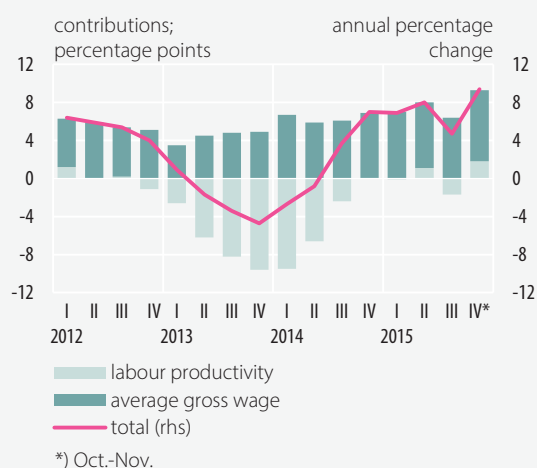


plants generated increased unit wage costs in crude oil processing and the chemical industry.

Chart 2.13. Unit Wage Costs in Industry



Source: NIS, NBR calculations

The persistence of a significant differential between wage and labour productivity growth rates creates the conditions for the build-up of inflationary pressures, even though, for the time being, the impact on producer prices is largely offset by the decline in commodity prices. However, the latter developments cannot counterbalance the adverse impact on external competitiveness, given that the same favourable influence is perceived by competitors too. The concern is all the more relevant as relatively high wage growth rates are likely to be seen on the medium term, also on account of the demonstration effects exerted by decisions regarding the public sector wage policy on the private sector (for further details see Box 2. The demonstration effect – to what extent do public sector wage increases influence wage dynamics in industry?).

### Box 2. The demonstration effect – to what extent do public sector wage increases influence wage dynamics in industry?

The wage setting process may show an interplay between the private and public sectors in that (current or potential) employees may use, as an argument in wage bargaining, the level of compensation in the competing sector, with employers incurring the risk of potential cross-sector labour shifts. Thus, public sector wage growth may have a demonstration effect on the private sector, contributing to a weaker link between wages and labour productivity, which can lead to the build-up of inflationary pressures. This is all the more relevant for the tradable sector, which may be negatively affected in terms of external competitiveness. It is for this reason that the literature typically looks at the above-mentioned link from the perspective of industry. As far as Romania is concerned, the significant part played by industry is highlighted by both its share in total GVA economy-wide (approximately 25 percent) and that in the total number of employees (roughly 30 percent). In addition, the key driver of economic recovery in Romania in 2011-2014 was the robust performance of exports of goods, with the external market accounting for around 40 percent of the turnover volume in industry.

The methodological approach put forward by the European Commission<sup>21</sup> was employed to test the aforementioned interlink in Romania, focusing on the relationship between the level of gross earnings in industry and that in the public sector<sup>22</sup>.

<sup>21</sup> The European Commission, *Government wages and labour market outcomes*, Occasional Papers 190, April 2014.

<sup>22</sup> The public sector wage is estimated by aggregating wages in public administration, defence, education, human health and social work activities, as well as in arts, entertainment and recreation.

First, the existence of a long-run relationship between the average wage in industry and that in the public sector was tested for. According to cointegration tests<sup>23</sup>, there is a (long-term) equilibrium relationship between the level of compensation in industry and labour productivity, the consumer price index and the level of public sector wages. The short-term equation also points to the contemporaneous response of private sector wages, about 8 percent of the change in the public sector gross wage being passed through to the private sector in the first quarter. *Ceteris paribus*, a 10 percent increase in public sector wages will lead to a roughly 3.5 percentage point faster pace of growth of the average wage in industry over a year.

The results of the aforementioned study (conducted by the European Commission for several EU Member States<sup>24</sup> and covering the period from 1980 to 2013) suggest that the adjustment toward equilibrium is swifter in Romania's economy, whereas the long- and short-run elasticities of wages in industry with respect to public sector wages are lower than those at the EU level, i.e. 0.43 and 0.25. The weaker elasticities could be explained by the smaller share held by public sector employees in the total number of employees in Romania as compared with the EU average. In fact, the EC's study itself points to a lower long-run elasticity (0.2) in the case of countries with a below-average share of public sector employees.

The wage increases driven by the changes in public sector wages may lead to inflationary pressures, given that labour costs account for about one third of the total costs incurred by the companies operating in Romania and are the second most important determinant of their decision to raise prices, the major driver being the hike in costs of raw materials<sup>25</sup>. Inflationary pressures are naturally more likely to emerge through this channel in labour-intensive sub-sectors such as the light industry, where, according to the above-mentioned survey, the ranking of key factors changes, with price adjustments depending chiefly on the developments in labour costs.

Table A. Estimated Coefficients of the Model

Dependent variable	Equation 1 – long-term relation –	Equation 2 – error correction model –
	Wages in industry <sub>t</sub>	ΔWages in industry <sub>t</sub>
Public sector wages <sub>t</sub>	0.35***	
Labour productivity <sub>t</sub>	0.49***	
CPI <sub>t</sub>	0.75***	
ΔPublic sector wages <sub>t</sub>		0.08**
ΔPublic sector wages <sub>t-2</sub>		0.06**
ΔCPI <sub>t</sub>		0.75***
ΔWages in industry <sub>t-1</sub>		0.14*
ΔWages in industry <sub>t-2</sub>		0.16*
ΔLabour productivity <sub>t</sub>		0.13**
Dummy 2008 Q2		0.04***
Error correction term		-0.33***
Constant	-0.78***	
Half-life		2.12
No. of observations	63	61
R <sup>2</sup>		0.85

\*, \*\* and \*\*\*) the coefficient is statistically significant for a confidence level of 90%, 95% and 99%. All variables are expressed in logarithms.

Note: The estimate was made for the 2000-2015 period based on quarterly data.

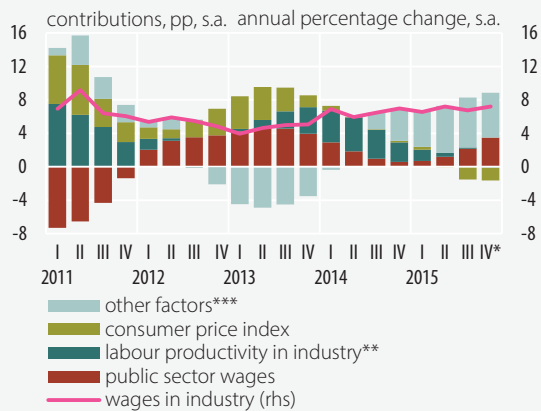
Source: NBR estimates

<sup>23</sup> Tests for stationarity have previously shown that the variables are integrated of order 1.

<sup>24</sup> Except for Austria, Bulgaria, Croatia, Cyprus, Germany, Greece, Latvia, Lithuania, Malta, Romania, and Slovenia.

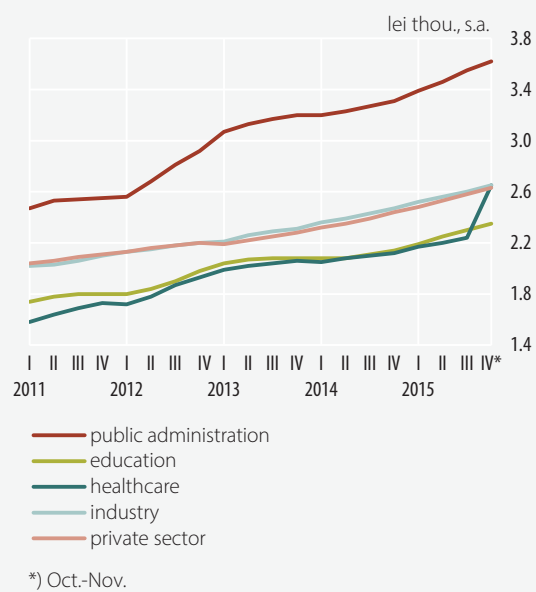
<sup>25</sup> Iordache, S., Pandioniu, L., *The Price-setting Behaviour of Romanian firms*, National Bank of Romania, Occasional Papers No. 10, January 2015.

**Chart A. Contributions to the Annual Dynamics of Gross Wages in Industry**



\*) Oct-Nov., except CPI  
 \*\*) contribution calculated based on the monthly released NIS data series  
 \*\*\*) influences associated with the (tight or loose) labour market conditions and frictions in the wage-setting process (downward wage rigidity, minimum wage policy, skill mismatch)  
 Source: NIS, NBR estimates

**Chart B. Developments in Gross Wage Earnings**



\*) Oct.-Nov.  
 Source: NIS, NBR calculations

As shown in Chart A, the identified size of the demonstration effect in industry rose steadily over 2015, amid a series of large public sector wage increases. This appears to be more related to the developments in wages in public administration, as wages in education are further below private sector wages and those in health have only recently reached the average (Chart B), these last two sectors being in fact less accessible in terms of cross-sector mobility, given the specific skill requirements.