TOMATO PRICE AT EUROPEAN UNION LEVEL (2015-2017)

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ABSTRACT

Activity in agricultural production - vegetable and animal, in terms of the basic condition - profitability and economic efficiency - is directly related to prices operating on the free market.

The prices highlight the relationships of agricultural holdings with upstream and downstream branches.

The economic efficiency of tomato crops is very different depending on the cultivation system and within it, the applied agrotechnics, respectively the productive performance of cultivars, the degree of mechanization and automation of technological sequences, material consumption, etc.

In order to highlight the evolution of the price, it is analyzed in the context of the phenomena manifested at regional level, during the period (2015-2017).

At regional level, the evolution of the indicator is uneven, a phenomenon that is also manifested for the vast majority of component states (Austria, Czech Republic, Croatia, Denmark, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, United Kingdom, Netherlands, Poland, Portugal, Spain, Hungary). There are also states characterized by upward developments (Belgium, Cyprus, Estonia, Finland, Germany, Romania, Slovakia), as well as countries where the indicator has evolved downward (Bulgaria, Sweden).

INTRODUCTION

The prices of agricultural products depend on the cost of production, so their knowledge can be ascertained accurately only when they reach the market (later). At the same time, the prices of agricultural products depend on the importance of supply. Supply changes the tendency of price stabilization, causing an oscillation for the same period of technical evolution (technical-material basis), which also influences the average cost of production.

The influencing factors of the pricing process - in the case of agricultural products - are represented by: the level of labor productivity in the case of specific productive processes; the level of production costs; the size and the way of including the land rent in the price level; the level and evolution of inflation; the prices of the production factors attracted, upstream, within the productive circuits; legislative regulations in force, which may limit the maximum level of marketing prices.

Having the opportunity to market its production to several categories of customers, the agricultural / agri-food producer can practice a wider price range, thus ensuring a secure income base. If one of the customers is lost, his income is provided by the other customers, from independent fields of activity.

The price policy may also provide for the provision of facilities for loyal customers. For example price reductions to increase the quantity purchased, for those who conclude a contract, set the desired quantity and pay an advance before the establishment of the crop, for those who pay for the products in a very short time (1-3 days), payment terms (convenient), etc.

Occasionally providing price reductions and facilities is a strategy

designed to build customer loyalty and build stable, long-term relationships.

Although several aspects matter in the sales process (product quality, delivery time of orders, seriousness, etc.) the price plays an important role in the customer's purchasing decision. In most crops the prices differ depending on the biological category of the material: elite, multiplication I, multiplication II, other multiplications. In tomatoes, the price differs according to the nature of the hybrid - single or double - and precocity - extra-early, early, semi-early, semi-late, late. For sunflower, prices increase from varieties to hybrids, the content of fatty substances being one of the elements of differentiation. For potatoes, prices vary according to the nature of the variety - early, semi-early, semi-late and late.

Tomatoes eat fruit at physiological maturity, as well as before full ripening, the so-called gogonele, but to a very small extent and only in certain countries, especially in the Balkans.

The nutritional value of tomatoes lies not so much in their content in substances with a plastic and energetic role (proteins, carbohydrates, lipids), but in that of substances with a biocatalytic role, of which the most important are vitamins and mineral salts, which, however, by processing it's diminishing.

METHOD AND MATERIAL

The elaboration of this study appealed to the method of comparison in time and space. In addition to the time sequences included in the analysis, we also operated with their average.

The comparison shows an overview of the evolution of the researched processes and phenomena, based on their parallel analysis with the terms of reference. If the technical-economic analysis treats the problem through the prism of the cause-effect relationship, the comparison is oriented towards the examination of the effects.

For the work - present - the producer price ($ / t) was used as an indicator.

The analysis refers to the time period between 2015 and 2017, to which was added the average of the period, thus constituting a dynamic series consisting of 4 terms.

The analysis was performed both at regional level in the European Union and at national level (28 component states), presenting the positioning of each country in relation to the regional average price level, the absolute variations of the indicator ($ / t) and the dynamics of the indicator (%). For Estonia there are no data for 2017 and for Slovenia there are no data for 2016 and 2017, as such the averages for the period have been determined accordingly.

RESULTS AND DISCUSSIONS

Table 1 contains data relating to the specific situation, in terms of tomato price - national and regional levels.

At the level of 2015 the regional average price was $1,034.60/t, compared to both super-unit and subunit levels at the component countries level. Thus Denmark, Estonia, Finland, Germany, Ireland, Latvia, Luxembourg, Malta, Slovenia and Sweden are characterized by supra-unitary levels: 1,848.40, 1,402.0, 1,864.30, 1,633.70, 1,552.70, 1,419.60, 2,650.70, 1,068.50, 1,444.20 and 1,604.10 $/t. Subunit levels reached: 978.20 $/t for Austria, 742.30 $/t in Belgium, 564.40 $/t at the level of Bulgaria, 968.50 $/t in the case of the Czech Republic, 631.10 $/t for Cyprus, 487.40 $/t at the level of Croatia, 899.20 $/t in France, 536.20 $/t for Greece, 899.60 $/t for Italy, 941.20 $/t in Lithuania, 762.40 $/t UK, 804.70 $/t for the Netherlands, 478.80 $/t in the case of Poland, 694.5 $/t in Portugal, 711.50 $/t at Romania level, 708.80 $/t for Slovakia, 361.10 $/t for Spain and 310.60 $/t for Hungary.

Table 1.

Price of tomatoes in the European Union ($/t) 2015-2017

No.	Specification	Year			Average[**]	
		2015[*]	2016[*]	2017[*]	Effective	% Compared to the average
1	Austria	978.2	935.8	963.5	959.17	91.42
2	Belgium	742.3	758.4	791.2	763.97	72.81
3	Bulgaria	564.4	475.7	445.1	495.07	47.19
4	Czech Republic	968.5	1,007.2	855.2	943.63	89.94
5	Cyprus	631.1	887.1	1,025.5	847.90	80.81
6	Croatia	487.4	510.7	441.0	479.70	45.72
7	Denmark	1,848.4	2,088.3	2,057.1	1,997.93	190.42
8	Estonia	1,402.0	1,460.8	-	1,431.40	136.43
9	Finland	1,864.3	1,872.7	1,938.3	1,891.77	180.31
10	France	899.2	928.5	915.4	914.37	87.15
11	Germany	1,633.7	1,674.7	1,777.1	1,695.17	161.57
12	Greece	536.2	498.4	533.2	522.60	49.81
13	Ireland	1,552.7	1,548.6	1,577.6	1,559.63	149.55
14	Italy	899.6	880.1	893.0	890.90	84.91
15	Latvia	1,419.6	1,433,.6	1,419.9	1,424.37	135.76
16	Lithuania	941.2	854.1	945.8	913.70	87.09
17	Luxembourg	2,650.7	2,643.7	2,693.3	2,662.57	253.77
18	Malta	1,068.5	865.2	1,106.1	1,013.27	96.58
19	UK	762.4	665.6	1,468.5	965.50	92.02
20	Netherlands	804.7	669.6	824.9	766.40	73.05
21	Poland	478.8	361.2	432.1	424.03	40.41
22	Portugal	694.5	674.9	688.9	686.10	65.39
23	Romania	711.5	747.8	804.4	754.57	71.92
24	Slovakia	708.8	760.8	803.5	757.70	72.22
25	Slovenia	1,444.2	-	-	1,444.2	137.65
26	Spain	361.1	311.0	438.1	370.07	35.27
27	Sweden	1,604.1	1,512.8	1,420.3	1,512.40	144.15
28	Hungary	310.6	326.0	231.9	289.50	27.59
29	Regional average level	1,034.60	1,022.79	1,057.34	1,049.20	100

[*]http://www.fao.org/faostat/fr/#data/PP (23.12.2019)
[**]own calculation

Year 2016 is characterized by the price variation limits of 311.0 $/t for Spain, respectively 2643.70 $/t in Luxembourg. Therefore we talk of states recorded smaller levels from the base reporting (regional level indicator - 1022.79 $/t) - 935.80 $/t Austria, 758.40 $/t, Belgium 475.70 $/t, Bulgaria, 1007.20 $/t, Czech Republic, 887.10 $/t, Cyprus 510.70 $/t, Croatia 928.50 $/t, France 498.40 $/t, Greece 880.10 $/t, Italy 854.10 $/t, Lithuania 865.20 $/t, Malta 665.60 $/t, Great Britain 669.60 $/t, Netherlands 361.20 $/t, Poland 674.90 $/t Portugal 747.80 $/t, Romania 760.80 $/t, Slovakia 326.0 $/t, Hungary and levels higher than this (regional average) - 2088.30 $/t Denmark, 1460.80 $/t

Estonia, 1872.70 $/t Finland, 1674.70 $/t Germany, 1548.60 $/t Ireland, 1433.60 $/t Latvia, 1512.80 $/t Sweden.

If we refer to the specific situation of 2017 we find a regional price of 1,057.34 $/t, against which the component States have positioned themselves as follows: overruns – Denmark – 2,057.10 $/t, Finland – 1,938.30 $/t, Germany – 1,777.10 $/t, Ireland – 1,577.60 $/t, Latvia – 1,419.90 $/t, Luxembourg – 2,693.30 $/t, Malta 1,106.10 $/t, United Kingdom – 1,468.50 $/t, Sweden – 1,420.30 $/t; decreases – Austria – 963.50 $/t, Belgium – 791.20 $/t, Bulgaria – 445.10 $/t, Czech Republic – 855.20 $/t, Cyprus – 1,025.50 $/t, Croatia – 441 $/t, France – 915.40 $/t, Greece – 533.20 $/t, Italy – 893 $/t, Lithuania – 945.80 $/t, Netherlands – 824.90 $/t, Poland – 432.10 $/t, Portugal – 688.90 $/t, Romania – 804.40 $/t, Slovakia – 803.50 $/t, Spain – 438.10 $/t, Hungary – 231.9$/t.

Based on the annual statements presented above, the average of the period was determined by a regional indicator level of $1049.20/t. Compared to this state of affairs, the component states were positioned as follows: subunit levels:
- 27.59% Hungary –289.50 $/t, 35.27% Spain – 370.07 $/t, 40.41% Poland – 424.03 $/t, 45.72% Croatia – 479.70 $/t, 47.19% Bulgaria – 495.07 $/t, 49.81% Greece – 522.60 $/t, 65.39 Portugal – 686.10 $/t, 71.92% Romania – 754.57 $/t, 72.22% Slovakia – 757.70 $/t, 72.81% Belgium – 763.97 $/t, 73.05% Netherlands – 766.40 $/t, 80.81% Cyprus – 847.90 $/t, 84.91% Italy – 890.90 $/t, 87.09% Lithuania – 913.70 $/t, 87.15% France – 914.37 $/t , 89.9 4% Czech Republic – 943.63 $/t, 91.42% Austria – 959.17 $/t, 92.02% United Kingdom – 965.50 $/t, 96.58% Malta – 1.013.27 $/t (fig. 1.);
- above unity levels: 135.76% Latvia – 1,424.37 $/t, 136.43% Estonia – 1,431.40 $/t, 137.65% Slovenia – 1,444.20 $/t, 144.15% Sweden – 1,512.40 $/t, 149.55% Ireland – 1,559.63

$/t, 161.57% Germania – 1,695.17 $/t, 180.31% Finland – 1,891.77 $/t, 190.42% Datemark – 1,997.93 $/t, 235.77% Luxemburg - 2,662.57 $/t (fig. 2.).

Table 2 presents the price dynamics at regional level and for the component states.
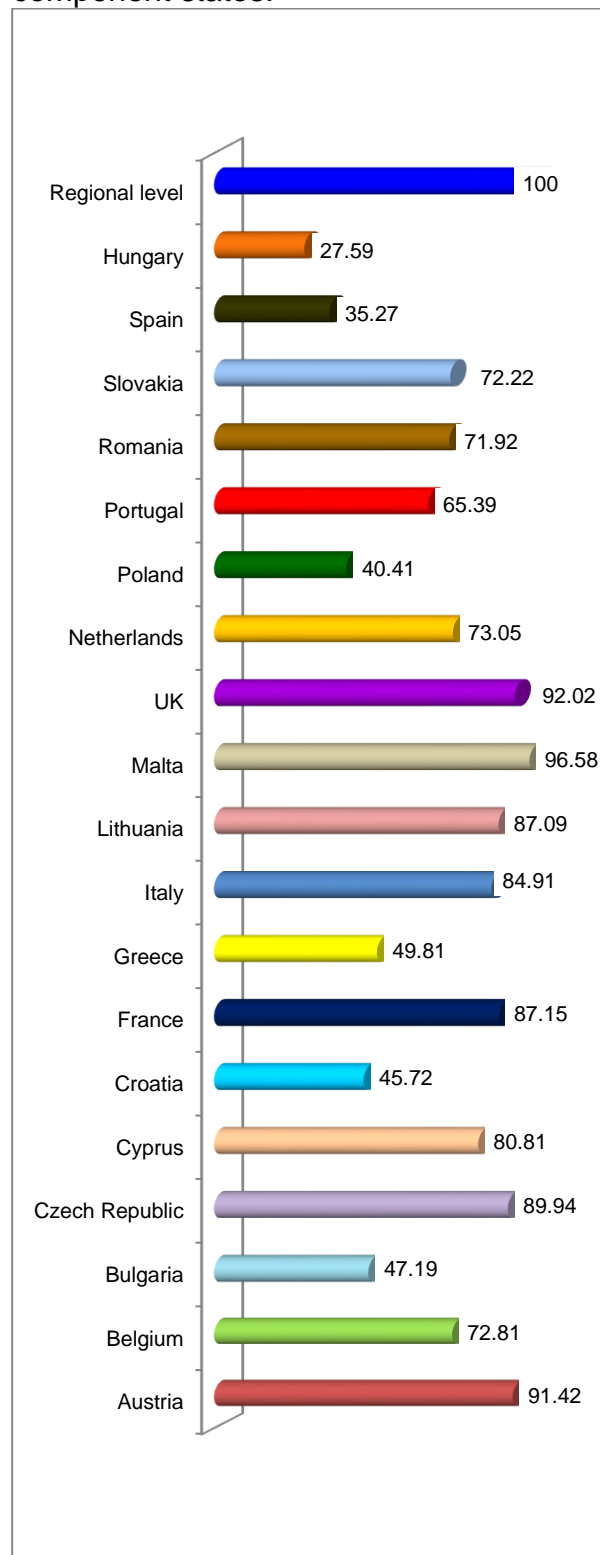
Fig. 1. Positioning of countries with below-European prices (%)
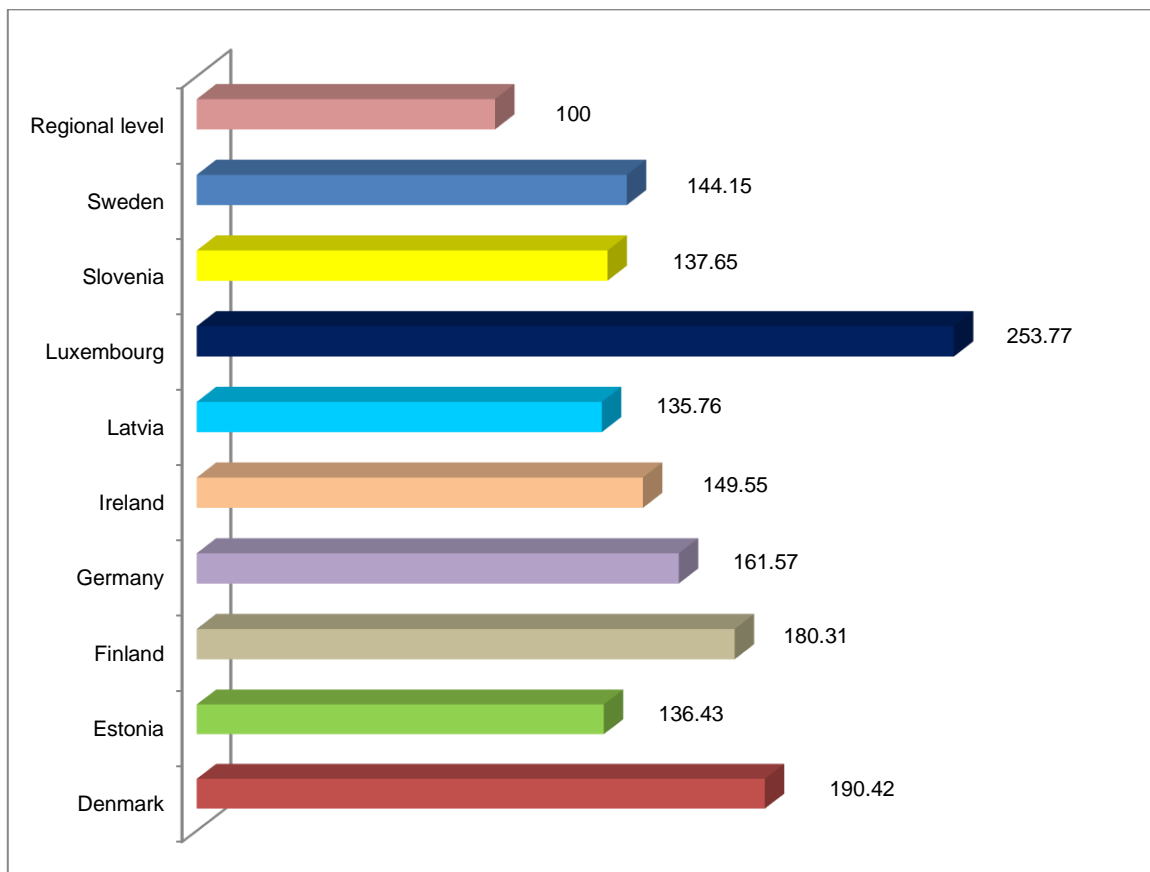
Fig. 2. Positioning of countries with prices above the European Union average (%)

Table 2.

Price dynamics in the European Union[*] (%)

No.	Specification	Year						Average	
		2015		2016		2017			
		lbf	lbm	lbf	lbm	lbf	lbm	lbf	lbm
1	Austria	100	100	95.67	95.67	98.50	102.96	98.05	99.55
2	Belgium	100	100	102.17	102.17	106.59	104.32	102.92	96.56
3	Bulgaria	100	100	84.28	84.28	78.86	93.57	87,72	111.23
4	Czech Republic	100	100	103.99	103.99	88.30	84.91	97.43	110.34
5	Cyprus	100	100	140.56	140.56	162.49	115.60	134.35	82.68
6	Croatia	100	100	104.78	104.78	90.48	86.35	98.42	108.78
7	Denmark	100	100	112.98	112.98	111.29	98.51	108.09	97.12
8	Estonia	100	100	104.19	104.19	-	-	102.10	-
9	Finland	100	100	100.45	100.45	103.97	103.50	101.47	97.60
10	France	100	100	103.26	103.26	101.80	98.59	101.69	99.89
11	Germany	100	100	102.51	102.51	108.78	106.11	103.76	95.39
12	Greece	100	100	92.95	92.95	99.44	106.98	97.46	98.01
13	Ireland	100	100	99.74	99.74	101.60	101.87	100.45	98.86
14	Italy	100	100	97.83	97.83	99.27	101.47	99.03	99.76
15	Latvia	100	100	100.99	100.99	100.02	99.04	100.34	100.31
16	Lithuania	100	100	90.75	90.75	100.49	110.74	97.08	96.61
17	Luxembourg	100	100	99.74	99.74	101.61	101.88	100.45	98.86
18	Malta	100	100	80.97	80.97	103.52	127.84	94.83	91.61

19	UK	100	100	87.30	87.30	192.62	220.63	126.64	65.75
20	Netherlands	100	100	83.21	83.21	102.51	123.19	95.24	92.91
21	Poland	100	100	75.44	75.44	90.25	119.63	88.56	98.13
22	Portugal	100	100	97.18	97.18	99.19	102.07	98.79	99.59
23	Romania	100	100	105.10	105.10	113.06	107.57	106.05	93.81
24	Slovakia	100	100	107.34	107.34	113.36	105.61	106.90	94.30
25	Spain	100	100	86.13	86.13	121.32	140.87	102.48	84.47
26	Sweden	100	100	94.31	94.31	88.54	93.89	94.28	106.49
27	Hungary	100	100	104.96	104.96	74.66	71.13	93.21	124.84
28	Regional average level	100	100	98.86	98.86	102.20	103.38	101.41	99.23

*own calculation

Austria presents a sinuous evolution – over time. Fixed base indices range from 95.67% in 2016 to 98.50% in 2017. At the level of mobile indices, the variation limits were 95.67 and 102.96% in 2016 and 2017 respectively. In these circumstances, the average period is 1.95 and 0.45% lower than the terms of comparison.

In the case of Belgium, the indicator increases in 2016 by 2.17% compared to the first term of the dynamic series, then in 2017 the increases remain (+6.59 and +4.32% from the reporting bases), and the average increases by 2.92% compared to the first term of the dynamic series, but decreases by 3.44% compared to the specific situation of 2017.

If we refer to the specific situation of Bulgaria, there is only one exceedance of the reference term throughout the dynamic series (+11.23% for the average period compared to 2017). As a result, the price decrease for the period under review (-15.72% in 2016, -21.14 and -6.43% for the level of 2017, -12.28% for the average period).

The Czech Republic has super unit values of fixed-base indices only in 2016 (103.99%), and mobile-based indices were super unitary only for the average period (110.34%). As such, the indicator's fluctuating evolution is observed, with the level of the indicator decreasing in 2017 by 11.70 and 15.09% compared to the reporting bases.

Cyprus shows an upward trend in the indicator, which is highlighted by the fact that the only subunit value characterizes chain-based indices for the period average (82.68%). The increases were 40.56 and 15.60% in 2016 and 2017 respectively compared to the previous terms of the dynamic series.

Croatia's situation is particularly characterized by the fact that increases occur in 2016 and for the average period (+74.78 and +8.78% compared to previous terms), as well as decreases in 2017 (-13.65% compared to the previous year).

Denmark is characterized by an increase in the level of the indicator in 2016 by 12.98%, but also by its decrease in 2017 and for the average period respectively compared to the previous terms of the dynamic series (-1.49 and -2.88% respectively).

For Estonia, trends are upward in 2016 and for the period average (+4.19 and +2.10%).

Finland shows an upward trend – over time. Fixed-base indices are strictly super unitary (100.45, 103.97 and 101.47% for 2016, 2017 and the average period respectively). At the level of mobile-based indices the variation limits were 97.60 and 103.50% for the average period and 2017 respectively.

In the case of France, the indicator increases in 2016 by 3.26% compared to the first term of the dynamic series, then in 2017 there are decreases (-1.41% compared to the previous year), and the

average exceeds 1.01 times the first reporting base, but is 0.11% lower than the previous term of the dynamic series.

If we refer to the specific situation of Germany, we are found to have exceeded the first reporting deadline throughout the dynamic series (+2.51, +8.78 and +3.76% respectively in 2016, 2017 and for the average period). As regards mobile indices, they are subunits only for the average period (95.39%) and super unitary components for the rest of the period analyzed (102.51% in 2016, 106.11% at the level of 2017).

Greece has only subunit values of fixed base indices (92.95, 99.44 and 97.46% - 2016, 2017 and the average period respectively), and mobile base indices were sub unitary in 2016 and for the period average (92.95 and 98.01 respectively) and supralunar for 2017 (106.98%).

Ireland shows a fluctuating trend in the indicator, as noted by the fact that in 2016 there are decreases of 0.26% compared to 2015, and in 2017 increases of 1.87% compared to the previous term of the dynamic series. In these conditions the average period shows a supra-unitary level for fixed base indices – 100.45% and a subunit level for mobile base indices – 98.86%.

Italy's situation shows decreases in 2016 (-2.17%) increases in 2017 (+1.47% compared to the previous dynamic series). As a result, the average period decreases from both terms of reference (-0.97 and -0.24% respectively).

Latvia is characterized by an increase in the level of the indicator in 2016 and for the average period (+0.99 and +0.31% compared to the previous terms of the dynamic series) but also by its decrease in 2017 compared to 2016 (-0.96%).

For Lithuania, trends are uneven, downward in 2016 (-9.25%), rising in 2017 (+0.49 and +10.74%). The average period is lower compared to both basis of comparison (-2.92 and -3.39% respectively).

Luxembourg presents a six-way development – over time. Fixed base indices range from 99.74% in 2016 to 101.61% in 2017. At the level of mobile-based indices the variation limits were 98.86 and 101.88% for the average period and for 2017 respectively.

If we refer to the specific situation of Malta, it is found that the first reporting deadline has been exceeded only in 2017 (+3.52%). As regards mobile indices, they are subunits in 2016 and for the period average (80.97 and 91.61%) and super unitary for 2017 (127.84%).

The United Kingdom has supra and subunit values of fixed base indices (87.30, 192.62 and 126.64% - 2016, 2017 and the period average respectively), and mobile base indices were subunits in 2016 and at the period average (87.30 and 65.75% respectively) and super unitary for 2017 (220.63%).

The Netherlands shows a fluctuating trend in the indicator, as marked by the specific decreases in 2016 (-16.79%), i.e. by the increases shown in 2017 (+2.51 and +23.19% respectively compared to the terms of reference). Under these conditions the average period is lower than both basis of comparison (-4.76 and -7.08%).

Poland's situation is characterized by the fact that there are decreases in 2016 (-24.56% compared to the first term of the dynamic series) and increases for 2017 (+19.63% compared to the previous year). As a result, the average period has subunit levels for both index categories.

Portugal has a similar development to that of Poland (-2.82% in 2016 compared to the specific situation of 2015, an increase of 2.07% in 2017 compared to the previous dynamic series, decreases in the average of 1.21 and 0.41% compared to the reporting bases).

For Romania the trend of evolution is upward, the dynamics presenting subunit values only for the average period (93.81% compared to the previous term of the dynamic series). The comparison base advances were 1.05 times in 2016,

1.13 and 1.07 times in 2017, 1.06 times for the average period.

Slovakia has a similar development to that which exists in the case of Romania. Comparison terms exceeds by 7.34% in 2016, 13.36 and 5.61% at 2017 level, 6.90% for the period average (compared to 2015).

In the case of Spain, the indicator decreases in 2016 by 13.87% compared to the first term of the dynamic series, then in 2017 it increases (+21.31 and +40.87% respectively compared to the reporting bases). The average increases by 2.48% compared to the first term of the dynamic series, but is lower than the second by 15.53%.

If we refer to the specific situation of Sweden, it is found that the second reporting deadline has been exceeded only in the case of the average period (+6.49%). As regards fixed-base indices, they are strictly sub unitary (94.31, 88.54 and 94.28% in 2016, 2017 and the period average respectively), and mobile-based indices are lower than the terms of reference in 2016 and 2017 respectively (94.28 and 93.89%).

Hungary has supra and subunit values of fixed-base indices (104.96, 74.66 and 93.21% - 2016, 2017 and the period average respectively), and mobile-based indices were subunits in 2017 (71.13%) and super units for 2016 and the average of the period (104.96 and 124.84%).

At the regional level the indicator dynamics contain subunit values in 2016 (decreases of 1.14% compared to the first term of the dynamic series), but also supra-unitary values for 2017 (advances of 1.02 and 1.03 times of reporting bases). The average for the period is higher than 2015 (+1.41%) compared to the specific situation of 2017 (-0.77%).

CONCLUSIONS

The marketing price recorded a national multiannual average of 1,049.20 $/t, with extreme values of 231.90 $/t for Hungary and 2,693.30 $/t for

Luxembourg, both - in the case of 2017 (total variation amplitude of 2,461.40 $/t).

In terms of the annual indicator amplitudes, they were 2,340.10 $/t in 2015, 2,332.70 $/t in 2016, 2.461.40 $/t for 2017 and 2.373.07 $/t for the average period (fig. 3).

If we look at the indicator under the variation amplitude ratio for each reference level (national and regional), the following is found (fig. 4):
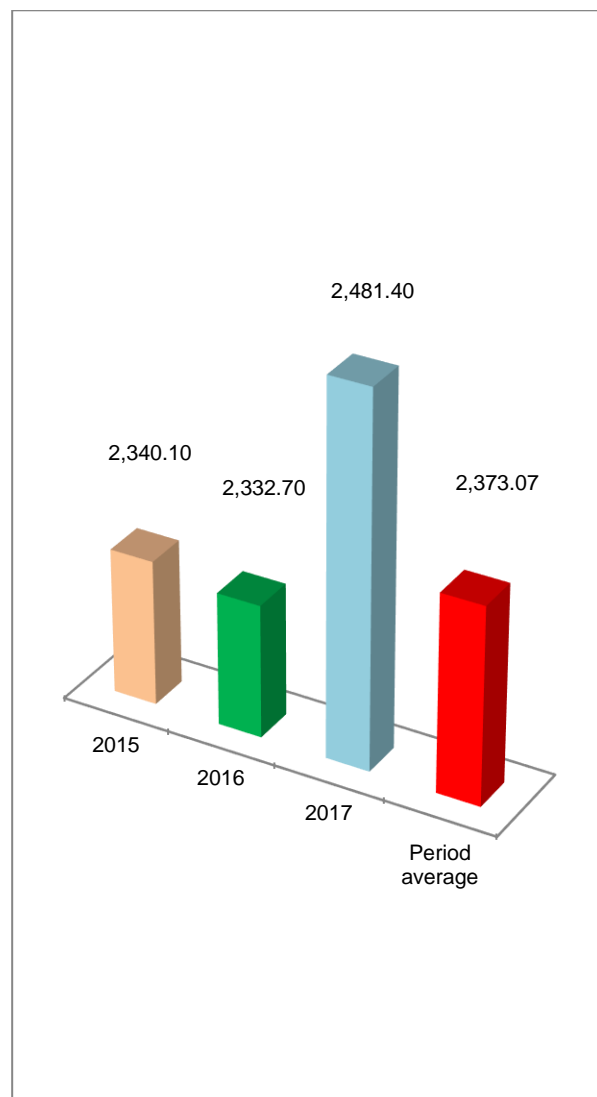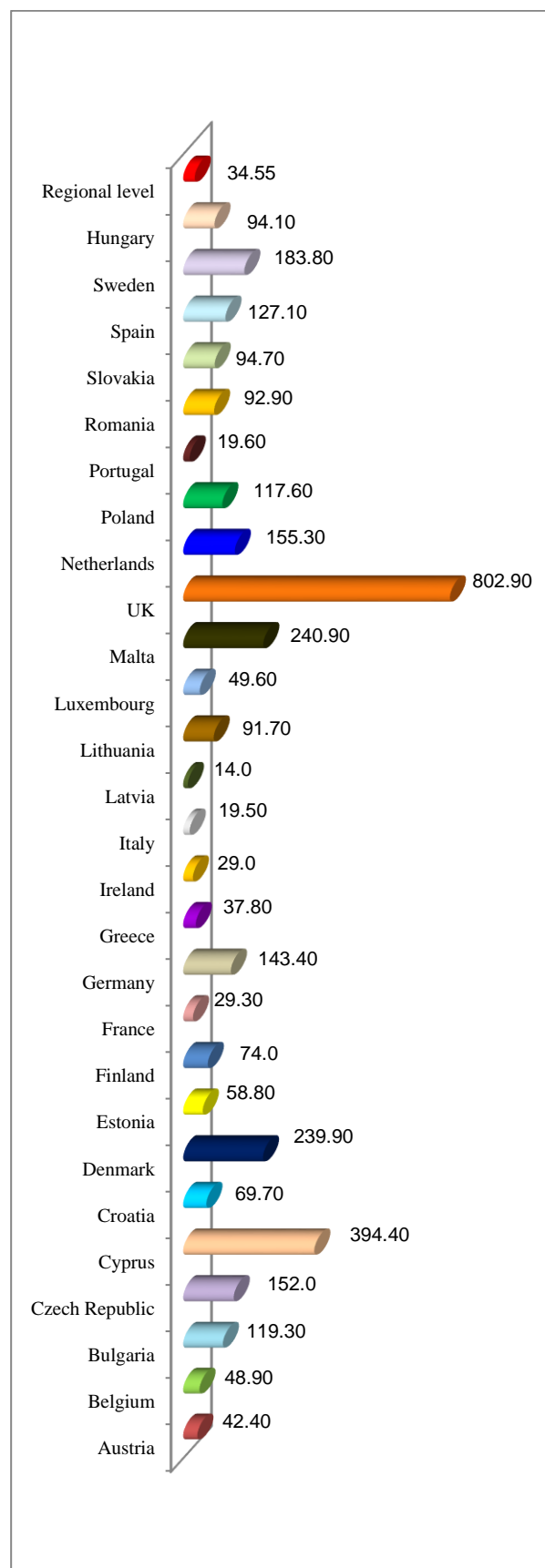

Fig. 3. Annual price variation amplitude ($/5t)

variations of 42.40 $/t in Austria; amplitude of 48.90 $/t at Belgium level; changes of 119.30 $/t in the case of Bulgaria; 152.0 $/t for the Czech Republic; variation amplitude of 394.40/ $t in the case of Cyprus; variations of

69.70 $/t in Croatia; total amplitude of 239.90 $/t for Denmark; 58.80 $/t for Estonia; changes of 74.0 $/t in Finland; variations of 29.30 $/t in France; amplitude of 143.40 $/t in Germany; changes of 37.80 $/t in the case of Greece; 29.0 $/t for Ireland; variation amplitude of 19.50 $/t in the case of Italy; variations of 14.0 $/t in Latvia; total amplitude of 91.70 $/t for Lithuania; 49.60 $/t for Luxembourg; changes of 240.90 $/t in Malta; variations of 802.90 $/t across the UK; amplitude of 155.30 $/t at Dutch level; changes of 117.60 $/t in the case of Poland; 19.60 $/t for Portugal; variation amplitude of 92.90 $/t in the case of Romania; variations of 94.70 $/t in Slovakia; total amplitude of 127.10 $/t for Spain; 183.80 $/t for Sweden; changes of 94.10 $/t in Hungary; variations of 34.55 $/t at European Union level. For Slovenia, the amplitude of variation cannot be highlighted, and there is only information for 2015.

At regional level, the evolution of the indicator is uneven, a phenomenon that is also manifested for the vast majority of the component states (Austria, Czech Republic, Croatia, Denmark, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg. Malta, United Kingdom, Netherlands, Poland, Portugal, Spain, Hungary). There are also countries characterized by upward developments (Belgium, Cyprus, Estonia, Finland, Germany, Romania, Slovakia), as well as countries where the indicator has evolved downwards (Bulgaria, Sweden).

Fig. 4. Price variation amplitude, at national and regional level ($/t)

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