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# Model of public choice and political rent

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**Abstract**

It can be assumed that the scope of agricultural policy and connected with its financial streams are not accidental. Selection of a particular, policy defines a mechanism in which the benefits and costs are combined. Such an effort of describing and explaining the mechanism was presented in the paper. We use the concept of a public choice model. Issues of including political (or administrative) interest in defining and shaping the policy are incorporated into the models of public choice. The authors assumed the rationality of decision makers and their goal to maximize their own utility. The analysis presented in the paper is some reference to one of the trends of political economy, according to which the emphasis is on the voters' behaviour.

**Keywords:** Public choice, political rent, agricultural policy, political-economic analysis.

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## 1. Formulating the problem

Extending intervention programmes or support for agriculture coincides with the interests of administration at the national and EU level, involved in programming and managing agricultural policy instruments.[a] Consequently, for obvious reasons, it is supported by political parties, as they depend on the votes of those directly or indirectly related to agriculture and rural areas. Data of the Polish Central Statistical Office indicate that recently (between 2005 and 2011) rural areas were the actual place of residence for 38.61%–39.32% of the population in Poland. The proportion of those employed in agriculture, forestry, hunting and fishing to the overall number of employed persons in that period also remained at a relatively stable level of 19.89%–21.63%.[b] Although employment in agriculture as such is already small, and thus, the number of farmers as voters is relatively small, this is still

A significant number of votes to be gained when one takes into account all the relationships throughout the agri-food sector. To that number, one must also add the potential number of votes of residents of villages as well as little and medium-sized towns. This gives rise to a specific relationship between stakeholders and beneficiaries.

The issues of political (or administrative) interest in defining and shaping specific policies are included in the models of public choice.[c] That approach is applied in order to clarify the choice of a particular agricultural policy and its changes.[d] The analysis outlined in this article makes reference to one of the trends in the political economy, where the decision making process of political parties (administration) is ancillary to the maximisation of its objective function just like the choice of the producer,[e] who maximizes profit given certain limitations. In the analysis, we formulate the problem rather than present an empirical proof thereof.

## 2. The model of political costs and benefits

We present a simple model of decision making in the area of agricultural policy in a most simplified form, which, however, is necessary to highlight the essence of the problem under analysis. We will relate it to the problem of prices. We may call this a model of political costs and benefits of supporting the prices of agricultural products. This has an obvious impact on the income of agricultural producers as beneficiaries and potential voters. Let us assume that the objective function of agricultural policy and thus of stakeholders (understood as a political party and the

[a] Jakimowicz (2013, pp. 476–477), when referring to the departure within the EU from market mechanisms in preference of administrative ones, states, *inter alia*: thus, there is a kind of science, considered dead until recently, that has been gaining on significance—the political economy of socialism. (…) It is perfectly appropriate for explaining reality. The behaviour of beneficiaries and European Commission officials is more easily described in terms of Kornaian pressure and suction rather than in terms of entrepreneurship and healthy competition. Grants are becoming the 'scarcely supplied good', and their shortage is a permanent circumstance, which gives rise to various internal and external tensions. The author continues to observe that 'for Poland and other countries in Central and Eastern Europe, this means, returning to real socialism'. Such a drastic description shows the essence of the problem we discuss in this paper. The benefits in the form of payments and other forms of support are becoming a good offered to beneficiaries by decision makers who seek to maximise their objective functions.

[b] http://www.stat.gov.pl/.

[c] Following Mueller, public choice may be defined as 'economic research of non-market decisions making or just use of economics in political science', where it is assumed that decision makers (political parties, clerks, stakeholder groups and society) are rational and seek to maximize their own utility, Mueller (1989) as quoted by: Gow (1994).

[d] Cf. Martin (1990); Patterson (1997, pp. 135–165); Elliott and Heath (2000, pp. 42–48), *interalia*.

[e] The other two approaches to the issue of making policy decisions, which we will not discuss in our analysis, are the trend which focuses on the actions of stakeholder groups; Oskam (2009).

administration associated with implementing a specific agricultural policy) takes the following form[f]:

$$\max u(D_R, B) \tag{1}$$

Where:

$u$—a certain utility function,

$D_R$—income of agricultural producers,

$B$—budgetary expenditure for supporting prices and income in agriculture, as well as consumer spending.

The level of the $D_R$ variable depends both on the size of production and the prices obtained (as a result of support), as well as on the support itself, which may take the form, e.g., of direct payments, as it is the case at present. Prices and payments, as well as other regulations that benefit the income, are obviously a result of the policy choice as to the agricultural policy pursued. The $B$ variable is treated in terms of the cost of obtaining that support as a result of the policy choice. In line with the objective function presented above, it may be assumed that the decision maker (political parties, government or EU administration) seeks to maximise their utility function. We may also assume that the benefits that follow from the policy decisions adopted may not be smaller than those that follow from the market, e.g., the higher prices, the parity of agricultural income in relation to non-agricultural income, etc. This may be expressed in the following way:

$$b_1(C^R) \geq D_R \tag{2}$$

Where:

$b_1$—a certain price function,

$C_R$—the expected price, which is the result of policy solutions (e.g., intervention instruments and other regulations), should be higher than the price of agricultural product prices).

$C^R$ as shaped by the market (equilibrium

Certainly, that process of policy choice must take account of the budgetary limit (at the EU and national level),

$$\text{i.e.,: } b_2(C^R) \leq B \tag{3}$$

Where:

$b_2$—a certain price functions.

Thus, the objective function of the decision maker (a political party, administration) for the solutions and shape of agricultural policy is determined by the political benefits they may obtain by supporting the income of agricultural producers as voters. Obviously, this must be related to the costs of obtaining such benefits, i.e., budgetary expenditures, e.g., those necessary to maintain prices of agricultural products and thus to increase the income or to implement specific investment and modernisation programmes. Formulating the objective function in such a way implicitly assumes that the price and income intervention are more of a political and social issue than an economic one. Of course, this does not have to be true in its entirety. However, such an assumption concerning one aspect of political and social benefits in decision making as to the scope of the forms of intervention, and thus of financial flows, should indeed be taken into consideration in analyses.

[f] Bezat, Figiel and Kufel (2009) outline a model of policy choice as a game involving multiple participants.

Let us return to the problem of maximizing the objective function of the agricultural policy decision maker (1). This may be achieved, *inter alia*, by obtaining an appropriate level of prices, which result from intervention ($C_R$) and lead to the increase in the income of the beneficiaries of that policy. That may be the criterion of maximizing the utility of the interested party or administration ($u$). The selection mechanism is the same here as in the case of the producer and consists in balancing the effects (benefits) of the policy with the costs of obtaining them. This may be expressed in the following way:

$$\frac{\partial u}{\partial D_R} \cdot \frac{\partial b_1}{\partial C^R} + \frac{\partial u}{\partial B} \cdot \frac{\partial b_2}{\partial C^R} = 0 \tag{4}$$

Transformed, this gives us:

$$\frac{\partial u}{\partial D_R} \cdot \frac{\partial b_1}{\partial C^R} = -\frac{\partial u}{\partial B} \cdot \frac{\partial b_2}{\partial C^R} = 0 \tag{5}$$

Just like with the issue of maximizing the objective function of the producer, it is obvious how these conditions for maximizing the utility function of the political decision maker should be interpreted. The level of supported prices should be established in such a way that the marginal political benefits expressed on the left-hand side of formula (5) do not exceed the marginal political costs, which are in fact budgetary costs (right-hand side of the formula). Under this approach, the 'political benefit' is understood as increasing the income of agricultural producers obtained for maintaining agricultural prices at a level that is higher than that defined by the market. The political cost is not just the increased level of budget expenditures related to supporting prices but also the possible loss of support from taxpayers and consumers who pay higher prices for agricultural products ($C^R > C_R$). This appears to be in line with the intuitive or common-sense perception of the problem.

### 3. The optimisation condition in the model of costs and benefits

In order to enhance the foundations of the reasoning presented above, we will conduct additional formal analysis. We will also show more clearly that the burden of such price support (intervention) is borne by taxpayers and consumers (which is essentially the same[g]). The analysis may also be seen as evidence of the correctness of the reasoning presented above. To that end, we will use the Lagrange function multipliers theory, which serves to specify the conditional extreme for the objective function. This will be the utility function specified above for the policy decision maker involved in programming and managing intervention.

Adopting certain assumptions concerning the continuity and differentiability of the utility function as well as the linearity of constraints, we may express the Lagrange function, according to which the decision maker seeks the optimum level of prices for agricultural products, using formulas (1–3)[h] above for the given optimisation problem:

$$L(C_R^{\bullet}, \lambda) = u(R, B) - \lambda(b_1 \bullet C^R - R) - \lambda(b_2 \bullet C^R - B) \tag{6}$$

Assuming the concavity of the decision maker's utility function, we may suppose that there is an 'ideal' level of prices of agricultural products ($C_R^{\cdot}$), which allows for the partial (local) and total (global) maximization for:

$$u(C_R) \text{ where} \rightarrow b(C_R) = 0.$$

By differentiating that global function in relation to the prices of agricultural products and the Lagrange multiplier, we may obtain the following formulas to define the solution we seek:

[g] Because, the consumer is the taxpayer at the same time (Rembisz, 2013).

[h] Using the dependencies that exist between agricultural income *D* and the volume of output, we expressed the *R* variable in the utility function in subsequent expressions and transformations.

$$R \Rightarrow: \frac{\partial u}{\partial R} \cdot C_R^{\bullet} + \lambda = 0 \tag{7}$$

$$B \Rightarrow: \frac{\partial u}{\partial B} \cdot C_R^{\bullet} + \lambda = 0 \tag{8}$$

$$C^R \Rightarrow: -\lambda \cdot \frac{\partial b_1}{\partial C^R} \cdot C_R^{\bullet} - \lambda \cdot \frac{\partial b_2}{\partial C^R} \cdot C_R^{\bullet} = 0 \tag{9}$$

$$\lambda \Rightarrow: -b_1 \cdot C_R + R = 0, -b_2 \cdot C_R + B = 0 \tag{10}$$

Then, by deriving the significance of $\lambda$ from the first two of the above equations and solving it in relation to the third one, we obtain the condition for the equilibrium of political and budgetary gains and losses for the decision maker understood as above, for agricultural price support. The condition for that equilibrium is thus as follows:

$$\frac{\partial u / \partial R}{\partial u / \partial B} \cdot C_R^{\bullet} = -\frac{\partial b_2 / \partial C^R}{\partial b_1 / \partial C^R} \cdot C_R^{\bullet} \tag{11}$$

What follows is that the supported prices (and implicitly income derived from them) may be established at a level which follows from the equalization of the relations: (a) of marginal political benefits that may be expressed by the votes of supported agricultural producers (and their families) and budgetary costs; (b) in relation to the price benefits of agricultural producers and additional costs of consumers due to the higher prices of agricultural products. It is also worth noting that the two sides of Eq (11) reflect the phenomena of substitution as expressed in two ways: substitution which arises between the result of raising prices for producers and consumers, as well as the substitution between the increase in political benefits due to the higher income of agricultural producers, and the decrease of those benefits due to higher budgetary expenditures.

## 4. The limit of the costs and benefits of raising prices

If the policy decision maker decides to use supported prices (as a result of intervention) that differ from equilibrium prices,[i] then the ultimate political 'profit and loss account of supporting prices of agricultural products and thereby supporting income' may be expressed as follows:

$$\frac{\partial u}{\partial R} \cdot \frac{\partial b_1}{\partial C^R} = \frac{\partial u}{\partial B} \cdot \frac{\partial b_2}{\partial C^R} \tag{12}$$

As we can see, the political benefits of a given political party or administration (or both) related to supporting agricultural producers' incomes through supported agricultural prices (left-hand side of the above formula) are achieved through increased budgetary spending and increased consumer costs (right-hand side of the above formula). This determines the limit for future expansion of intervention needs and the inexhaustible creativity in this regard. That limit, in line with formula (12), is the equalisation of political benefits associated with the benefits of agricultural producers (higher prices), with the political and economic costs to the budget (taxpayers) and consumers (higher prices).

This observation confirms the earlier assertions and at the same time precisely defines the issue of supporting income through maintaining agricultural prices above the level that would result from market mechanisms. The obvious limit of that support is the burden for the taxpayer and the consumer. In practice, however, that limit may be disregarded, especially when con-

i Obviously, higher than market prices ($C^R > C_R^{\bullet}$) and ($C^R > C_R$), by definition.

straints on the national budget are not significant for intervention programmes under the Common Agricultural Policy, as it is the case at present.

The political costs and benefits are subject to evaluation depending on: (a) the ratio of those employed in agriculture to those employed in the entire economy; (b) the contribution of food expenditures to overall consumer spending; (c) the ratio of income obtained in agriculture to its level in the entire economy; (d) the share of tax burdens in taxpayers' income; (e) the value of per capita GDP. In Poland, as compared to the top 12 EU Member States, employment in agriculture is relatively high; thus, the political benefits of supporting the income of agricultural producers are relatively large. Similarly, considerable political benefits are also indicated by the relatively significant disparity of income in agriculture and outside of it (60%–70%). So far, Poland has been a net beneficiary of the Common Agricultural Policy in the sense of financial flows for direct payments and other intervention instruments; therefore, there is no budgetary and thus fiscal burden to consumers as a cost of that policy. In addition, consumers are burdened with higher prices to an ever smaller extent, or that factor has been losing significance for them owing to the relatively small share of food expenditures in average consumer spending (around 10%–15%).

## 5. Some empirical evidence

In order to illustrate the solutions presented above with empirical evidence, we will present the benefits in relation to income received from family farming in Poland. Figure 1 presents the average income from a family farm without payments (and with payments), and the average amount of payments obtained by those farms. Between 2004 and 2009, one may notice that the amount of support increased from an average of PLN 20000 to an average of PLN 50000 (i.e., 2.5 times). Over the same period, the average income from a family farm dropped from ca. PLN 40000 to ca. PLN 10000. It must be noted that the growth rate of support was quite stable—ca. 30% a year (Figure 2), while considerable variation was recorded in the growth rate of family farm income in 2008 and 2009; there was a significant drop in income (by more than 50%).

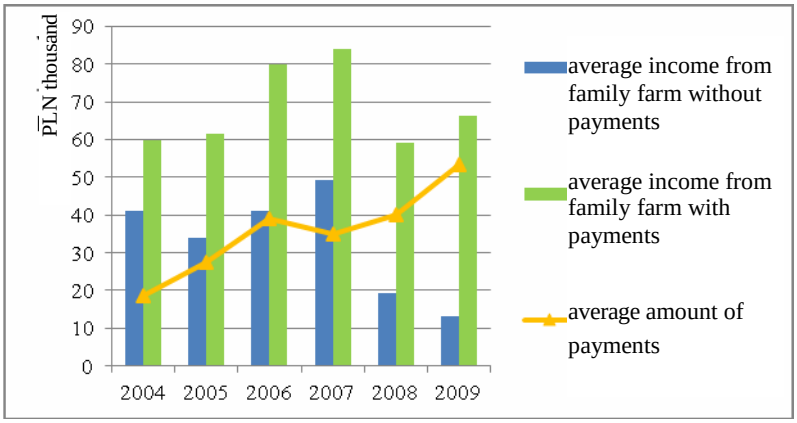


**Figure 1. Average income from family farm and the average amount of payments in FADN farms between 2004 and 2009. Source: Authors' own compilation based on FADN data.**

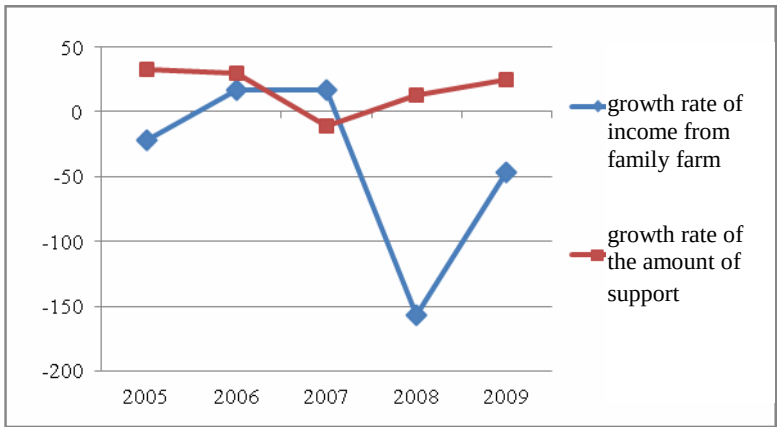


**Figure 2. Average growth rate of income from family farm and of the amount of support in FADN farms between 2004 and 2009. Source: Authors' own compilation based on FADN data.**

Figure 3 shows the evolution of the CSE (*Consumer Support Estimate*) indicator, which reflects the costs borne by consumers that arise from the support system applied in selected countries. One may notice that the value of the indicator was positive in only one of the countries included in the chart, which means that the amount of transfers from consumers was lower than the amount of transfers (grants) that went to consumers. In other cases (also in the European Union), although it is negative (and thus the burdens exceed transfers to consumers), one may notice an upward trend. This allows for making an assumption that the difference between transfers to and from consumers is gradually being reduced. That means a relatively smaller burden for the consumer (and in fact, also the taxpayer) for the benefit of agricultural producers. Undoubtedly, this follows in part from the growing wealth of consumers and the decreasing number of agricultural producers as beneficiaries of those transfers.

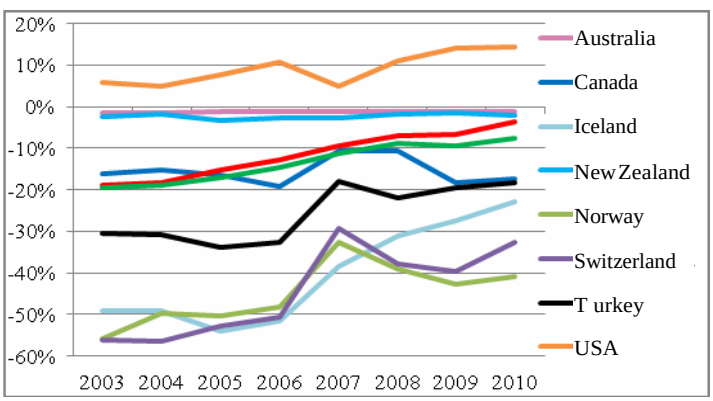


**Figure 3. Changes in the value of the CSE indicator in selected countries. Source: Author's own compilation based on the data from the OECD.**

Similarly, as shown by Figure 4, in most cases under consideration, the share of support as expressed by the PSE (*Producer Support Estimate*) in the gross income of agricultural producers has been diminishing. As regards EU countries, one may also notice that despite the relative stabilisation of spending on the Common Agricultural Policy, its percentage share in total spending is decreasing, which is a result of two-fold changes: reforms of the CAP and the increase in budgetary spending for other purposes.

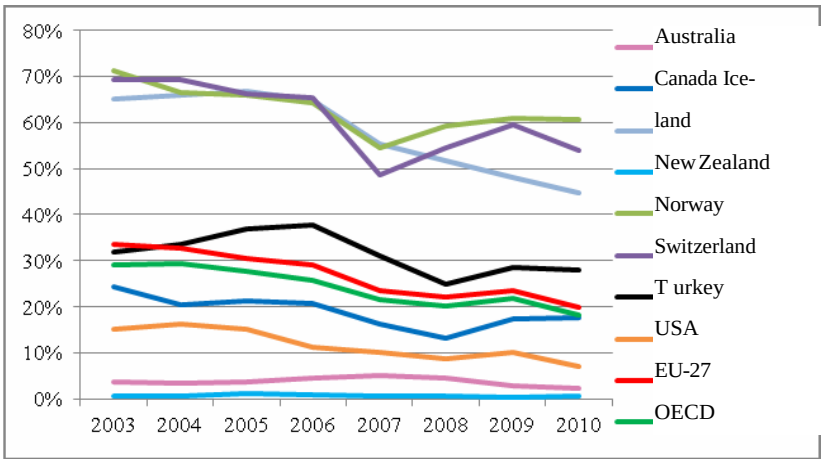


**Figure 4. Changes in the PSE as percentage of gross receipts of agricultural producers in selected countries. Source: Authors' own compilation based on OECD data.**

## Summary

The purpose of this paper was to present an innovative approach to studying the mechanism of policy choice and factors that influence it. Through analysis rather than empirical evidence, we have shown that the choice is made by policy decision-makers on the basis of a specific analysis of costs and benefits. The model of public choice, and especially the model of political costs and benefits of supporting the prices of agricultural products under the agricultural policy, may help clarify the mechanism of that choice. The approach opens the path to empirical studies.

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