
Providing Environmental Public Goods under the Common Agricultural Policy as a Cure for Market Failure

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Abstract:

Purpose: In the reality of the marketplace, a situation often arises where an economic surplus (rent) achieved by agricultural producers is partly taken over by related non-agricultural sectors. In this sense the category of economic rent embraces market failures related to such factors as price flexibility, and thus represents an effect of the misallocation of resources in the agricultural sector. The question therefore arises of whether there exists a developmental model of agriculture in which such market failures would be reduced. Apparently the only coherent response to this need is action taken under the paradigm of sustainable agriculture. This type of model for the sector's functioning is supported by the objectives of the European Union's Common Agricultural Policy (CAP), including through support for the supply of public goods in rural areas.

Design / Methodology / Approach: To verify the hypothesis, a panel regression analysis was performed on three sets: the EU-15 countries and the EU-12 countries. The analysis covered two hitherto accomplished CAP programming periods: 2004-2006 and 2007-2013.

Findings: Increase in the level of payments for public goods, as a percentage of total subsidies to agriculture, leads on average to a reduction in the drainage of economic rents through prices. It was also found that the financing of public goods under the CAP is more effective in reducing market failures in the EU-15 countries than in the EU-12.

Practical Implications: This article addresses the question of whether CAP payments for public goods are a desirable systemic solution serving to reduce market failures. It is hypothesised that the financing of activity relating to the supply of public goods mitigates the "market treadmill", since it reduces the unexpected outflows of economic surplus away from farms, caused by agricultural prices.

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1. Introduction

One of the key issues in agribusiness is the ability of farms to accumulate and carry out extended production, that is, to produce food while at the same time achieving a level of income that enables the regeneration of the fixed assets employed, and also ensures fair remuneration for the farmer's labour. In practice a situation often arises where an economic surplus (rent) achieved by agricultural producers fails to fulfil the criterion of optimum allocation, in Pareto's sense, in flows between sectors³. In the supply chain it is partially taken over by purchasers, processors and sellers, and finally by consumers themselves. In this sense the category of economic rent embraces market failures related to such factors as the flexibility of prices. It therefore constitutes an effect of misallocation in a broad sense.

Attempts are made to reduce the misallocation of resources in the agricultural sector through support mechanisms. Nonetheless, the fallibility of national redistribution policy in this area is a well-known fact (Czyżewski, 2007; Zegar, 2012). In the subject literature the term "leakage" is used with regard to state aid. It is estimated that only 20% of the total amount of support to agriculture in the OECD countries creates a net surplus; the remainder flows out to other branches of the economy (OECD, 2000). The question therefore arises whether there exists a developmental model for agriculture in which such market failures and failures of redistribution policy would be reduced. Apparently the only coherent response to the problem of the incompatibility of environmental, social and economic goals is action taken under the paradigm of sustainable agriculture. This includes such desirable practices as sustainable intensification and precision agriculture, which in certain aspects fall under such a developmental paradigm. We will not consider the sustainable agriculture paradigm in detail, since this is a topic well covered by the literature (Woś and Zegar, 2002; Zegar, 2012; Brelik, 2013). It should be recalled, however, that one of its chief principles is that agriculture and rural areas should supply public goods (such as natural amenities, landscape, rural culture, biodiversity, traditional foodstuffs and food security in a broad sense) in conditions of sustainable food production.

The European Union's Common Agricultural Policy (CAP) promotes sustainable agriculture through support for the supply of public goods in rural areas.

This article serves as a contribution to the discussion in a wider community context (on the operation of the so-called European model of agriculture), and addresses the question of whether CAP payments for public goods are a desirable systemic solution serving to reduce the effects of market failures expressed in the flexibility

³*In Pareto's sense, an economic rent is a surplus payment to a production factor above that which would persuade it to provide services in a given use (Brooke 2010; Pareto 1896). A more precise version of this definition states that an economic rent is the surplus of income above the alternative payment to a factor which it might receive in a different use.*

of agricultural prices⁴. We put forward the hypothesis that the financing of activities related to the supply of public goods lessens the negative effects of the “market treadmill” since it reduces the unexpected outflows of economic surplus away from farms through agricultural prices (Czyżewski *et al.*, 2017).

2. Financing Public Goods by CAP

The concept of public goods is something of a generalisation. In economic theory, four types of goods may be distinguished: private, common, club and public. The criteria of classification are the features of rivalrous vs. non-rivalrous and excludable vs. non-excludable (Klimowicz and Bokajała 2012, p. 98). In a narrow sense, “pure” public goods are those that are both non-rivalrous and non-excludable (Ulbrich, 2003, p. 67). In practice, however, few such goods exist (examples might be nationwide service institutions, national defence, law and order and security). The definition is thus frequently extended to include common goods (those which are rivalrous but non-excludable) and what are called merit goods, which might physically be private goods, but due to social doctrine and government social policy are delivered to citizens even when they do not accept that fact. These include most of the goods financed by the public sector, particularly in the fields of education and healthcare, but also – according to the latest concepts – in agriculture.

Public goods are not subject to market valuation in a strict sense, but they may be considered to be subject to institutional valuation (the institution in our case being the CAP), which results in the subsidisation of particular management methods. Such a model of value is not without its defects, but it gains public acceptance more easily than does the subsidisation of market goods. There are reasons to believe that the financing of public goods under the CAP lessens the effects of market failures in the agricultural sector.

A higher level of payments for public goods, as a percentage of total subsidies, can be expected to favour the sustainable development of farms, since it stimulates their multifunctional development and diversification of income sources; there is thus less pressure to increase productivity in the classical sense, since family farms may maintain a rate of increase in income by means of activity other than agriculture (although related to agriculture). It also favours activity associated with lower flexibility of product prices, such as organic food production and agritourism. To a greater or lesser extent, the supply of public goods releases farms from the market treadmill, since it reduces their dependence on agricultural price fluctuations.

⁴*The European model reflects the dual function of agriculture – as well as food production, it also serves the broadly defined development of rural areas and supply of public goods, and its fundamental basis is family farms. The idea of correcting the market failure by payments for public goods was presented at the 8th International Scientific Conference Rural Development, 23-24 November 2017 (Czyżewski *et al.* 2017, see also Fischler, 1999).*

Subsidies for the supply of public goods are less susceptible to “leakage”, since they are capitalised in land rental prices to a lesser degree in view of the absence (or very limited extent) of market valuation of public goods (Czyżewski and Matuszczak, 2016).

The identification of the subsidies that serve to finance public goods is open to discussion (Brelík and Grzelak, 2016). For example, do the direct payments made under the first pillar of the CAP lead to the creation of such goods? A certain step in this direction is the cross-compliance principle, although it may be said that this serves more to maintain the usefulness of land and other assets to produce safe food in the long term. The receipt of area payments, however, is little dependent on reductions in the use of environmentally harmful chemicals or over-intense agricultural production. Moreover, although direct payments were intended to improve the economic situation of professionally active farmers, they are largely transferred, through increased rental prices, to landowners who are not professionally active in agriculture but merely lease their land (Góral and Kulawik, 2015).

3. Public Goods in Rural Areas: Literature Review

Rural communes in the European countries show considerable spatial diversification in regard to the level of socio-economic development, settlement structures, and the state of social and technical infrastructure. This diversification results in the following factors: location, the rank and nature of agriculture in regional development, demographic situation, situation on the labour market, rural resources, activity of local governments local communities, local skills and traditions. Consequently, there could be different ways of development. On the one hand, the development of agritourism in rural areas may be an alternative to traditional directions, including farming and related services (Brelík, 2015; Dimitriadi *et al.*, 2018). On the other hand, it may constitute a crucial complement built on resources related to rural areas and farming. Ensuring the continuity of managing agricultural land is the precondition of landscape conservation from both cultural and ecological perspective. In the literature we can distinguish natural landscapes (formed by natural conditions without human interference) and cultural landscapes (created by human actions).

Traditional rural landscape is marked by dirt roads, overgrown ditches, streams, humid dune slacks, marshes, waterholes, balks, creeks, natural river banks, shrubs, trees, alleys, wayside shrines, old mills, glacial erratics, buffer strips, forests, the diversity of crops on neighbouring fields, adjacency zones, semi-natural grasslands, which are occupied by various species of wild animals and plants. The possibility of experiencing the nature is partially financed when purchasing private goods (agritourism holidays). In this case, it means the danger of transforming public goods into club goods (Czyżewski and Brelík, 2013; Brezinova *et al.*, 2016; Zuchowski and Brelík, 2017). There is no doubt, however, that rural areas are the

place where many environmental and cultural public goods are offered included under the landscape as “the agro-ecological infrastructure delivering things people directly value, such as food, fibre and energy, and multiple cultural and environmental PGs” (Santos *et al.*, 2016). The results of the cited Delbecq *et al.* (2014) also show that farmland values are only partially explained by agricultural returns. Those authors identified multiple non-agricultural attributes of farmland, which include biodiversity, climate regulation, rural culture and open space, as well as features that indirectly impact food quality and human health.

The study conducted by Vanslebrouck *et al.* (2005), and more recently the one by Bilbao-Terol *et al.* (2017) come closest to PG definition adopted in our study. The former tested the hypothesis that positive externalities from agriculture, namely “maintaining and preserving an attractive landscape”, have a positive impact on the prices of rural accommodation provided by farmers or other rural citizens. The aim of the research was to identify which agricultural activities affect the profitability of rural tourism. The latter, in turn, explores the impacts of environmental amenities associated with agricultural and silvicultural land use on the price of self-catering cottages.

However, the study of Santos *et al.* (2016) represents the most recent and comprehensive attempt to build an empirically-based framework to value multiple public goods of agriculture and rural areas. Santos uses context-rich valuation scenarios at broad supranational scale, employing the typology of Macro-Regional Agri-Environmental Problems (MRAEP) associated with 13 clusters (macroregions MR) of European agrarian structures. For each MR a specific MRAEP has been identified, and for each MRAEP a specific set of agricultural public goods. There is however an implicit assumption that changes in PG provisions results from the respective MRAEP and thus, indirectly, from the MR type. One may argue that there is an opposite causality, which means that PG endogenously influences MRAEP.

For instance, the cited author identified the “MR Eastern Europe” and the dominating MRAEP for this region as the “dynamic trend of agricultural intensification” which advocates the need to protect such PGs as “cultural amenities”, “biodiversity”, “water quality”, “climate stability” (Santos *et al.*, 2016). However, one should take under consideration that the occurrence of the aforementioned PGs endogenously impacts the intensification trend since the provision of these goods may positively influence farmers’ incomes (via market prices or CAP subsidies) being an alternative for intensification of production. For these reason the explanatory influence of PGs provision under CAP is worth exploring.

4. Research Methodology

It is assumed in this study that the features of public goods (or more precisely, common goods) are associated with the following: agri-environmental payments,

less favoured area payments, set-aside payments, and subsidies for rural area development (according to the typology of the EU's FADN5). Consequently, vectors of these variables were used in the analysis. This was carried out using data concerning the aforementioned programmes and concerning the products and inputs of FADN representative farms, as compiled by the Institute of Agricultural Economy and Food Management, and data from the EAA Eurostat database in relation to agricultural price indices and inflation6. On the basis of these, input-output matrices were produced at the level of representative farms in the SO system7 and calculations were made of the outflows of economic rents through prices (ΔA) and the vector of payments for public goods. The results were aggregated at sector level by multiplying them by the number of farms represented in each SO class in the country in question.

Market failure was defined in terms of price flexibility. The flexibility of agricultural prices is defined as $(\Delta P/P):(\Delta Q/Q)$, where P denotes prices and Q denotes production (Tomek, Robinson 2001). Unexpected changes in prices thus lead to outflows (drainage) or inflows of economic surplus. The surplus drainage or inflow through price changes is expressed mathematically as follows:

$$\Delta A = \left[\sum_{i=1}^n \left(\frac{Q_{it} \cdot P_{it}}{HICP} - Q_{it} \cdot P_{it-1} \right) - \sum_{j=1}^m \left(\frac{F_{jt} \cdot R_{jt}}{HICP} - F_{jt} \cdot R_{jt-1} \right) \right] \quad (1)$$

where:

HICP is the rate of inflation;

ΔA is the change in the economic surplus of a sector or farm in period t relative to $t-1$ (called the drainage or inflow of economic surplus through prices);

Q_i is the quantity of output i in successive years ($t-1$, t) in an n -element output matrix;

F_j is the quantity of external input j in successive years ($t-1$, t) in an m -element input matrix;

P_i is the price of output i in year $t-1$;

R_j is the price of external input j in successive years ($t-1$, t).

⁵FADN (Farm Accountancy Data Network) is an agricultural accounting system for farms in the EU.

⁶The input-output matrices are based wholly on the FADN database, but price indices, including inflation, are based on Eurostat (EAA) data, since these are not included in the FADN figures.

⁷The economic size of a farm is expressed in units of standard output (SO), namely the five-year average of the value of annual production from a given type of crop or animal farming obtained from one hectare or from one animal, in average conditions for the region in question.

It should be noted that the above equation defines changes in the surplus resulting exclusively from changes in the prices of sold products and purchased means of production. It is based on the assumption that price expectations are adaptive⁸, and consequently the volumes of production and of means of production are determined based on prices from the preceding period. Most agricultural economists accept this assumption. Hence a farm realises an unexpected economic surplus (rent) with respect to the previous year if the revenue in real prices ($\frac{Q_{it} \cdot P_{it}}{HICP}$) exceeds the revenue in fixed prices from the preceding year ($Q_{it} \cdot P_{it-1}$). Similarly, a farm obtains an unexpected revenue (rent) if its inputs in year t in real prices ($\frac{F_{jt} \cdot R_{jt}}{HICP}$) are lower than the same volume of inputs in fixed prices from the preceding year ($F_{jt} \cdot R_{jt-1}$). Of course, this approach is subject to certain limitations. The behaviour of farmers under this model is somewhat naive, since they consider price changes for the same volumes of products or means of production in successive periods. If it were to be assumed that the market operates in conditions of stationary (but not static) equilibrium,⁹ then both volume and prices would be subject to change. It is thus implicitly assumed that, in view of the adaptive expectations existing in agriculture, stationary equilibrium does not occur.

The next step was the calculation of panel regression models, in which the flows of economic surplus through agricultural prices are presented as a function of the level of payments for public goods as a percentage of the total pool of CAP subsidies. This was done for two sets: the EU-15 countries and the EU-12 countries. Data referred to the hitherto accomplished programming periods of CAP: 2004–2006 and 2007–2013. The recent period (2014–2020) is still ongoing and for this reason has been excluded from the analysis. The following functions were computed:

$$\frac{ABS \Delta A_{C,T}}{S_{C,T}} = \alpha_0 + \alpha_1 PG_{C,T} + \beta' DU + u \quad (2)$$

where:

C, T denote respectively the country and the year;

$\frac{ABS \Delta A}{S}$ is the absolute value of the drainage or inflow of economic surplus through prices as a percentage of total subsidies, with ΔA calculated by equation (1). The

⁸*Economists distinguish two basic types of price expectations: adaptive and rational. In the first case, expectations are formulated based on historical data (ex post) and then adjusted in subsequent periods by the error of expectation, namely the difference between the expected and the actual price. Rational expectations, on the other hand, are formulated ex ante on the basis of forecasts.*

⁹*Static equilibrium denotes a point of equilibrium between demand and supply at a given moment (in a given period). Stationary equilibrium is of a dynamic nature, and is a set of equilibrium points of demand and supply in successive periods. The equilibrium path is formed by way of continuous and immediate adaptation (shifting) of the demand and supply curves in response to changing market conditions.*

absolute value of ΔA is taken because it is assumed that both unexpected drainage and inflow of surplus through prices reflect market failures (resulting from flexible prices). In conditions of static equilibrium the changes in income ought to correspond exactly to the changes in real total productivity (TFP). The value of ΔA for a given country was divided by the total amount of subsidies in order to take account of differences in the sizes of the economies being compared (in particular, of the agricultural sector):

PG is the level of payments for public goods (the four classes of subsidies listed above) as a percentage of total subsidies;

β is a vector of dummy variables (zero–one) for the effects of individual countries, DU , in the case of the fixed effects model; for the random effects model $\beta'U$ is part of the random component, and in case of panel estimation by the ordinary least squares (OLS) method is equal to 0;

u is a random component.

The sets in individual countries cover the same part of the agricultural sector as is represented by the FADN results. In each case the set is responsible for 90% of agricultural output in the country in question. Hence, the values and signs of the regression coefficients reflect the situation in the studied populations of countries in the years 2004–2013 (as this range covers two CAP programming periods which have been hitherto finished). The p -value represents the probability that the relations described occurred only in a given place and time and are not universal in nature. In this case, however, the evidence is strong – that is, the probability that the described relationships are “accidental” is low.

It should not be expected, however, that the value of the coefficient of determination R^2 will be high, since the regression analysis includes only two variables: the absolute value of the surplus drainage/inflow through prices as a percentage of total subsidies¹⁰ (the dependent variable, %) and the level of payments for the aforementioned public goods as a percentage of total subsidies (the independent variable, %). We validated the model checking whether RE specification is more justified than a simple pooled OLS model by Breusch-Pagan test. We also addressed the presence of autocorrelation and heteroscedasticity estimating a robust covariance matrix (HAC standard errors).

5. Results

For the panel consisting of the EU-15 countries (Table 1) the appropriate model was found to be the random effects model (based on the Breusch–Pagan and Hausman tests). The effect of the level of payments for public goods as a percentage of total

¹⁰The value of surplus drainage/inflow is divided by the total value of subsidies so as to compensate for differences in the absolute size of the agricultural sector in particular countries.

subsidies is statistically significant ($p < 0.001$) and is inversely proportional to the scale of market failures (measured in terms of the value of drainage/inflow of surplus through unexpected price changes), which is in accordance with expectation. An increase in the level of payments for public goods by 1% causes a fall in the absolute value of the drainage/inflow by 0.92% (measured as a percentage of total CAP subsidies).

Table 1. Payments for public goods versus the market failure in the EU-15 countries Random effects (GLS); Dependent variable (ABS ΔA): absolute value of surplus drainage/inflow (as % of subsidies). Robust HAC standard errors.

Variables	Coefficient	Standard error	t*	p-value
Constant	43.3077	6.43618	6.7288	<0.0001
Payments for public goods, VPG (as % of subsidies)	-0.922416	0.199626	-4.6207	<0.0001

Descriptive statistics and tests:

Coefficient of determination LSDV $R^2 = 0.135$

Arithmetic mean of dependent variable	26.77338	Standard deviation of dependent variable	27.60776
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Breusch–Pagan test: Null hypothesis: Variance of error in a unit = 0. Asymptotic test statistic: chi-square(1) = 12.6936, with p-value = 0.000366917

Hausman test: Null hypothesis: The GLS estimator is consistent. Asymptotic test statistic: chi-square(1) = 0.745391, with p-value = 0.38794

*relation of regression coefficient to standard error.

Source: Based on data from Eurostat (EAA) and FADN (EU).

In the random effects model it is assumed that there are individual effects that are constant in time but unobservable at the level of objects (countries in this case), to which are assigned specific amounts of variance of the dependent variable, called the between variance. This concerns factors specific to particular countries, such as climate, agrarian structures and economic policy. The between variance is compared with the within variance, which reflects purely random variation. In the case under analysis the rho index¹¹ takes the value 0.063, which means that the individual country effects are responsible in total for only around 6% of the residual variation.

At the same time, the coefficient of determination reflecting individual effects is approximately 15%. It can therefore be concluded that the effect of the only variable – the amount spent on public goods – is extremely large, considering that the scale of drainage of rents through prices is potentially dependent on a number of other factors (global prices, the development of the local market, the cyclicity of agricultural production, integration processes in agribusiness).

¹¹Rho = square of between variance/(sum of squares of within and between variance).

Table 2. *Payments for public goods versus the market failure in the EU-12 countries; Estimation: panel OLS. Dependent variable (ABS ΔA): absolute value of surplus drainage/inflow (as % of subsidies). Robust HAC standard errors.*

Variables	Coefficient	Standard error	t*	p-value
constant	43.5181	7.7461	5.6181	0.0002
Payments for public goods, VPG (as % of subsidies)	-0.651741	0.325177	-2.0043	0.0703
Descriptive statistics and tests				
Coeff. of determ. R-square	0.086674	Adjusted R-square	0.076295	
Arithmetic mean of dependent variable	31.98444	Standard deviation of dependent variable	22.10390	
Breusch–Pagan test: Null hypothesis: Variance of error in a unit = 0				
Asymptotic test statistic: chi-square(1) = 3.48049, with p-value = 0.0620962				
Test for normality of distribution: Doornik–Hansen (1994)				
Null hypothesis: the empirical distribution is normal. Chi-square(2) = 4.388, with p-value = 0.11146				

*relation of regression coefficient to standard error.

Source: Based on data from Eurostat (EAA) and FADN (EU).

In the EU-12 countries (Table 2) the marginal effect of the amount spent on public goods is much weaker (with a regression coefficient of -0.65), although it is still statistically significant. This variable explains slightly under 9% of the variation in rent drainage through prices, which is about one-third less than in the previous case. In this case the statistical tests (Breusch–Pagan) showed that the individual effects of countries are not significant, and that it is appropriate to use classical OLS estimation. This meant that it was necessary to verify, among others, the assumption of normality of the residual distribution – as Table 2 shows, this condition was found to be satisfied (using the Doornik–Hansen test). The effect on the results from any deviations from other assumptions is limited by robust standard errors. The results also show that the relative scale of market failures (the mean of the dependent variable) is greater among the EU-12 countries than among the EU-15.

Generally speaking it lacks in the literature studies of the effects of public goods payments on market failures as in the approach proposed by the authors. However many authors considered the impact of public goods schemes on some positive externalities of the market mechanism. One may assume that such effects may be also perceived as a reduction of market imperfections. Pawłowska-Tyszko (2014) claims that environmental payments bring positive effects in the social dimension, because as a basis of remuneration for green services, they play also a profit-making role, which is of particular importance in small, extensive holdings being main beneficiaries of these programmes. However, S. Chabe-Ferret and Subervie (2012) noted that “as a result of support for agri-environmental activities, two effects emerged: additional – value added generated by the implementation of an obligation and windfall - extraordinary, unexpected income.

Therefore, farmers should actually receive remuneration from the budget for achieving the additional effect only. Meanwhile, after receiving the subsidy, the producer's marginal private costs decrease and its benefits increase. Thus, subsidies are cost-ineffective and hence producers do not incur full social costs of their activities". Other authors studied the effects of separate CAP schemes which has been above included to the proxy of public goods. For example Zawalińska *et al.* (2013) and Gorton *et al.* (2009) suggested that the LFA scheme appears more effective in reducing land abandonment or in promoting continued land use in intermediate rural and predominantly agricultural regions (where the share of population living in rural areas is between 15-50% and more than 50% of the rural population works in agriculture) which is to some extent in line with the findings that the public goods payments reduce market failures.

There is also evidence that stringent environmental policies can stimulate innovations that may over-compensate for the costs of complying with these policies including market distortions (Porter and Van der Linde, 1995). This confirms analysis of De Santis and Lasinio (2015) which says that the gradual strategic reorientation of environmental policies in the EU in favor of economic incentives has been more effective in stimulating productivity and innovation than in setting explicit directives about pollution control levels.

6. Conclusions and Discussion

The calculations appear to confirm the hypothesis put forward at the outset, that payments for public goods reduce the negative effects of the market treadmill, and more precisely the market failures that are its cause. It has been found that an increase in the level of payments for public goods, expressed as a percentage of total subsidies to agriculture, by 1% leads on average to a fall in the drainage of economic rent caused by prices by between 0.6% and 0.9% of the value of the pool of subsidies; that is, in case of an increase in real productivity, this is more or less the growth in income that can be expected. The level of significance of the knowledge obtained here may be debated. On the one hand, the results are credible, the models satisfy the necessary assumptions, and the number of observations is relatively large.

On the other hand, the interpretation of the results and the search for explanations "why" consist largely of speculation. Nonetheless, we certainly know more about how the financing of the supply of public goods influences the market failures associated with the flexibility of agricultural prices, King's effect and the market treadmill. It is interesting to consider why the financing of the analysed categories of public goods under the Common Agricultural Policy is more effective in reducing market failures in the EU-15 countries than in the EU-12. It may be assumed that in the new member countries these payments modify the structure of agricultural production to a lesser degree and are less likely to lead to the creation of added value (through changes in that production structure), or that they less effectively stimulate the multifunctional development of the agricultural sector, which can make farms

independent of the global market (and the flexibility of agricultural prices). In other words, these payments represent not so much an alternative direction for the functioning of agriculture in the new EU countries, as a supplement which may take the form of social assistance.

Therefore, an effective route to increased income in the EU-12 countries is still provided by support oriented towards increasing productivity (such as production subsidies and investment support), in view of the relatively high marginal increments. On the other hand, the negative external effects of the market mechanism (including the drainage of economic surplus) in the case of the EU-15 countries can be reduced by means of support for public goods, broadly defined. Such payments make the actual changes in income closer to those resulting from changes in real productivity, and thus reduce errors in price expectations. They should also create conditions for public goods to be capitalised indirectly by the market in the form of various services and products offered to residents of both rural and urban areas. A certain dualism in the system of support is thus postulated, differing somewhat between the two analysed groups of countries – the EU-15 and the EU-12.

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