the only spending item for which Romania exceeds peer countries. However, the

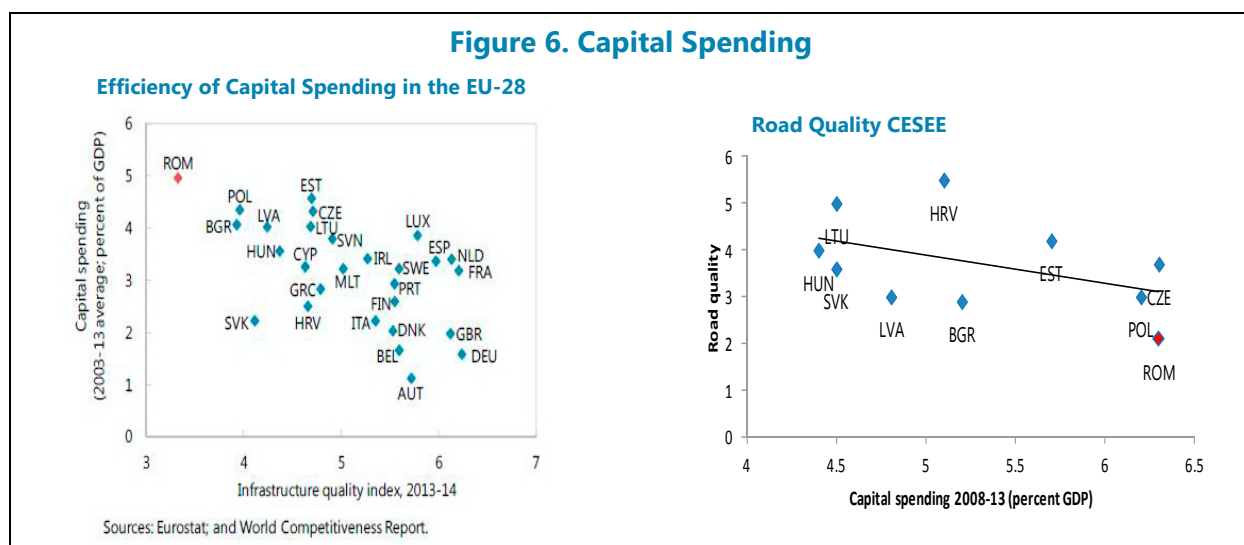
Figure 5. Expenditure by Economic Classification, 2013
(Percent of GDP)



⁵ The benchmarking of capital spending includes capital transfers.

share of projects financed with EU funds in total investment which relieves the national budget is relatively small. In 2014, EU-funded investments were only 2.2 percent of GDP (compared to 3.2 percent in Poland and 3.4 percent in Hungary), whereas domestically financed (i.e., non-EU funds) investments amounted to 3 percent of GDP (compared to 1.2 percent and 0.7 percent respectively in the two countries).

10. The efficiency of public investment is noticeably low. Protecting investment expenditure during the consolidation period can be interpreted as a policy to preserve growth-enhancing expenditures. However, this policy does not seem to have translated into an effective accumulation of public physical capital. Although Romania had the largest average capital spending in the EU during 2003–13, its infrastructure quality is the lowest (Figure 6).⁶ Similarly, despite showing the largest investments in CESEE for the last five years, road quality is the lowest. These findings suggest that there is room to enhance efficiency of investments, at both central and local levels. To this end, forceful measures to improve public investment management are necessary, particularly in transport and local development—the largest investment spending areas.



11. Public investment efficiency can be improved through more rigorous investment planning and control. The prioritization of large investment projects carried out by the Public Investment Prioritization Unit (PIEU) should be enforced and reflected in the annual budget formulation. This prioritization approach should be extended to medium-size investment projects, and thereafter to local government projects. Low priority and low efficiency investments, financed by national budget at the central and local levels, should be identified and cancelled to allow allocating budgetary resources to priority and high-efficiency projects. The investment planning should include

⁶ IMF Board Paper on Making Public Investment More Efficient, 2015c. The infrastructure and road quality indices are derived from a combination of published quantitative data (such as number of phone lines per 100 population) and results of executive opinion survey.

satisfactory risk assessments. The newly developed commitment control system should be rolled out swiftly to all government levels and entities to identify bottlenecks in investment budget execution and allow reallocation of resources if needed to improve efficiency. Additionally, a report on project performance should be produced on a quarterly basis by the Ministry of Finance or line ministries, presented to the public investment Inter-Ministerial Committee, as well as made available to the public.

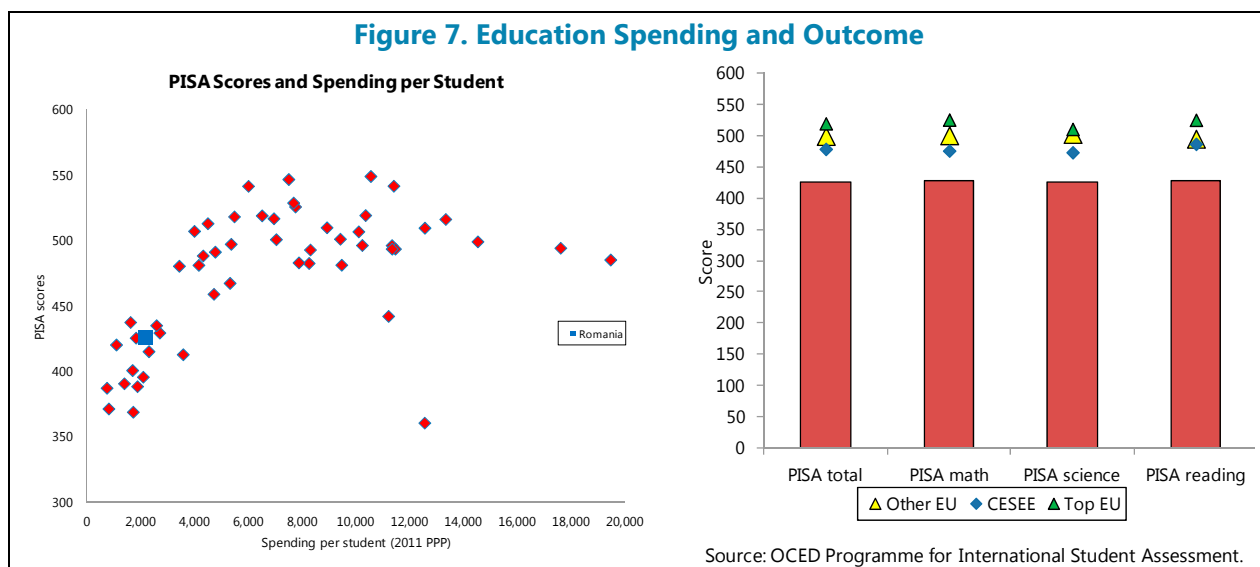
12. Furthermore, the provision of public investment could be enhanced through accelerated absorption of EU Funds. Romania has taken significant measures to improve absorption, including the creation of a Ministry of EU Funds, the centralization of some managing authorities, the reallocation of additional resources to co-financing, the approval by the EC of a structural clause to free fiscal space for Romania's co-financing share; and a significant number of procedural measures. Despite marked improvements following those measures, Romania's absorption remains relatively low at about 66 percent at the end of March 2016 for the 2007–13 programming period. Some further measures could be taken. Due diligence of Ministry of EU Funds and managing authorities should be strengthened to prevent corrections and delays. Line ministries should request a non-eligibility check from the Ministry of EU Funds for all projects approved for budget financing to ensure that only those projects which are not eligible under EU funding are financed from the national budget. The authorities are currently developing a model of a single account for EU-funded projects. The model aims at allowing reallocation of resources away from areas where execution and implementation rates are low to finance other projects and avoid losing resources. The model could be discussed with the European Commission and should ensure compliance with best practices in public financial management.⁷

C. Functional Classification

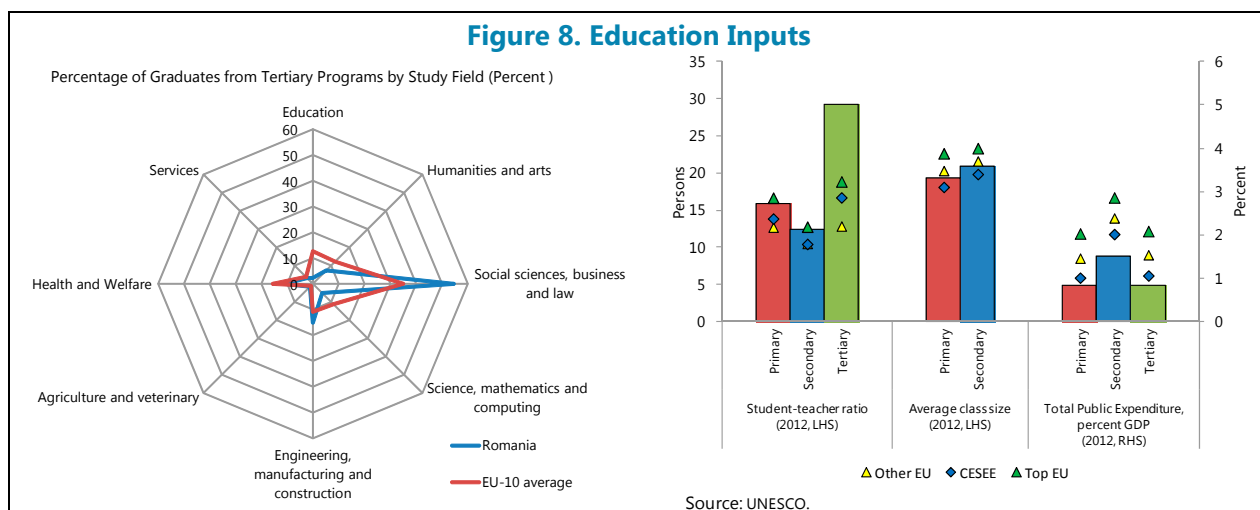
Education

13. Education spending was reduced during the consolidation period and is lower than in peer countries. Education spending dropped by 1.3 percentage points of GDP between 2009 and 2014, primarily due to the horizontal wage cut and employment restriction measures and is amongst the lowest in European countries. Spending per student is lower than in comparator countries and the Program for International Student Assessment (PISA) score is weaker (Figure 7). Moreover, Romania also shows weak performance across the components of this indicator.

⁷ The following principles should be observed: (i) expenditures need to be on budget; (ii) the account needs to operate in the new commitment control system; (iii) commitments need to be registered at the stage the public procurement is launched to avoid over-commitment; (iv) comprehensive reporting in the cash budget, financial statement of performance, and the balance sheet has to be ensured; (v) monitoring mechanisms, at least on a monthly basis, are required to ensure that commitments are in line with the budget; and (vi) an assessment of compliance with national and EU legislation should be conducted.



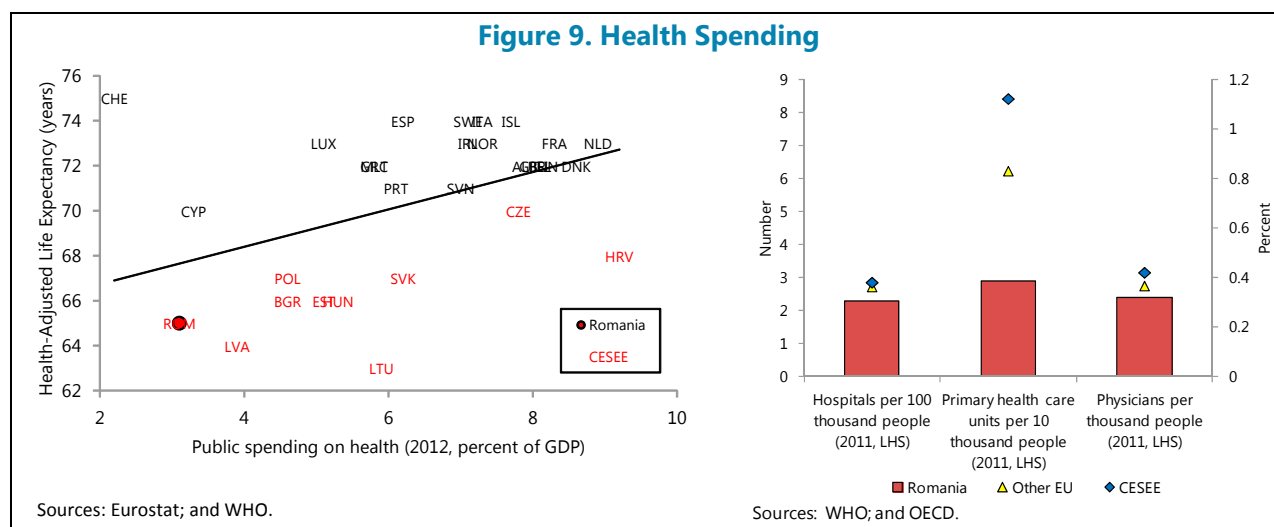
14. The education system appears to be skewed towards general education at the expense of technical programs. The share of graduates from tertiary programs in the field of social sciences, business and law (in total tertiary graduates) is strikingly higher (by 20 percentage points) than the EU average (Figure 8). As a result, specialists trained in more technical subjects and fields are fewer. Technical and vocational training could be enhanced to improve value-for-money from education spending. Moreover, student-teacher ratio in tertiary education—all fields considered—is more than double of the EU average.



Health

15. While health spending remained broadly unchanged as a share of GDP during the consolidation period, it is among the lowest in the region. Moreover, international benchmarking analysis suggests that spending efficiency is also relatively low (Figure 9). High-level indicators such as health-adjusted life expectancy, infant deaths per number of births, and diseases of the circulatory system lead to broadly a similar conclusion. International benchmarking indicates

under-provision of primary health care. This might be the source of the low efficiency as patients might not have sufficient access to preventive care (with lower costs) and might be treated only when the disease has developed (with higher costs).



16. The authorities are implementing various reforms to improve efficiency and create scope for the reallocation of funds within the sector. Recently, a basic health package was introduced and a health strategy was designed, which aim primarily at shifting health services away from hospital-based inpatient treatment to outpatient and ambulatory cares. A once-every-three-year health check was added to the minimum package for the uninsured population to enhance preventive services. The list of reimbursable medicines is being revised to replace those that are less cost effective. A centralized procurement system is being gradually expanded to reduce costs of medicines and equipment purchases. Those reforms should be continued. In particular, the shift to primary care should lead to effective reduction of costly hospital beds; the list and price of reimbursable medicines should be updated on a regular basis; and the centralized procurement system should be expanded to hospitals under the control of local governments.

Social Protection

17. Social protection spending was also curtailed substantially during 2009–13. The level of spending in this area is relatively low compared to comparator countries. Furthermore, the social protection system seems to play a less redistributive role than in peer countries, which does not help address the large inequality.⁸ Reforms of the social protection system should focus on ensuring progressivity by means-testing social transfers.

⁸ The redistributive role is measured as the difference between the Gini coefficient based on market income and the Gini coefficient based on disposable income (or income after taxes and transfers).

18. The demographic structure will intensify pressures on pension-related spending.

Pension-related payments are projected to expand by 0.7 percentage points of GDP by 2030 and by 2.9 percentage points of GDP by 2050 (Table 2). Moreover, despite a comprehensive reform of the pension system in the early 2010s, various special pension systems have reemerged in recent months putting at risk the success of the reforms and the sustainability of the pension system, while creating fiscal pressures. To ensure long-term financial sustainability, the private pension system should be developed and the planned transfer of contribution to the Pillar II should be respected. Special pension systems should be avoided to prevent fragmentation; acquired rights can be restored but new comers should not be granted preferential treatments.

Table 2. Pension

	Pension Expenditure (Percent of GDP)			Expenditure Increase (Percentage points of GDP)	
	2015	2030	2050	2015–30	2015–50
Romania	8.6	9.3	11.5	0.7	2.9
Advanced Average	8.6	9.6	10.8	1.1	2.2
Emerging Average	4.9	5.9	7.9	1.0	3.0
Developing Average	1.7	2.1	3.3	0.4	1.5

Source: IMF staff estimates.

References

- Fiscal Monitor, 2014, "Public Expenditure Reforms, Making Difficult Choices," International Monetary Fund, Washington D.C.
<http://www.imf.org/external/pubs/ft/fm/2014/01/fmindex.htm>
- Hallaert, J.J., and M. Queyranne, 2016, "From Containment to Rationalization: Increasing Public Expenditure Efficiency in France," Working Paper No. 16/7 (Washington: International Monetary Fund).
- International Monetary Fund (IMF), 2015a, "From Expenditure Consolidation to Expenditure Efficiency: Addressing Public Expenditure Pressures in Lithuania," by D. Coady and N. Geng, Country Report No. 15/139; <http://www.imf.org/external/pubs/ft/scr/2015/cr15139.pdf>
- _____, 2015b, "Social Spending Reform and Fiscal Savings in Slovenia," by C. Feher, I. Halikias, and J. Tapsoba, Country Report No. 15/42,
<http://www.imf.org/external/pubs/ft/scr/2015/cr1542.pdf>
- _____, 2015c, "Making Public Investment More Efficient," Policy Paper, Washington D.C.
<http://www.imf.org/external/np/pp/eng/2015/061115.pdf>

MINIMUM WAGE POLICY IN ROMANIA¹

Minimum wages in Romania have risen sharply. Minimum wage increase could have direct effect on wage distribution and improve the income inequality. However, the impact of minimum wage policy on poverty reduction is less clear. Minimum wage hikes may push up overall wages, thus potentially undermining external competitiveness going forward. International experiences suggest the minimum wage fixing should balance social considerations with potential negative impacts from minimum wage hikes.

Core Questions

- **How is the minimum wage set in Romania?**
- **Why is the minimum wage rising sharply in recent years?**
- **What could be the economic impact from minimum wage increase?**
- **What would be the appropriate minimum wage policy, drawing on international best practices?**

A. Minimum Wage Setting in Romania

1. Minimum wage fixing has long been established in Romania to give wage-earners the necessary social protection. The minimum wage in Romania was first introduced in 1949. The level of minimum wage in Romania is determined at national level by the government after consulting the trade unions and employers' organizations. There is only one minimum wage determined by law. The minimum wage has only one fixed component and is calculated on monthly gross basis. It has typically adjusted twice a year in January and July, except for 2016 in which the minimum wage will be adjusted only once in May. Nonetheless, the main factors underlying the minimum

wage adjustments for both macro- and micro-economic factors are not clearly specified. In recent years, the Romanian government has extensively utilized the minimum wage as a tool to achieve the objective set out for Europe strategy 2020 in order to reduce the number of persons at risk of poverty and social exclusion by 580,000 persons.

Table 1. Minimum Wage
(In lei)

Period	Monthly Minimum Wage
2013-Jan	700
2013-Jul	800
2014-Jan	850
2014-Jul	900
2015-Jan	975
2015-Jul	1050
2016-May	1250

Sources: Eurostat; and Ministry of Labor.

¹ Prepared by Piyaporn Sodsriwiboon (EUR). The author thanks the discussants and participants at the seminar organized by the National Bank of Romania for their helpful comments, as well as staffs at IMF resident representative office in Romania for their excellent support on this research.

2. Minimum wages in Romania has risen sharply. Minimum wages will be raised again in May 2016, reflecting about 78.6 percent increase from end-2012. With the planned increase in 2016, the minimum wage in Romania would leap to approximately 45.3 percent of mean wage and 65.4 percent of median wage which is high by international standards. In 2013, there were approximately 430 thousand workers in Romania with wages at or below the minimum wage, accounting for about 11.2 percent of total registered workers. Minimum wage workers are largely concentrated in construction, trade, manufacturing, hotels and restaurants. The majority of these workers are among working-age group and about two-thirds of minimum wage workers are male. There were only 0.5 percent of government employees who received minimum wage in 2013, and a large increase in public sector wage in 2016 would lift the monthly salary for all government employees above the minimum wage.

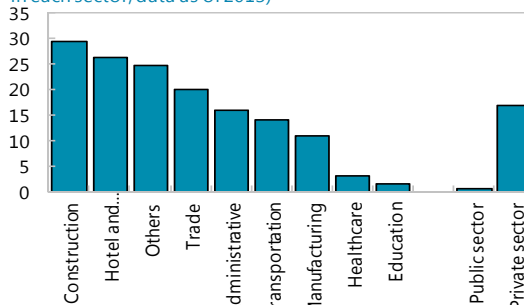
Share of Minimum Wage Earners (%)



Sources: INSSE, Eurostat

Minimum Wage Earners by Sector

(Workers at or below minimum wage in percent of total workers in each sector, data as of 2013)

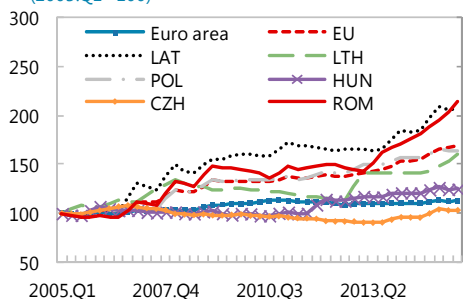


Sources: INSSE, IMF staff calculations

B. Minimum Wage Developments and Its Interactions with Relevant Macroeconomic Variables

3. Minimum wage increases in Romania are among one of the steepest among European peers since 2005. Although the minimum wage in national currency and euros remain low, the speed of the increase in minimum wage in both nominal and real terms for Romania is far greater than EU peers. Minimum relative to average wage ratio for Romania had always been among the low-end group, but will likely top the regional average with the planned increase in 2016.

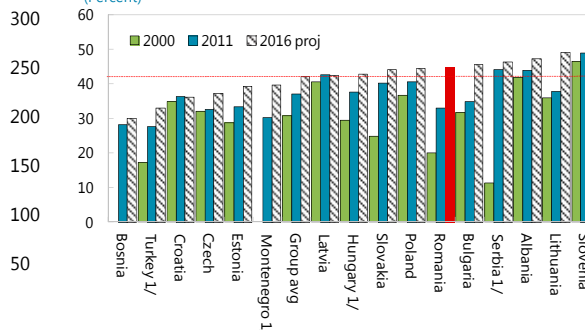
Monthly Minimum Wage 1/ (2005.Q1=100)



Sources: Eurostat, Haver, IMF staff calculations

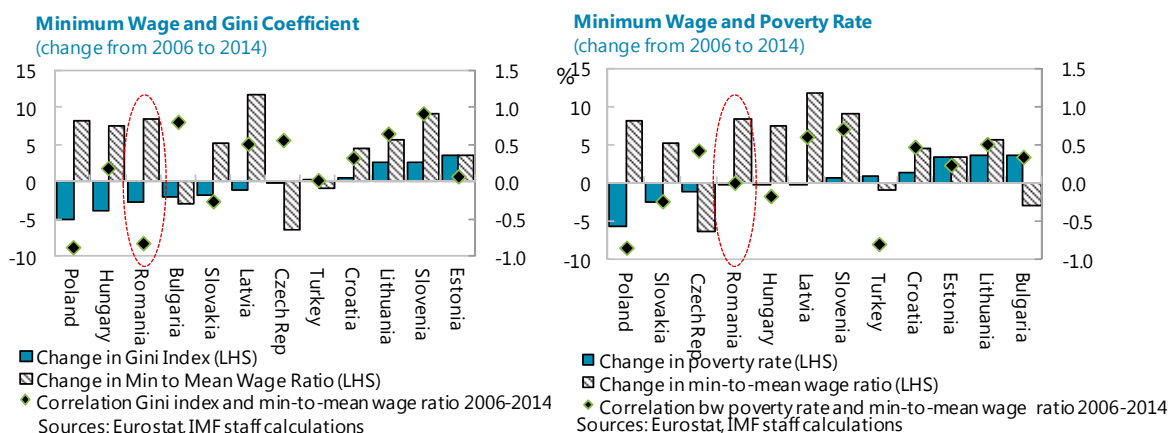
1/ Data are in real term. Nominal monthly minimum wages are deflated by consumer price indices.

Minimum Wage to Average Wage Ratio in CESEE (Percent)



Sources: Eurostat, National Authority, IMF Staff Projections 1/ 2015 data

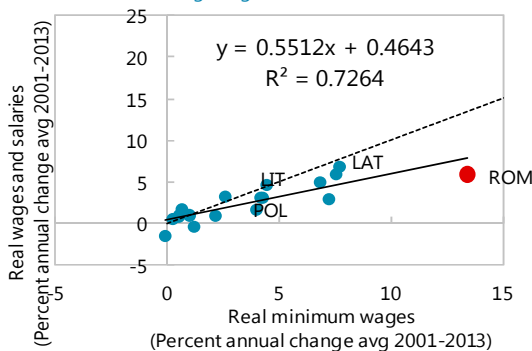
4. Minimum wage policy might have helped to reduce income inequality in Romania, whereas the poverty risk declined only slightly. During 2006–14, minimum relative to average wage rose by about 8 percent, and the Gini coefficients declined by around 2.8 percent. A simple correlation between the minimum to average wage ratios and Gini coefficient at the same period was negative and particularly strong for Romania. The income gaps measured by the ratio between the highest and the lowest income deciles also reduced from 14.7 times in 2006 to 13.4 times in 2014. Nevertheless, the poverty rate declined only slightly with the minimum wage increases during 2006–14 and the two appeared to be uncorrelated.



5. Minimum wage hikes may pass through overall wages and push labor costs. Minimum wage increases, if binding, would raise the wages paid to minimum wage workers. Moreover, workers receiving wages above the minimum wage level may negotiate for their wage increases, anchoring from the announced minimum wage hikes and any resulting inflation rises to maintain their purchasing power. At a glance, minimum wage growth and average gross wage growth appeared to be positively correlated among European countries. Furthermore, the evidences from firm-level surveys under the Wage Dynamic Network (WDN) of European System of Central Banks (ESCB) show that around a fifth of firms in the survey had to increase the wages of employees earning above the minimum wage level along with the minimum wage rises.² In Romania, minimum wage increases in January and July 2014 and January 2015 would directly contribute to the month-on-month growth of the average gross wage in private sector by about 0.5 percent (NBR, 2015). Nevertheless, minimum wage increases do not seem to match with labor productivity growth.

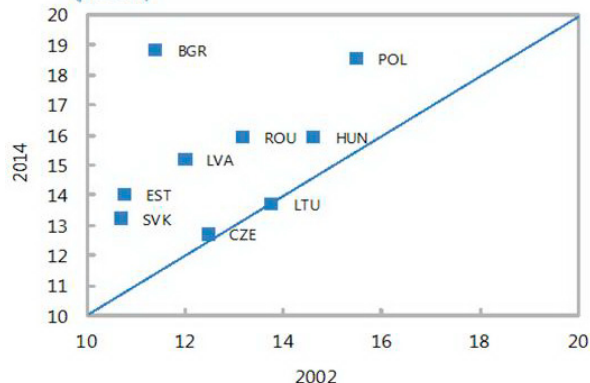
² See for example Schnattinger and others (2015) for Slovenia and Fadejeva and Krasnopjorovs (2015) for Latvia.

Minimum wage and gross wages
(Percent annual change avg 2001-2013 for 19 EU countries)



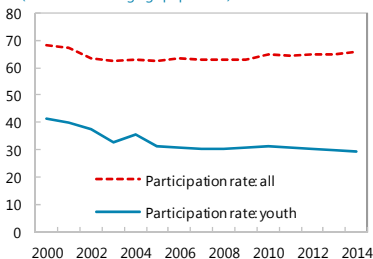
Sources: Eurostat, IMF staff calculations

Minimum wage to average productivity ratio
(percent)



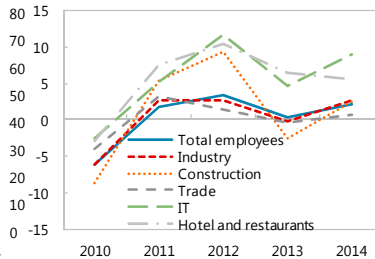
6. Romania’s labor market was insulated from minimum wage hikes so far. At the aggregate level, labor force participation increased gradually. Employment grew across the board. Despite relatively large share of minimum wage workers, the employment in trade service and hotels and restaurants expanded. The employment in construction sector declined in 2013, but recovered swiftly in 2014. The full-time employment was held up well, but the part-time employment continued to decline. Such benign impacts of minimum wage hikes on the employment in Romania may be due to the fact that minimum wage hikes emerged from low wage base and growing economy in recent years had helped to absorb the negative impact on employment. In addition, firms might choose to cut down their margins or reduce non-labor costs and rather to maintain jobs.

Labor Force Participation
(Percent of working age population)

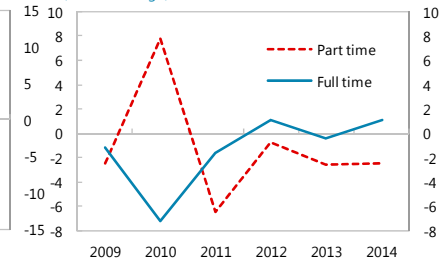


Sources: INSSE, Eurostat, IMF Staff Calculations

Employment
(Percent change)



Employment
(Percent change)

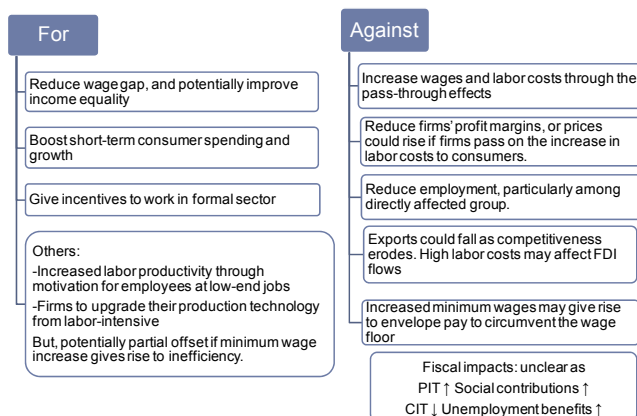


C. Economic Impacts of Minimum Wage Increases

7. The increase in minimum wage could improve economic equality but may also have potential negative impacts. The Romanian government introduced the active minimum wage policy as part of measures to tackle poverty. On the upside, minimum wage increases may help to reduce wage gaps and improve income inequality. The minimum wage increase and its ripple effect across wage distribution will give boost to short-term consumer spending. Minimum wage increase may incentivize low-paid workers to work in the formal sector, but this impact is not obvious as at the same time it may give rise to envelope pay to circumvent the minimum wage increase. On the other hand, minimum wage hikes could push average gross wages and labor costs. Increased wages

and labor costs could undermine external competitiveness and export performance, while hampering potential foreign direct investment that could benefit low skilled labor. Minimum wage is, in principle, a wage floor. If the floor is set too high, it could affect firms' profitability and discourage employers from hiring, particularly among directly affected group. Should the employment effect be intensified, the increase in unemployment may affect family income among low-paid group and in turn lowered income would have the repercussion effect on the poverty level. The following sections analyze the economic impacts of minimum wage increases in Romania in more details.

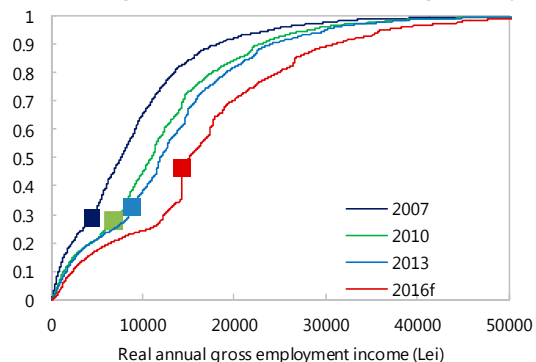
Arguments For and Against Minimum Wage Increase



Wage and Income Distribution

8. Minimum wage increase could have direct effect on wage distribution and narrow wage gaps between high and low pays. From the analysis of Romania's wage distribution (Appendix I), the increases in minimum wages immediately raised the employment income of the bottom part of the wage distribution and increased the coverage of minimum wage earners.³ Median wage income was rising. The wage distribution became less positively skewed overtime. The kurtosis of the wage distribution also went down, reflecting less heavy tailed or less

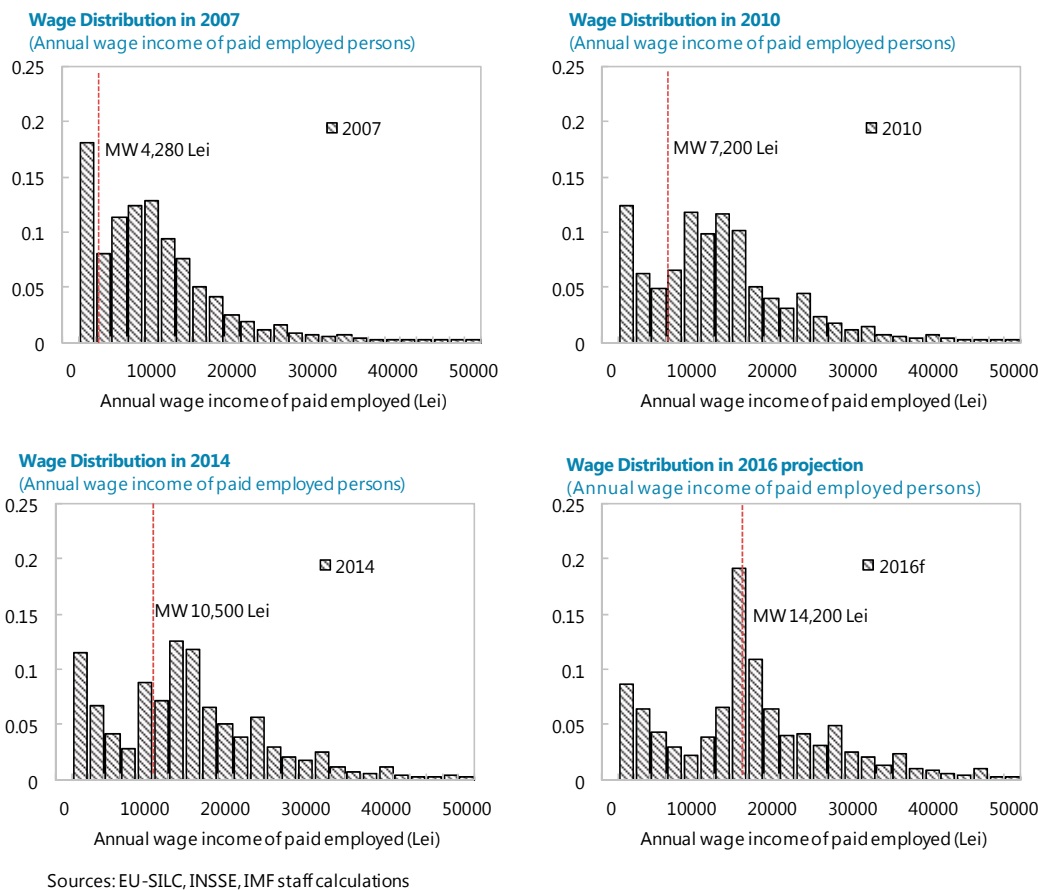
Cumulative Distribution of Annual Wages
(Real annual wage in Lei, each dot presents minimum wage for each year)



Sources: EU-SILC, INSSE, IMF staff calculations

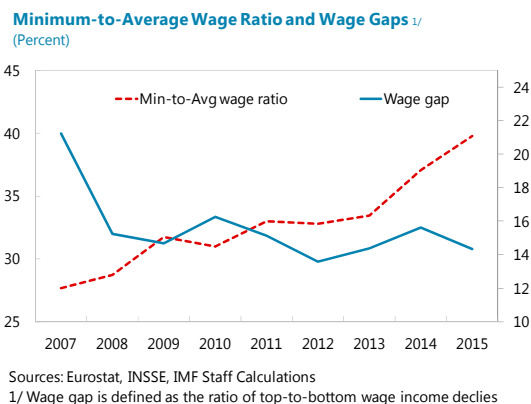
³ Subject to data availability, it would also be interesting for future research to further analyze the public-private wage inequality in Romania. Voinea and Mihaescu (2012) find significant public-private wage premiums. Persistent increases in minimum wage or public wages regardless of productivity improvement could potentially be counterproductive and crowd out productive labor force in competitive sector.

outliers both at the bottom and top of the distribution. In line with NBR (2015), the wage income distribution would likely squeeze around the minimum threshold with the minimum wage hikes toward the planned increase in 2016. The cumulative distribution of annual wages shifted to the right with greater frequency centered at the middle of the distribution. The ratio of the top and bottom income percentiles declined significantly from 21.2 times in 2007 to around 15.6 times in 2014, and would likely fall to around 13.1 times by 2016.



9. The effectiveness of the minimum wage policy on wage distribution could be largely exhausted with persistently sharp hikes of minimum wage.

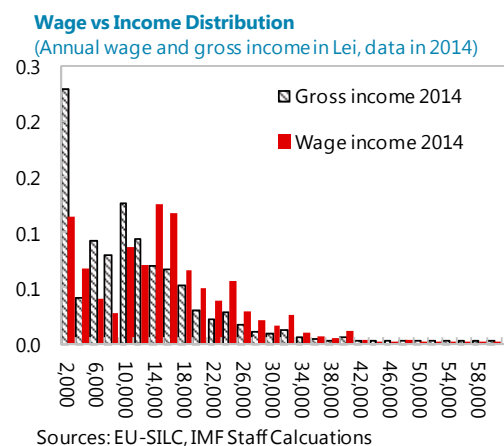
The minimum wage rises appeared to have strong re-distributional impact on the wage distribution during 2009 to 2012 as the wage distribution winded down towards a more equally distributed pattern. The more recent minimum wage hikes during 2013–16 would have lifted the wage profiles at all levels, but barely changed the wage distribution. The wage gaps between the top and bottom income percentiles have widened somewhat in 2013 and



2014, and would then narrow to around 12 times by 2016. Since the analysis has not controlled for other factors affecting the distribution of wage, this may be the evidence of minimum wages playing a rather moderate role compared to everything else during the period.

10. Minimum wage increases could also contribute to improve income inequality. The

improvement in wage distribution resulted from minimum wage rises would likely drive the change in income distribution, given that employed persons represent the largest proportion in total population and wages are considered a major source of income. In Romania, the paid employed persons in the household survey accounts for about 43.6 percent of total surveyed persons, comparing to around a third of total labor forces at the aggregate level. Likewise, wage income accounts for about 60 percent of total personal income in the survey. In fact, the redistribution of wages in Romania had helped to reduce income inequality in



terms of both improved median income and income gaps, particularly over the period of 2008–11. However, it is important to note that despite potential benefit of the minimum wage policy on income inequality, the wage distribution and income distribution remains very different and much of the population is not on the formal employment payrolls. In particular, the link between minimum wages and income inequality could be weak because the truly poor might not work at all such as unemployed persons and pensioners while many minimum wage earners may live in not-so-poor households. To fully address the income inequality and reduce the poverty, other policy instruments may be required (Table 2).

11. The impact of minimum wage policy on poverty reduction is less clear. Since the risk of poverty is higher among the low paid, reducing the number of low-paid workers may help to reduce working poverty. On Romania, the risk of in-work poverty or social exclusion slightly declined as minimum wages increased. Nevertheless, the causality of the minimum wage as policy instrument to reduce poverty would require more granular data analysis to pin down the effect. In fact, the empirical findings in the area are found controversial. CBO (2014) found the income of families whose income is below or close to the poverty threshold would rise significantly, while the income of richer families would decrease. Yet, Neumark and others (2005) mentioned that an *increase* in minimum wage raised the incomes of some poor families, but minimum wages appeared to increase the proportion of families that are poor or nearly poor due to the disemployment effect. Further to this, IMF (2014) and Neumark (2015) noted a large share of the higher income from minimum wages flows to higher-income families as minimum wages rise. Such findings point to the efficiency and equity concerns of minimum wage policy.

Table 2. Wage and Income Distribution
(In lei, unless otherwise indicated)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
									Proj.	Proj.
MW annual income	4,680	6,000	7,200	7,200	8,040	8,400	9,000	10,500	12,150	14,200
%change	18.2	28.2	20.0	0.0	11.7	4.5	7.1	16.7	15.7	16.9
Gross wage annual	16,916	20,906	22,672	23,240	24,383	25,606	26,890	28,320	30,714	33,601
%change	22.6	23.6	8.4	2.5	4.9	5.0	5.0	5.3	8.5	9.4
Paid workers at or under MW (persons)	2,276	2,139	2,066	1,970	2,024	2,041	2,218	2,409	2,659	3,161
Paid workers (persons)	7,906	7,339	7,207	7,154	6,920	6,841	6,932	6,836	6,836	6,836
Share of MW paid workers (in percent)	28.8	29.1	28.7	27.5	29.2	29.8	32.0	35.2	38.9	46.2
Distribution of Annual Wage										
Median annual wage	8,013	9,349	10,997	11,726	12,081	12,130	12,432	13,233	14,065	15,014
% change		17	18	7	3	0	2	6	6	7
Skewness (0=normal)	3	5	11	8	4	2	2	2	2	2
Kurtosis (3=normal)	23	109	403	226	76	18	18	14	15	15
10th percentile	900	1,400	1,650	1,500	1,600	1,800	1,750	1,743	2,016	2,357
90th percentile	19,101	21,347	24,188	24,387	24,199	24,462	25,146	27,226	28,937	30,890
Wage gap (top-to-bottom income)	21	15	15	16	15	14	14	16	14	13
Distribution of Gross Annual Income										
Median gross annual income	4,200	5,317	6,765	7,736	8,200	8,371	8,400	8,798	...	...
Skewness (0=normal)	4.2	5.8	9.8	6.7	3.8	2.7	34.4	44.3	...	...
Kurtosis (3=normal)	42.5	111.4	374.5	195.1	64.7	29.3	2598.7	2955.4	...	...
10th percentile	0	0	0	0	0	0	0	0	...	...
20th percentile	490	630	976	1116	1180	910	791	950	...	...
90th percentile	14072	15295	17797	19248	19134	19559	20292	22005	...	...
Income gap (90th to 20th income percentiles)	28.7	24.3	18.2	17.2	16.2	21.5	25.6	23.2	...	...

Source: EU-SILC, INSSE, and IMF staff calculations.

Pass-Through of Minimum Wage on Average Wage

12. Minimum wage policies can affect gross wages through the wage redistribution and play a signaling role at the economy-wide wage setting. This study utilizes the panel VARs technique to estimate the reduced-form wage-setting system.⁴ The dynamics of such pass-through can be characterized by the resulting impulse response of minimum wage increase on average gross wage growth. The pass-through is estimated at about 0.01–0.15 percent increase in real average wage growth in response to 1 percent increase in real minimum wage over two years. The result indicates a minimum wage shock could have a significant and long-lasting effect on the overall wage growth. One explanation is that during 2011–16, several CESE countries have actively used the minimum wage policy, and the minimum relative to average wage ratios in many CESE countries

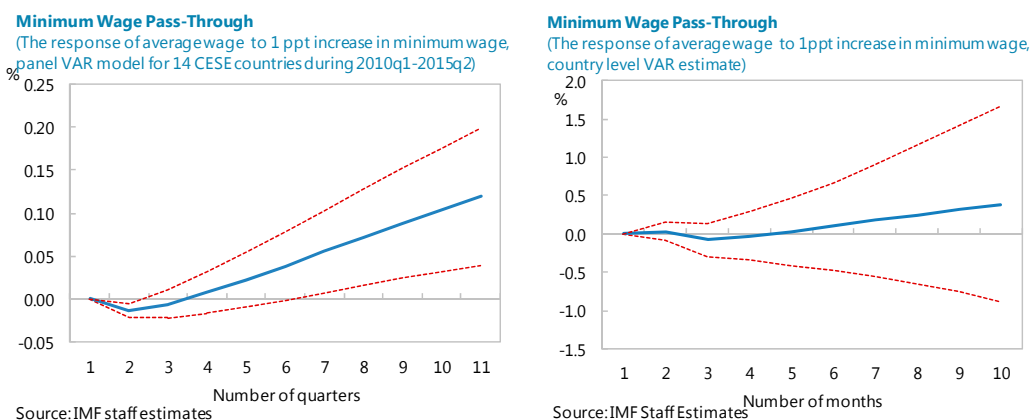
⁴ To identify the wage pass-through at regional level, we estimate panel VARs to construct the average pass-through effects across 14 Central, Eastern and Southeastern Europe (CESE) countries including Estonia, Latvia, Lithuania, Czech Republic, Hungary, Poland, Slovak Republic, Slovenia, Bulgaria, Croatia, Romania, Serbia, Russia and Turkey.

$$y_{it} = A_0^{(t)} + A_1^{(t)} y_{i,t-1} + u_{it}$$

$$i=1,2,\dots,N; t=1,2,\dots,T$$

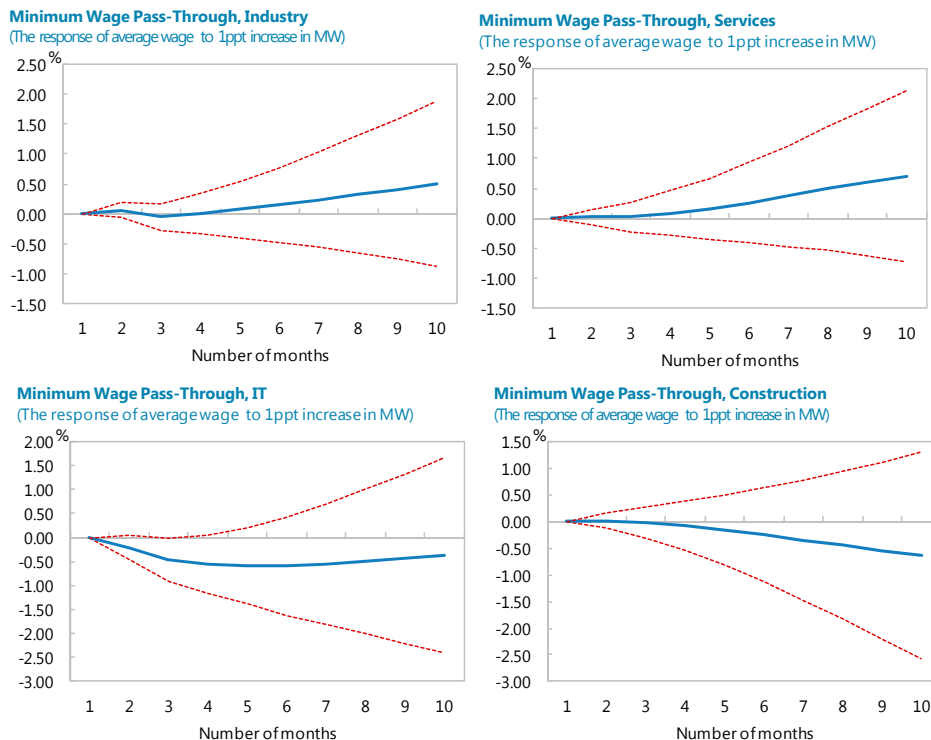
$$y_{it}$$
 is the stacked version of y_{it} , which is the vector of change in real average wages, employment growth, real labor productivity growth, change in term of trade and change in real minimum wages for each country $i=1,2,\dots,N$. The choice of variables follows Blanchard and Katz (1999) and Goretti (2008). All variables are in real terms using change in consumer price index as a deflator. Data are quarterly from 1995q1 to 2015q2. Panel is unbalanced. Lags included are chosen to minimize the information criterion statistics. The system is estimated using GMM method.

rose remarkably to 45–50 percent from mid-30 percent range in the past decade. The share of minimum wage earners may have increased significantly. Therefore, minimum wage hikes could potentially blow stronger ripple effects across the wage distribution above minimum wage.



13. Supporting evidences from Romania-specific estimates emphasize the role of minimum wage as an important push factor for the overall wage growth. To further identify the impact of minimum wage hikes on overall wages, this study explores a more granular pass-through effect at country and sectoral level.⁵ The pass-through estimated at the country level for Romania range from 0.45 to 0.55 percent increase in average gross wage in response to 1 percent increase in minimum wage, but the significant level is low. Potentially stronger pass-through of minimum wage of a particular country or sector may be resulted from the level of minimum wage coverage and a large share of minimum wage workers within the country or sector being considered. Having said that, some firms may offset higher minimum wages by lowering non-wage benefits, hours, or under-the-table wage supplements (IMF, 2016). Therefore, the effect of minimum wages on remuneration may not be obvious.

⁵ In line with the previous setting, the analysis draws on VAR framework for Romania at the overall wages as well as for wages by key economic sectors including industry, construction, service, and IT sectors. $Y_t = A_0^{(t)} + A_1^{(t)} Y_{t-1} + u_t$, $t=1,2,\dots,T$ and Y_t is the vector of change in real average wages, employment growth, real labor productivity growth, and change in real minimum wages. Data are monthly from 2005m1 to 2015m7. Lags included are chosen to minimize the information criterion statistics. The system is estimated separately for each analysis.

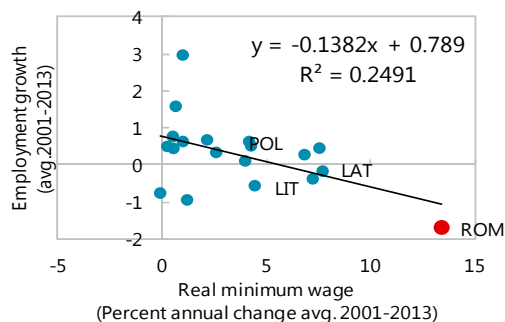


Source: IMF Staff Estimates

Employment

14. Existing literatures find the impact of minimum wage on employment appears to be modest. Neumark, Schweitzer, and Wascher (2000) estimate the disemployment effects for those at the minimum and those just above the minimum wage of around 0.12 to 0.17 percent in response to 1 percent increase in minimum wage in the U.S. Focusing on the evidences from CESE countries, studies find relatively strong disemployment effect for workers who earned minimum wage but less so at the aggregate level. Hinnosaar and Room (2003) find the minimum wage increase in Estonia has a negative but modest effect on the employment of those workers directly affected by minimum wage change, or about 0.43–0.66 percent reduction in employment in response to 10 percent increase in minimum wage. Baranowska-Rataj and Magda (2015) find a large impact on job separations among workers directly affected by the minimum wage increase in Poland, especially among temporary and young workers. Kertesi and Kollo (2003) find substantial employment losses with sharp minimum wage hikes of about 57 percent in Hungary during 2000–01 of which small-firm employment were most affected. In addition, Andreica and others (2010) estimated the real minimum wage increase of 10 percent can have a significant negative effect on employment of about 0.9 percent over one year for Romania.

Minimum Wage and Employment 1/
(Percent annual change avg. 2001-2013 for 19 EU countries)



Source: Eurostat, IMF Staff Calculations
1/ Chart presents simple correlation between minimum wage and employment that may not imply causality.

15. Nonetheless, some negative impacts on employment of youth and low-skilled could be expected, particularly in countries with high relative minimum wage. Staff's analysis (IMF, 2016) illustrates the employment impact of minimum wage increases on youth employment at different levels of minimum-to-average wage ratios for 17 CESE countries using data from 2000 to 2014. The study finds that some negative employment effects start to materialize when minimum to average wage ratio exceeds 40 percent. The effects could potentially enlarge toward higher minimum-to-average wage ratios, reflecting its non-linearity nature. In addition, staff's estimates based on firm-level data for eight CESE countries indicate the increase in minimum wage would result in a decrease in firms' employment, particularly among firms in tradable sector.

Competitiveness

16. Sharp minimum wage hikes could undermine external competitiveness. High level of minimum wage that passes on to overall wages and labor costs would deteriorate the country's competitiveness, especially when wage growth is already outstripping productivity growth. Export performance could be jeopardized (Rahman and others, 2015, see Appendix II). Specifically, the estimates suggest the value-added exports of goods and services particularly to EU will likely decline by 0.083 percent for 1 percent increase in minimum relative to average wage ratio. Rising labor costs may also deter foreign direct investment which otherwise would have created jobs. Furthermore, sharp and sudden increases in minimum wage could affect firms' profitability particularly for firms in tradable sector. For the period of 2009–13, when minimum wage increases were smaller, firm-level analysis reveals that tradable sector firms appear to absorb higher labor costs. They experience somewhat lower profits and employment growth, as they restrain to increase prices and lose competitiveness. However, the impact of the currently larger increases of minimum wage are uncertain and worth monitoring (IMF, 2016).

D. Minimum Wage Policy: International Experiences and Policy Recommendations

17. International experiences suggest the minimum wage fixing should balance social considerations with potential negative impacts from minimum wage hikes. The International Labor Organization (ILO) convention on minimum wage fixing (1970) suggests several elements to be taken into consideration in determining the level of minimum wages: (a) the needs of workers and their families; and (b) economic factors including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment. To tackle poverty in particular, minimum wages may need to be combined with other policies to be effective.

18. Future decisions on minimum wage need to be carefully crafted. The pace of future minimum wage increases should be moderate and balance social considerations with competitiveness, productivity growth, and employment prospects. As minimum-to-average wage ratios in Romania are already higher than in peers, the economic effects could weigh on Romania's perceived competitiveness in the region. Hence, future minimum wage adjustments could usefully be based on a transparent and clear mechanism and avoid unsustainably rapid increases to shun

adverse effects. Minimum wage in Romania is determined at the national level by the government after consulting trade unions and employers' organizations. It is important to ensure sufficient representation from many low-wage sectors representing the interest of the group affected by the minimum wage. Finally, periodic assessments of the impact of labor market policy including minimum wages by labor market expert committees could usefully inform future policy decisions.

Key Recommendations on Minimum Wage Policy

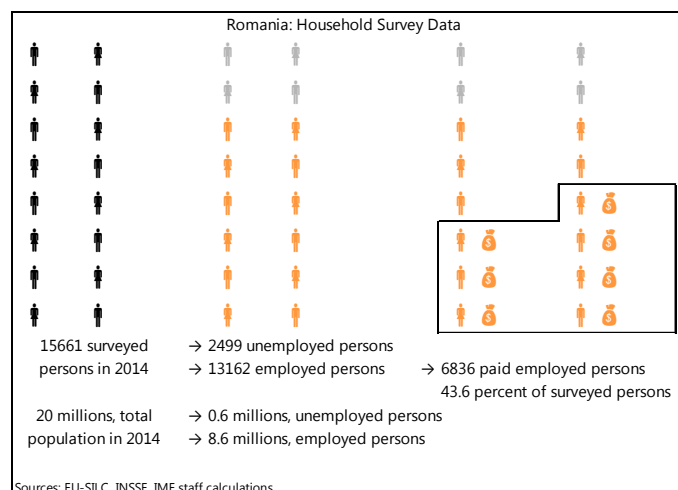
References	Key recommendations
G20 joint report by the ILO, OCED, IMF, and the World Bank 2012	Maintaining the purchasing power of minimum wages at around 30 to 40 percent of median wages sustains demand and reduces poverty and income inequalities.
Council of Europe	The Council's European Committee of Social Rights (ECSR) has put forward a definition according to which a "fair" or "decent" wage is at least 60 percent of the average net wage and certainly not below a level of 50 percent of the average net wage.
OECD Employment Outlook 2015	Minimum wages are relatively blunt tool for tackling poverty even in the absence of any negative effect on employment. Minimum wage, therefore, needs to be combined with other policies to be effective.
IMF country report on Germany No.14/216	The new nationwide minimum wage will help reduce growing wage inequality, but risks exacerbating unemployment in some regions. Decisions on the future level of the minimum wage should take the employment effects into account.
IMF country report on the United States No.14/221	On its own, a minimum wage hike can be a poorly targeted instrument to reduce poverty. Improved employment prospects and economic growth will be essential to reverse a jump in the number of families living poverty. An expansion of the Earned Income Tax Credit and an increase in the minimum wage should also be part of the solution.
IMF country report on Republic of Estonia No.15/336	Competitiveness could come under pressure from wage growth, which has outstripped productivity gains in recent years. There is a need to cool wage growth, including through moderation in public sector wage policy and ensuring that unsustainably rapid minimum wage growth does not set the pace for general wage developments.

Appendix I. Wage and Income Distribution

This study utilizes the micro-level data from EU-SILC for Romania to analyze how the minimum wage impacts the wage distribution and how effective the minimum wage is as the instrument to improve wage and income inequality. The analysis follows the methodology as in Maloney and Mendez (2004) and the United States' Congressional Budget Office (2014).

- The EU-SILC is the EU reference source for comparative statistics on income distribution and social exclusion at the European level. The Romania's EU-SILC data are provided through the National Institute of Statistics of Romania (INSSE). This study focuses

on the developments of wage distribution or gross employment income of paid employed persons.¹ The data are both cross-sectional and longitudinal, produced annually from 2007 to 2014. In 2014, for example, there were 7,508 households or 15,661 persons interviewed in the survey (text chart). Of which, 2,499 persons are unemployed and 13,162 persons are either employees or self-



employed. The study focuses only on paid employed persons of 6,836 persons accounting for about 43.6 percent of total surveyed persons in 2014.

- The wage distributional data for 2015 and 2016 are projected to capture the impacts of sharp minimum wage hikes in recent years. Specifically, sub-minimum wage workers would receive the wage hikes at the growth rate of minimum wage, workers at minimum wage would immediately be paid at the new minimum wage, and workers above minimum wage would receive the pay rise taking into account the pass-through of the growth rate of minimum wage.²

¹ Paid employed persons refer to those employed persons, including employees, self-employed and family workers, with gross employment income greater than zero. Gross employment income includes gross employee cash or near-cash income for employees, and gross cash benefits or losses from self-employment for self-employed and family workers. Paid employed persons refer to those employed persons with income greater than zero.

² The pass-through effect on gross wage for Romania is estimated at around 0.45 percent to 1 percent increase in minimum wage.

Appendix II. The Impact of Minimum Wage on Export Performance

Rahman and others (2015) analyzes the determinants of value-added exports of goods and services to EU for 10 New Member States (NMS). They point to the importance of structural reforms, particularly in the areas of higher education, skills upgrade, wage structure's ability to provide incentives to work and foreign investment environment. Of which, the relative minimum wage defined as the minimum wage in percent of average gross wages is identified to have a significant negative impact on export performance. The estimates suggest the value-added exports of goods and services will likely decline by 0.047 percent for 1 percent increase in minimum relative to average wage ratio.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Value Added exports to EU: goods and services	Value Added exports to the world: goods and services	Gross exports to EU (GE)	Value Added exports to EU: goods	Value Added Exports to EU: services	GE to EU: goods	GE to EU: services	Value Added exports to EU: advanced EU
Upper secondary or tertiary educational attainment	0.156* (0.083)	0.301*** (0.099)	0.417*** (0.156)	0.147*** (0.040)	0.023 (0.034)	0.415*** (0.128)	0.002 (0.050)	0.036 (0.042)
Participation in continuous vocational training and skills upgrade	0.147*** (0.029)	0.035 (0.035)	0.310*** (0.053)	0.107*** (0.014)	0.049*** (0.012)	0.259*** (0.044)	0.051*** (0.017)	-0.005 (0.064)
Inactivity trap	-0.0917*** (0.026)	-0.032 (0.032)	-0.195*** (0.051)	-0.055*** (0.013)	-0.029** (0.011)	-0.155*** (0.042)	-0.040** (0.017)	0.263*** (0.052)
Relative minimum wage	-0.083** (0.038)	-0.047 (0.045)	-0.369*** (0.061)	-0.135*** (0.016)	-0.004 (0.013)	-0.369*** (0.050)	0.000 (0.020)	-0.221*** (0.033)
Foreign investment and ownership environment	0.905** (0.424)	0.998* (0.507)	2.961*** (0.752)	0.749*** (0.195)	0.492*** (0.165)	2.487*** (0.617)	0.474* (0.243)	1.804*** (0.494)
Share of exports processed by supply chain	0.450*** (0.118)	0.571*** (0.141)	1.217*** (0.186)	0.136*** (0.048)	0.208*** (0.041)	0.904*** (0.152)	0.313*** (0.060)	0.259** (0.085)
Real effective exchange rate (ULC based)	-0.030 (0.019)	-0.023 (0.022)						-0.064 -0.087
Weighted real GDP growth of trading partners	0.055 (0.060)	0.162** (0.072)						-0.119
Population	0.475 (0.551)	1.327** (0.659)						-0.622* -0.333
PPP GDP per capita	0.000 (0.000)	0.0003*** (0.0001)						
GDP weighted distance	0.000 (0.000)	-0.0009** (0.0003)						
Constant	-29.265*** (10.272)	-45.783*** (12.282)	-96.763*** (19.191)	-10.829** (4.980)	-13.305*** (4.218)	-79.292*** (15.744)	-17.471*** (6.211)	-22.654** (11.151)
Observations	73	73	73	73	73	73	73	115
R-squared	0.858	0.829	0.861	0.882	0.746	0.868	0.671	0.96

Standard errors in parentheses; *** p < 0.01, ** p < 0.05, * p < 0.1.
Sources: Rahman and others (2015).

References

- Andreica, M., Aparaschivei, L., Cristescu, A. and Cataniciu, N. , 2010, Models of the Minimum Wage Impact upon Employment, Wages and Prices: the Romanian Case, *Recent Advances in Mathematics and Computers in Business, Economics, Biology and Chemistry*, Proceedings of the 11th WSEAS Int. Conf. MCBE 2010, pp. 104–109.
- Baranowska-Rataj, A. and Magda, I., 2015, The Impact of the Minimum Wage on Job Separations and Working Hours among Young People in Poland, *Institute of Statistics and Demography Working Paper No. 44/2015*.
- Fadejeva, L. and Krasnopjorovs, O., 2015, Labor Market Adjustment During 2008–13 in Latvia: Firm-Level Evidence, *Latvijas Banka Working Paper No. 2/2015*.
- Hinnosaar, M. and Room, T., 2003, The Impact of Minimum Wage on the Labour Market in Estonia: An Empirical Analysis, *Bank of Estonia Working Paper No. 8*.
- International Monetary Fund (IMF), 2014, The United States' Staff Report for the 2014 Article IV Consultation, *IMF Country Report No. 14/221*, Washington, D.C.
- International Monetary Fund, 2016, Getting Minimum Wages Right in Central, Eastern and Southeastern Europe, *Forthcoming*.
- Kertesi, G. and Kollo, J., 2003, Fighting 'Low Equilibria' by Doubling the Minimum Wage? Hungary's Experiment, *IZA Discussion Paper No. 970*.
- National Bank of Romania, 2015, The Increase in the Minimum Gross Wage—Effects on the Labour Market, *Inflation Report*, May 2015.
- Neumark, D., 2015, Reducing Poverty via Minimum Wages, *Alternatives*, FRBSF Economic Letter No. 2015–38, December 2015.
- Neumark, D., Schweitzer, M. and Wascher, W. (2000), The Effects of Minimum Wages throughout the Wage Distribution, *NBER Working Paper No. 7519*.
- Neumark, D., Schweitzer, M. and Wascher, W., 2005, The Effects of Minimum Wages on the Distribution of Family Incomes: A Non-Parametric Analysis, *Journal of Human Resources*, Vol. 40, No. 4 (Autumn 2005): 867–894.
- Rahman, J., Stepanyan, A., Yang, J., and Zeng, L., 2015, Exports in a Tariff-Free Environment: What Structural Reforms Matter? Evidence from the European Union Single Market, *IMF Working Paper No. 15/187*.
- Schnattinger, P., Jemec, N., Lozej, M., Vodopivec, M., Peternelj, P., 2015, Results of the 2014 Wage Dynamics Network Survey in Slovenia, *Bank of Slovenia Working Paper No. 1/2015*.

ROMANIA

The United States' Congressional Budget Office, 2014, The Effects of a Minimum Wage Increase on Employment and Family Income, Publication No. 4856, February 2014.

Voinea, L., and Mihaescu, F., 2012, A Contribution to the Public-Private Wage Inequality Debate, *Economics of Transition*, Vol. 20(2), p 315–337.

FINANCIAL SECTOR DEVELOPMENT IN ROMANIA: AT A CROSSROADS?¹

During the last decade the Romanian financial sector has undergone a substantial transformation. A fast expansion phase that happened during 2004–08 on the back of massive capital inflows was followed by a major negative shock in the wake of the global financial crisis. After prolonged decline, private credit seems to be turning the corner but financial intermediation needs to be enhanced so it can better support future growth. The financial sector appears to be at a crossroads: will it expand at a healthy pace and thus contribute to future growth or affected by harmful legislative initiatives it will stagnate or even shrink further?

Core Questions

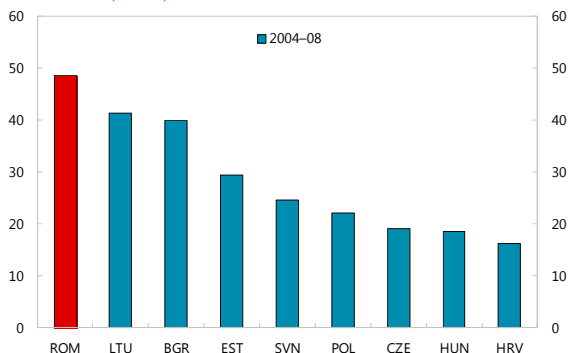
- **How has the financial sector developed in Romania in the last decade and what have been the main challenges?**
- **Will more financial development and financial inclusion be conducive to growth?**
- **What has driven bank credit and what are the prospects for a credit rebound?**
- **What has been the impact of past financial sector policies and what are priorities?**

A. An Overview of Romania's Financial Sector

1. Romania's financial sector is dominated by banks which hold around 80 percent of sector's assets. During the last decade the sector has undergone a substantial transformation. In the early 2000s, the sector was relatively small compared to the size of the economy. During 2004–08, a fast expansion phase happened in the banking sector on the back of massive capital inflows to Romania (Isarescu, 2009). Private sector credit grew at an average annual rate of above 40 percent almost tripling its ratio to GDP and showing one of the fastest expansions in the region (this holds also in real terms). Despite such an expansion, the level of financial intermediation in Romania remained one of the lowest in the EU.

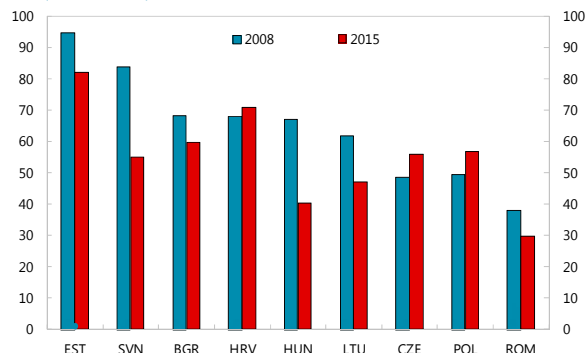
¹ Prepared by Vahram Stepanyan.

Private Sector Credit Average Annual Change in Selected European Countries (Percent)



Sources: Haver Analytics; and IMF staff estimates.

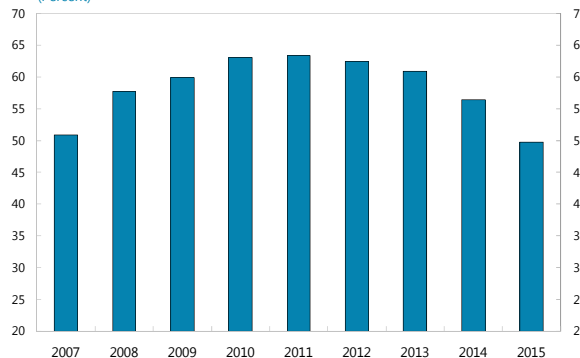
Private Sector Credit in Selected European Countries (Percent of GDP)



Sources: Haver Analytics; and IMF staff estimates.

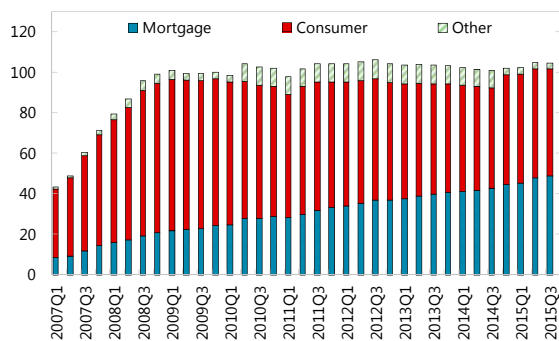
2. The expansion in credit was increasingly reliant on foreign currency financing, largely from foreign parent banks which own most of the Romanian banks (accounting for 88 percent of total bank assets). This in turn was reflected in the growing share of foreign currency-denominated loans which peaked in 2011 at 63 percent of total loans. In terms of credit composition, the shares of credit to households and to corporates were proportional until late 2010 when credit to corporates started to increase faster while household credit stagnated. After a decline in both categories since late 2012, the household credit has recently started to grow. Within credit to households, mortgages, which a decade ago had a very small share, have been growing constantly and now constitute close to half of total household credit. In terms of the composition of lending to non-financial corporations, borrowers almost equally represent main sectors of economic activity with the exception of agriculture which has a smaller share (below 10 percent).

Foreign-Currency-Denominated Loans to Total Loans (Percent)



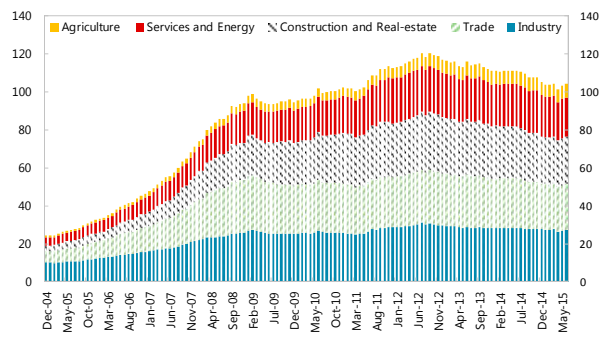
Sources: FSI Database; and IMF staff estimates.

Romania Household Credit Composition (Billions of national currency)



Sources: Haver Analytics; and IMF staff estimates.

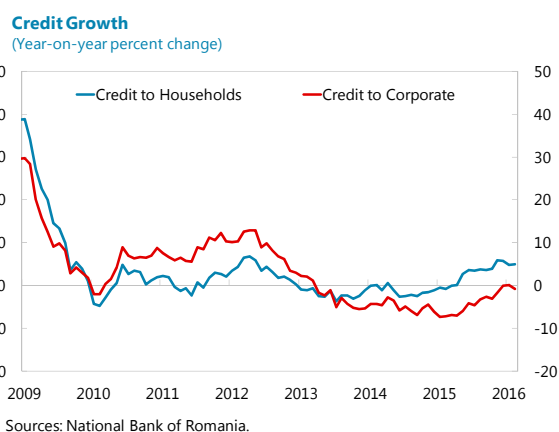
Romania Non-Financial Corporations' Loans by Sector of Activity (Billions of national currency)



Sources: NBR; and IMF staff estimates.

3. In the wake of the global financial crisis, Romanian banking sector suffered a major shock, but no public funds were used to support the banks. External flows halted, financial

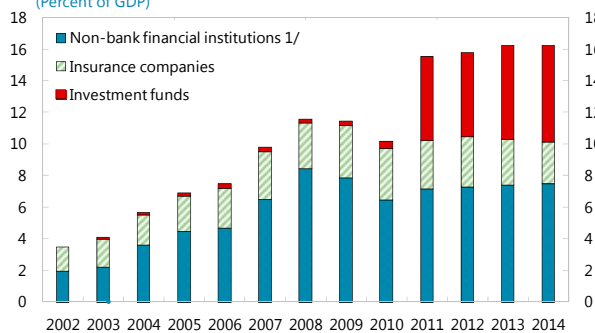
instability ensued and corporate and household balance sheets started to deteriorate (IMF (Romania FSAP), 2010). After several years of extremely rapid growth, private sector credit sharply slowed down in 2009 and credit growth turned negative in 2013. The deleveraging process ensued in a relatively orderly manner. The structure of credit started to change notably reflecting a shift to lending in domestic currency-denominated loans as well as FX loan conversions. In the last quarter of 2015, the accelerating credit in domestic currency, largely driven by credit to households, turned the credit growth positive.



4. Despite an expansion of the non-bank financial institutions (NBFIs) in Romania, their assets make less than one-third of the banking sector assets, a relatively low share.² This

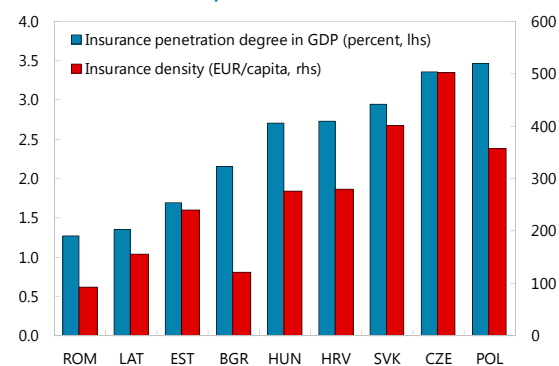
segment of the financial sector is dominated by investment funds, private pension funds, and insurance companies. The investment and private pension funds assets expanded in the aftermaths of the Fondul Proprietatea's (government-established fund whose shares were awarded in lieu of compensation to claimants who lost their property) registration as an investment fund, and the introduction of Pillar II and III pension legislation. The Romanian insurance market has one of the lowest levels of insurance density and insurance penetration in Europe. The insurance sector has recently been stagnant as several major insurance companies have come under financial strain. The largest insurance company, Astra, entered bankruptcy in late 2015.

Non-bank Financial Sector Assets
(Percent of GDP)



Source: NBR Financial Stability Report (2015).
1/ Includes private pension funds.

Insurance Markets, 2013

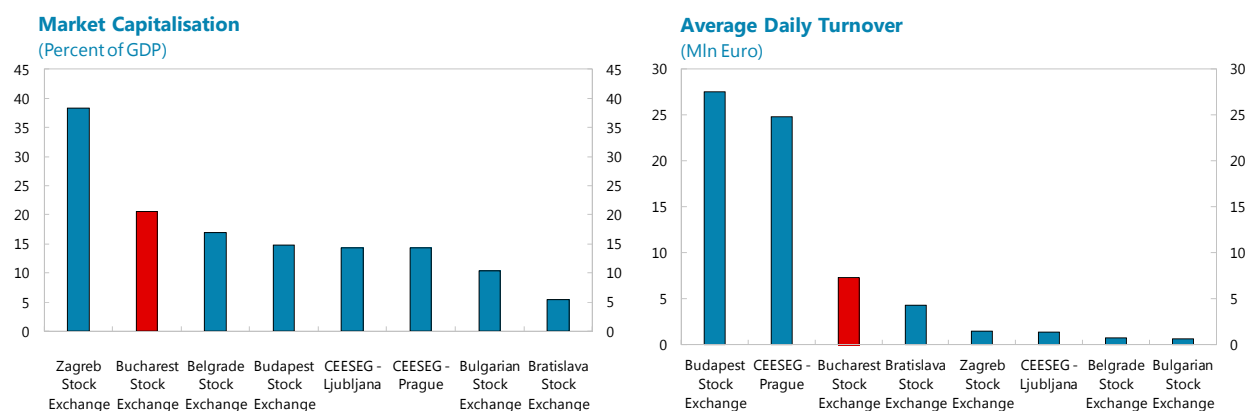


Sources: Financial Supervisory Authority Report 2014; and IMF staff calculations.

² In the EU as a whole, the NBFIs assets are around 1.5 times bigger than those of banks (EC, 2012).

5. The Romanian capital market is characterized by relatively few issuers, limited number of new issues and IPOs, and low liquidity. The equity market with only 84 listed companies had a capitalization of €32 billion as of end-2015. The fixed-income market is also relatively small and undiversified, with around 80 bonds traded at the Bucharest Stock Exchange of which a majority is securities issued by central and local governments. There are only seven corporate bonds.

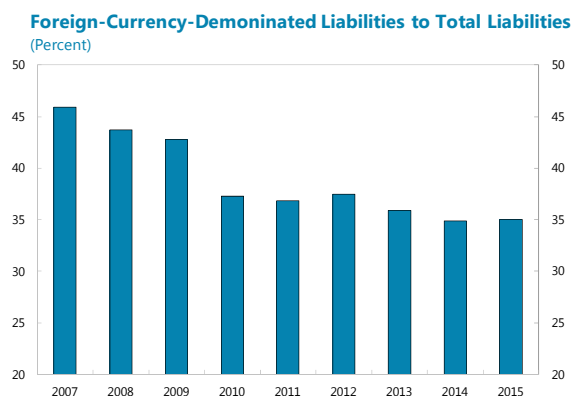
Performance of Stock Exchanges, December 2015



Note: CEESEG is CEE Stock Exchange Group consisting of four stock exchanges: Budapest, Ljubljana, Prague and Vienna.

Sources: FESE; Zagreb Stock Exchange; Bucharest Stock Exchange; Belgrade Stock Exchange; and Bratislava Stock Exchange.

6. At end-2015, Romanian financial sector continued to face major challenges. The banking sector has been shrinking amid continuous reduction in parent funding, and the non-performing loans (NPLs), albeit recording a substantial decline, remain at elevated levels. While credit has started to rebound on the back of low rates and stronger economic activity, the recent legislative initiatives that involve unilateral and retroactive change of contracts pose substantial risks for banks (Box 1). The main challenges for further development of the capital market include both supply- and demand-side factors. In particular, the equity market in Romania has a limited supply of equity issues and there is no strong IPO pipeline. Low levels of awareness among potential investors and relatively low household savings rate (EC, 2015) may constrain the demand. In addition, the stock exchange has had a low level of accessibility and attractiveness in terms of infrastructure, and, until recently, relatively high regulatory fees.

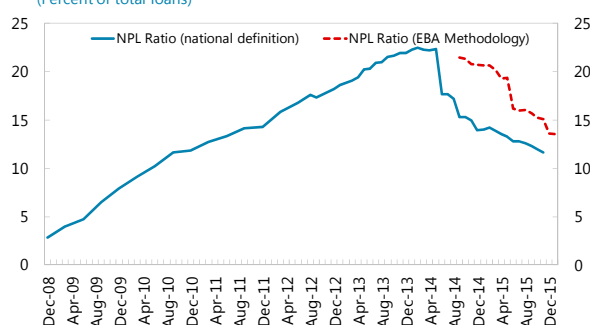


Sources: FSI Database; and IMF staff estimates.

Box 1. Progress with NPL Reduction

Romanian banks' NPLs have been on a declining trend since the second quarter of 2014. The substantial reduction was primarily prompted by the NBR's more active stance towards tackling the high level of NPLs. In particular, the NBR issued several "recommendation" letters to commercial banks encouraging them to write-off fully-provisioned NPLs. Also, the NBR required the banks to fully provision loans with payments past due over one year and demanded to increase the coverage for all exposures to borrowers under insolvency or bankruptcy proceedings to 90 percent. Furthermore, the NBR required banks to submit more detailed and higher frequency reports on restructured loans and to periodically use external professional appraisers for collateral valuations to ensure the latter were in line with market values. As a result, Romanian banks became more active in write-off and sale of NPLs with large transactions taking place in the second half of 2014.

Non-performing Loans 1/
(Percent of total loans)



1/ In December 2015, NBR moved from a national definition to an EBA methodology-based definition of NPLs.

Sources: National Bank of Romania; and IMF staff calculations.

B. Financial Development and Inclusion: A Cross-Country Perspective

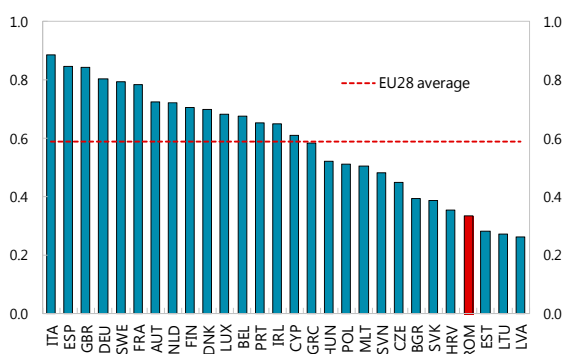
7. Financial development generally contributes to economic growth, especially when we talk about development from relatively low levels. While there could be tradeoffs between growth and stability at very high levels of financial development, one can argue that many emerging market economies, including Romania, are still some way from that point. Sahay and others (2015a) find that there is a significant, bell-shaped, relationship between financial development (as measured by a newly-constructed index) and growth and that the level of financial development above which the positive effects on growth begin to decline lies between 0.4 and 0.7 of the index. Sahay and others (2015b) also suggest that financial sectors that are not only deep but also provide higher levels of financial inclusion appear more conducive to economic growth.

8. We use the Financial Development Index (FDI) to evaluate the level of Romania's financial sector development. The FDI, developed recently by the Fund staff (Sahay and others, 2015a), captures both financial institutions and markets and assesses those across three dimensions—depth, access, and efficiency (see Annex I for details). The compiled index covers a large number of advanced and emerging economies allowing a look at financial development also from a cross-country perspective. One caveat is that the developments after 2013 are not captured by the index.

9. The FDI for Romania presents a notable contrast between the level of development of financial institutions and that of financial markets. Romanian financial institutions fare relatively

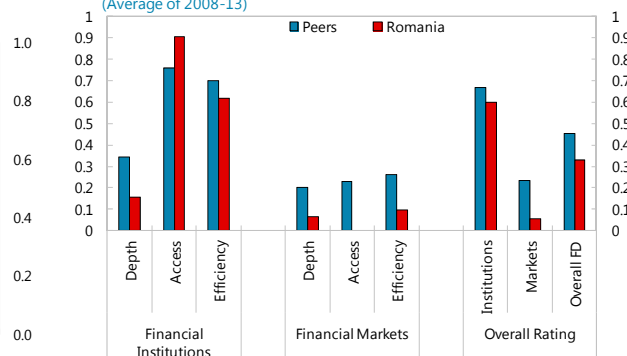
well in terms of access and efficiency, but the low level of depth reflects low financial intermediation in Romania.³ At the same time, low indices for financial markets reflect low level of equity and debt market development. From a cross-country perspective, Romania lags behind many EU members including some of its peers in terms of the overall level of financial development and in particular in terms of financial markets.

Financial Development Index: European Union, 2013



Note: EU28 is a simple average of 28 EU member states.
Source: Sahay et al. (2015); and IMF staff calculations.

Financial Development Index
(Average of 2008-13)



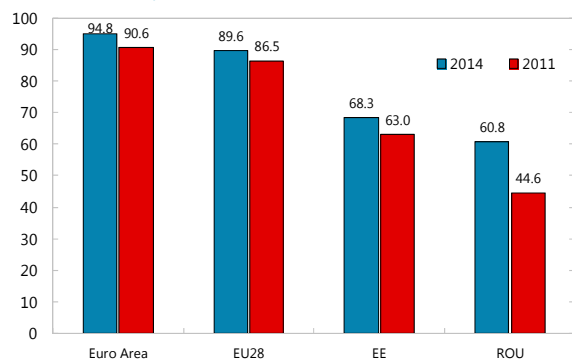
Peers: Unweighted average of Bulgaria, Croatia, Czech Republic, Hungary, Poland, Slovakia and Slovenia.
Source: Sahay et al. (2015); and IMF staff calculations.

10. We also look at financial inclusion in Romania, a concept closely related to financial development. Financial inclusion refers to the access to and use of various financial services by firms and households, including across such dimensions as gender. To gauge the level of financial inclusion in Romania, we utilize data from two World Bank databases: the Global Financial Inclusion Database and the World Bank Enterprise Survey.

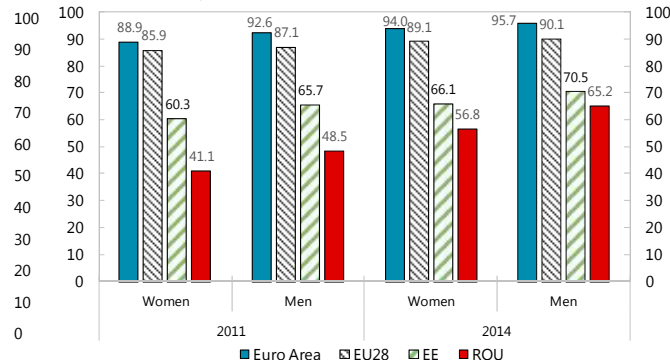
11. Romanian households' use of financial services seems to be on the low side when compared to EU and Eastern European averages. However, there has been a progress during recent years: the share of adults with banking accounts has increased to above 60 percent in 2014. The gender gap in terms of accounts with banks seems to be larger in Romania and has grown even bigger recently.

³ Some large Romanian corporates have benefited from access to inter-company loans from foreign parents which in 2014 stood at around 15 percent of GDP, broadly in line with regional peers' average.

Adults with Accounts at a Financial Institution
(Percent of 15y+)



Adults with Accounts at a Financial Institution
(Percent of 15y+)

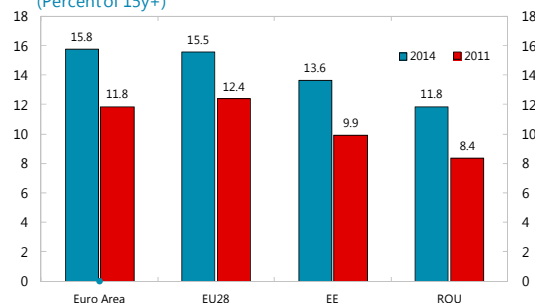


Note: EU28 is a simple average of 28 EU member states. EE is a simple average of ALB, BGR, BIH, BLR, CZE, EST, HRV, HUN, KOS, LTU, LVA, MDA, MKD, MNE, POL, ROU, RUS, SRB, SVK, SVN, TUR and UKR.

Source: World Bank Global Financial Inclusion (Global Findex) database.

12. Romanian households and firms' seem to have also lower access to finance when compared to EU and Eastern European averages. The share of adults who borrowed from a financial institution was slightly above 10 percent in 2014 and the share of Romanian firms that reported access to finance as a major constraint was close to 35 percent in 2013, substantially higher than that in many peer countries.

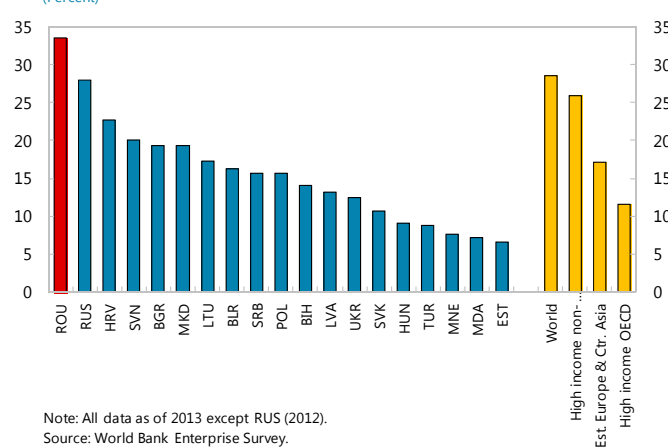
Adults who Borrowed from a Financial Institution
(Percent of 15y+)



Note: EU28 is a simple average of 28 EU member states. EE is an simple average of ALB, BGR, BIH, BLR, CZE, EST, HRV, HUN, KOS, LTU, LVA, MDA, MKD, MNE, POL, ROU, RUS, SRB, SVK, SVN, TUR and UKR.

Sources: World Bank Global Financial Inclusion (Global Findex) database.

Share of Firms Identifying Access to Finance as a Major Constraint
(Percent)



Note: All data as of 2013 except RUS (2012).

Source: World Bank Enterprise Survey.

13. Higher levels of financial sector development and financial inclusion will benefit Romanian economy. While Romanian financial institutions fare relatively well in terms of access and efficiency, higher levels of financial intermediation, further equity and debt market development and bigger financial inclusion will help mobilize savings, fund much needed investment in the economy and make higher growth rates sustainable.

C. Determinants of Bank Credit in Romania

14. There have been a number of studies on the determinants of bank credit, particularly in light of the developments after the global financial crisis. Many European emerging market economies experienced then a precipitous fall in bank credit after a long credit boom. In particular, Kamil and Rai (2010) argued that the sources of funding (external vs. internal) mattered during the crisis for credit growth, with countries that relied more on external funding suffering the most. Aisen and Franken (2010) documented that pre-crisis boom and slowdown in partner countries were the main determinants of credit growth during the crisis. Barajas et al. (2010) found that bank-level fundamentals—capitalization and loan quality—helped to explain differences in credit growth across Middle Eastern and North African countries. Takáts (2010) concluded that supply shock was the main determinant of slowdown in cross-border lending to emerging markets during the crisis. Everaert et al. (2015) analyzed the roles of demand and supply factors in explaining credit growth for a number of European emerging market economies. Their results, based on the panel data analysis, indicate that supply factors gained more importance in explaining credit growth in the post-crisis period.

15. Our analysis focuses on both credit supply and credit demand factors. Broadly following the approach in Guo and Stepanyan (2011) it includes the following variables in the benchmark model: banking sector private credit (dependent variable), banking sector foreign liabilities, banking sector domestic deposits, inflation, and real GDP. We tried to include also a variable that reflects a change in monetary policy stance such as lagged policy rate, and also interbank market rate (ROBOR) or deposit rate. However, these interest rate variables did not turn out to be statistically significant.

16. We use OLS regression and employ quarterly data series. These are sourced from the IMF and NBR databases and span a period from the first quarter of 2003 to the fourth quarter of 2015. Most of the series were nonstationary in their levels and we use growth rates to address this issue. The benchmark specification of the regression is as follows:

$$\begin{aligned} \text{Credit Growth}_t = & \beta_0 + \beta_1 \text{Deposit Growth}_t + \beta_2 \text{Non-resident Liability Growth}_t \\ & + \beta_3 \pi_{t-1} + \beta_4 G_{t-1} + \epsilon_t \end{aligned}$$

17. The explanatory variables are:

Growth rate of deposits (Deposit Growth_t). The expectation is that higher deposit growth would lead to more credit growth as banks would have more loanable funds. In an alternative specification, this variable is weighted by the share of deposits in total credit to the private sector one quarter ago to control for the overall importance of domestic deposits as a funding source.

Growth rate of non-resident liabilities (Non-resident Liability Growth_t). The expectation is that this variable would have a positive impact on domestic credit growth. Again, in an alternative specification this variable is weighted by the share of liabilities to non-residents in total credit to

private sector one quarter ago to control for the overall importance of foreign borrowings as a funding source.

Lagged Inflation (π_{t-1}). As nominal credit growth will in general be affected by inflation, we use inflation as a control variable. We expect that, unless it creates financial instability, inflation will be positively associated with credit growth. In addition, it could also inform us whether inflation is detrimental to real private credit growth or not.

Lagged GDP growth (G_{t-1}). GDP growth measures the overall health of the economy, and thereby can reflect the demand for credit. Higher GDP growth should translate into higher credit growth. We use lagged GDP growth in the regression in order to help address the problem of possible reverse causality, namely high credit growth leading to higher GDP growth.

18. Table 1 presents the estimation results of the benchmark specification. All coefficients are statistically significant with expected signs. Both domestic deposits and liabilities to non-residents contribute positively, albeit somewhat asymmetrically, to private credit growth. Private credit also increases with inflation, although the coefficient seems to be somewhat high and suggests no negative impact on real credit. Higher GDP growth leads to more demand for credit and hence higher credit growth. A number of statistical tests that were performed to verify our regression assumptions and to detect potential problems did not reveal any major issues.⁴

Table 1. Regression Results Under Benchmark Specification 1/	
	Private credit growth (2003Q1–2015Q4)
Deposit growth	0.251*** (0.074)
Non-res liab growth	0.147** (0.066)
Lagged inflation	2.625*** (0.534)
Lagged GDP growth	0.718** (0.351)
Constant	-1.180 (0.918)
Observations	52
Adjusted R-sq	0.722
Source: Author's estimates.	
1/ Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1	

⁴ These included checks for the normality and homoscedasticity of residuals, for autocorrelation, for multicollinearity and for model specification as well as Granger causality tests.

19. In many emerging market economies foreign currency loans represent a significant portion of private credit. In Romania, until recently, foreign currency loans represented the largest share of private credit. Therefore, part of the change in private credit in terms of domestic currency could simply reflect exchange rate movements rather than genuine change of credit. Hence, we include the change in exchange rate in our estimation to control for the valuation effect (an increase in the exchange rate denotes depreciation of Romanian leu against the euro).

20. The strength of banking sector balance sheet can be another important determinant of credit growth. We tried to use non-performing loans as an additional explanatory variable; however, the variable did not turn out to be statistically significant. We used the capital adequacy ratio as a proxy for the strength of the banking sector position to expand credit.

21. Table 2 below reports the results after introducing the exchange rate change and the lagged capital adequacy ratio in our estimation. The positive and significant sign for exchange rate confirms that private credit growth in terms of domestic currency does seem to pick up valuation effect of foreign currency loans. Furthermore, it seems that a stronger capital position of the Romanian banks tends to associate with more credit to the private sector.

22. In the third column of Table 2, we report results of an alternative specification. Here the deposit growth and non-resident liability growth variables are weighted with their respective shares in total credit to control for their overall importance as a funding source. In this specification, the point estimates for these two variables suggest that for every unit of additional funding from domestic sources, banks would lend out less than half of that to the private sector on average, while in case of foreign funds the ratio would be much higher.

Table 2. Regression Results Under Alternative Specifications 1/

	Private credit growth (2003Q1–2015Q4)		
Deposit growth	0.251*** (0.074)	0.163** (0.069)	0.324* (0.185)
Non-res liab growth	0.147** (0.066)	0.215*** (0.065)	0.712*** (0.161)
Lagged inflation	2.625*** (0.534)	1.649*** (0.531)	1.498*** (0.483)
Lagged GDP growth	0.718** (0.351)	0.682** (0.310)	0.585** (0.290)
Exchange rate change		0.539*** (0.144)	0.614*** (0.140)
Lagged CAR		0.296* (0.166)	0.390** (0.151)
Constant	-1.180 (0.918)	-4.936* (2.578)	-6.205*** (2.291)
Observations	52	52	52
Adjusted R-sq	0.722	0.795	0.823

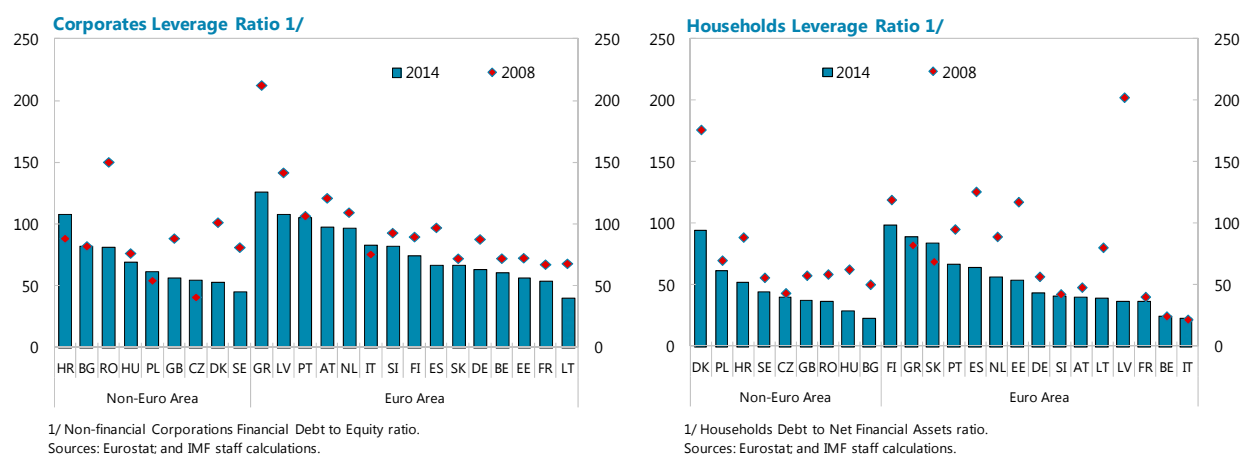
Source: Author's estimates.

1/ Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

23. Different time period and a dummy variable were used for a robustness check of our results. We estimated the above regressions also for a shorter period—from 2003Q1 to 2014Q2—given that starting in the second half of 2014 Romanian banks undertook a substantial write off of loans and many borrowers chose to participate in FX loan conversion schemes which have affected the credit developments. The results are broadly similar to those in the second and third columns of Table 2. We have also employed a dummy variable for the period immediately following the onset of the global financial crisis; however, it was not statistically significant.

24. Both demand and supply factors seem to be behind recent trends in bank credit. On the supply side, non-resident funding (mostly parent bank) has seen a declining trend since 2011 and has been negatively associated with the change in private credit. At the same time, growing domestic deposits—particularly demand deposits—have compensated the decline in foreign funding and have been associated with credit growth. The strength of banks' capital positions is another important supply-side factor for change in private credit. On the demand side, credit is strongly related to economic activity as proxied by GDP growth.

25. Recent developments in NPLs and private sector leverage suggest improving prospects for credit growth but the level of financial intermediation needs to grow. Both corporates and households have reduced their leverage since the 2008 global financial crisis.⁵ Non-financial corporations' indicators also point to some improvement in liquidity and profitability ratios. The recent improvement in bank and private sector balance sheets and strong near-term growth prospects should help banks further improve their loan portfolio and find new lending opportunities. Absent renewed flows from parent banks, this will require Romania to boost domestic deposits and develop alternative sources of funding for banking sector.



⁵ The reduction in leverage is more modest based on NBR's data on non-financial corporate sector balance sheets.

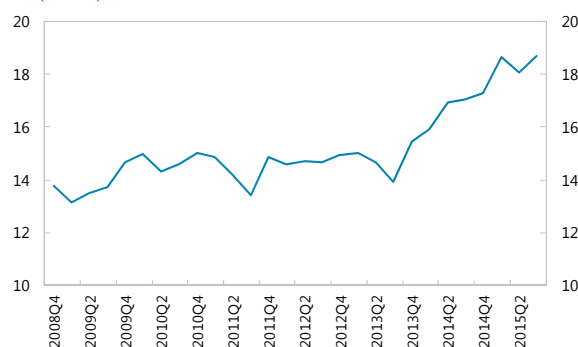
D. Financial Sector Policies: The Past and Priorities for Future

26. Financial sector regulation and supervision policies have evolved in line with rapidly transforming financial sector. A major change was experienced during mid-2000s when financial sector was expanding fast and Basel II provisions were being implemented. In particular, new regulations on banks including new capital adequacy were introduced as well as a substantial change was implemented in supervisory practices by moving from a compliance-based approach to risk-based assessment. With the EU accession, financial sector regulation and supervision frameworks convergence with the EU frameworks gained pace. Cooperation between supervisory authorities in Romania as well as other EU member states strengthened as home-host supervisory rules were implemented (Georgescu, 2007). More recently, legislation was adopted to implement transposition of the EU's bank recovery and resolution directive and capital requirements regulation and directive.

27. The National Bank of Romania (NBR) saw the risks associated with fast credit expansion during 2004–08 and took a number of measures to contain them. Its response included stricter reserve requirements and expanded reserve bases, tighter classification and provisioning rules as well as macroprudential measures which the NBR was one of the first in the region to introduce. The macroprudential measures included debt service-to-income and loan-to-value ratios and restrictions on FX credit (Dimova and others, 2016). Overall, while curbing credit growth to some extent, especially for households, those measures had limited efficiency as financial counterparties found ways to circumvent them and banks had excess liquidity and capital buffers (Isarescu, 2007). Having said this, macroprudential policies can still be helpful if carefully designed based on past experience and differentiated to address the specific risks. For example, Neagu and others (2015) suggest that DSTI and LTV measures be tailored by differentiation based on borrowers' income as well as on currency and type of loans.

28. The NBR's prudent and proactive policies preserved financial stability in the aftermath of global financial crisis. The NBR actively encouraged certain banks to boost capital and conducted stress test based on which precautionary increases in banks' capital were assessed. Subsequently, the largest parent banks committed to maintain their exposure and adequate capital levels in Romanian subsidiaries under an initiative supported by the IMF and other international partners. The NBR also strengthened the supervisory and regulatory requirements and the frameworks for bank resolution and restructuring. The NBR continued its prudent approach to provisioning after the adoption of the International Financial Reporting Standards by introducing prudential filters.

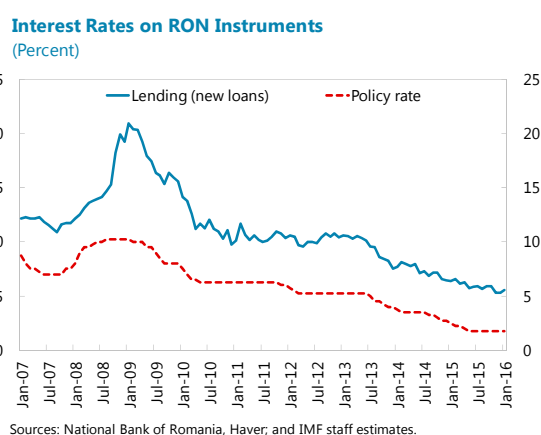
Capital to Risk-Weighted Assets
(Percent)



Source: National Bank of Romania.

29. The NBR also enhanced monitoring of cross-border banking sector flows to address negative impact from possible contagion from the euro area banks. The Greek bank subsidiaries in Romania came under stress on several occasions due to developments in Greece. The most recent episode was in summer of 2015 when the four Greek-owned banks experienced substantial deposit withdrawals. The NBR managed the episode well by proactively engaging with banks to put in place pre-notifications for cross-border transactions and announcing its readiness to provide liquidity. The deposit withdrawals have largely reversed as of end-2015.

30. In the aftermath of the global financial crisis the NBR embarked on a prolonged easing cycle. More recently, policies have strived to support credit recovery in Romania. Unprecedented monetary easing as reflected in the large policy rate reduction led to substantial declines in lending rates. Gradual reductions in minimum reserve requirements (MRRs) (which are still elevated compared to peer countries) released liquidity into the banking system. There are indications that private credit has started to recover.



31. The non-bank financial sector supervision and regulation have also transformed substantially. Significant progress has been made on institutional restructuring of the Financial Supervisory Authority (FSA) since it became the single supervisor of the non-bank financial sector in 2013. A number of barriers to capital market development were removed including reduction of fees and charges. New legislation was approved that strengthened FSA intervention and resolution tools for the insurance sector. Meanwhile, the FSA prepared the legal framework for the implementation of the Solvency II regime for the insurance sector. Regarding capital market development, the FSA initiated the implementation of the "STEAM" project which aims to transform Romanian capital market from "frontier" into "emerging" market and has made a notable progress in this regard. In 2015, the FSA implemented a comprehensive balance sheet review and stress testing exercise which covered virtually the whole insurance sector. The exercise revealed a number of deficiencies including substantial capital shortfall in several insurance companies.

32. Going forward, financial sector policies should continue to focus on stability and strength of balance sheets of financial intermediaries. At the same time, financial intermediation needs to be enhanced so it can better support future growth. In particular:

- *The authorities should make strong efforts to prevent legislative initiatives that involve unilateral and retroactive change of contracts and should remove from adopted legislation provisions that could undermine financial stability and legal predictability (e.g., provisions in "Giving in Payment" law). At the same time, it is important to move steadfastly to create an adequate institutional framework to ensure that the personal insolvency law becomes effective as soon as possible and that specialized courts for cases involving abusive clauses become operational.*

- *Continued efforts are needed to further improve the quality of financial intermediaries' portfolios.* Steadfast implementation of the comprehensive assessment (asset quality review and stress testing) for the banking system and addressing persistently any revealed shortfalls and weaknesses will be crucial in this regard. Similarly, for the insurance sector, plans to remedy the revealed deficiencies and a swift follow-up on measures to address deficient solvency positions are needed.
- *Banks should be encouraged to invest more resources in improving lending practices and in training of staff with a focus on cash flow-based lending.* Active engagement with existing and potential borrowers including SMEs is needed to raise awareness of loan products and of potential benefits of long-term partnership. While this will entail additional costs for banks, benefits in the longer term are likely to be substantial.
- *The efficiency of the SME Guarantee Fund needs to be increased to support Romanian banks' funding of SMEs.*
- *The NBR should continue to gradually reduce the MRRs to align them with rates prevailing in the EU.* This would release additional loanable funds for Romanian banks, but should be done taking into account potential conflicts with NBR's primary objective of price stability.
- *Steadfast implementation of the recently adopted covered bond law will allow the development of long-term bank funding* including from foreign sources and should contribute to financial deepening.
- *Efforts to promote capital market development should intensify.* The continued implementation of the "STEAM" project is important to strengthen and further develop capital market infrastructure as is educational efforts to raise awareness among potential investors. Focused efforts to fast track SOE privatizations including through IPOs will also help by creating additional supply for the equity market.

33. Looking forward, financial sector policymakers will need to continue exploring what policies promote a deeper and more inclusive financial system and how to mitigate tradeoffs that may exist between financial deepening and financial stability. Meanwhile, supervisors should constantly look for new risks that may be building in the banks and non-bank financial institutions.

Annex I. Construction of the Financial Development Index

	FINANCIAL INSTITUTIONS	FINANCIAL MARKETS
DEPTH	<ol style="list-style-type: none"> 1. Private-sector credit (percent of GDP) 2. Pension fund assets (percent of GDP) 3. Mutual fund assets (percent of GDP) 4. Insurance premiums, life and non-life (percent of GDP) 	<ol style="list-style-type: none"> 1. Stock market capitalization to GDP 2. Stocks traded to GDP 3. International debt securities government (percent of GDP) 4. Total debt securities of nonfinancial corporations (percent of GDP) 5. Total debt securities of financial corporations (percent of GDP)
ACCESS	<ol style="list-style-type: none"> 1. Branches (commercial banks) per 100,000 adults 2. ATMs per 100,000 adults 	<ol style="list-style-type: none"> 1. Percent of market capitalization outside of top 10 largest companies 2. Total number of issuers of debt (domestic and external, nonfinancial corporations, and financial corporations)
EFFICIENCY	<ol style="list-style-type: none"> 1. Net interest margin 2. Lending-deposits spread 3. Non-interest income to total income 4. Overhead costs to total assets 5. Return on assets 6. Return on equity 	<ol style="list-style-type: none"> 1. Stock market turnover ratio (stocks traded/capitalization)
Source: Sahay et al (2015a).		

References

- Aisen, A., and Franken, M., 2010, "Bank Credit During the 2008 Financial Crisis: A Cross-Country Comparison," IMF Working Paper 10/47, Washington, D.C.
- Barajas, A., Chami, R., Espinoza, R., and Hesse, H., 2010, "Recent Credit Stagnation in the MENA Region: What to Expect? What Can Be Done?" IMF Working Paper 10/219, Washington, D.C.
- Dimova, D., Kongsamut, P., and Vandenbussche, J., 2016, "Macroprudential Policies in Southeastern Europe," IMF Working Paper 16/29, Washington, D.C.
- European Commission, 2015, "Household Saving Rates in the EU: Why Do They Differ So Much?" Discussion Paper 005, European Union.
- European Commission, 2012, "Non-Bank Financial Institutions: Assessment of their Impact on the Stability of the Financial system," Economic Papers 472, European Union.
- Everaert, G., Che, N., Geng, N., Gruss, B., Impavido, G., Lu, Y., Saborowski, C., Vandenbussche, J., and Zeng, L., 2015, "Does Supply or Demand Drive the Credit Cycle? Evidence from Central, Eastern, and Southeastern Europe," IMF Working Paper 15/15, Washington, D.C.
- Georgescu, F., 2007, "Challenges for the Banking and Financial Sector Supervision," Presentation at the 60th International Banking Summer School in Romania.
<http://www.bnro.ro/PublicationDocuments.aspx?icid=6896>
- Guo, K., and Stepanyan, V., 2011, "Determinants of Bank Credit in Emerging Market Economies," IMF Working Paper 11/51, Washington, D.C.
- Isarescu, M., 2007, "Financial Intermediation in Romania 1990–2007," Dissertation, George Bacovia University. <http://www.bnro.ro/PublicationDocuments.aspx?icid=6896>
- Isarescu, M., 2009, "External Deficit Financing and Macroeconomic Adjustment During the Financial Crisis: The Case of Romania," National Bank of Romania.
- International Monetary Fund, 2010, "Romania: Financial Sector Stability Assessment," International Monetary Fund, Washington, D.C.
- Kamil, H., and Rai, K., 2010, "The Global Credit Crunch and Foreign Banks' Lending to Emerging Markets: Why Did Latin America Fare Better?" IMF Working Paper 10/102, IMF Working Paper 10/47, Washington, D.C.
- National Bank of Romania, 2006-2014, "Financial Stability Report," National Bank of Romania, Bucharest.

- Neagu, F., Tatarici, M., and Mihai, I., 2015, "Implementing Loan-to-Value and Debt Service-to-Income Measures: A Decade of Romanian Experience," Occasional Paper No. 15, National Bank of Romania.
- Romania Financial Supervisory Authority, 2014, "Annual Report," Financial Supervisory Authority, Bucharest.
- Sahay, R., Čihák, M., N'Diaye, P., Barajas, A., Bi, R., Ayala, D., Gao, Y., Kyobe, A., Nguyen, L., Saborowski, C., Svirydzenka, K., and Yousefi, R., 2015a., "Rethinking Financial Deepening: Stability and Growth in Emerging Markets," IMF Staff Discussion Note 15/08, International Monetary Fund, Washington, D.C.
- Sahay, R., Čihák, M., N'Diaye, P., Barajas, A., Mitra, S., Kyobe, A. Mooi, Y., and Yousefi, R., 2015b., "Financial Inclusion: Can It Meet Multiple Macroeconomic Goals?" IMF Staff Discussion Note 15/17, International Monetary Fund, Washington, D.C.
- Takáts, Előd, 2010, "Was it Credit Supply? Cross-Border Bank Lending to Emerging Market Economies During the Financial Crisis," BIS Quarterly Review (Basel: Bank for International Settlements, June).