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DILEMMAS OF BUDGET SUPPORT TO AGRICULTURAL INVESTMENTS

Summary

Agricultural investments are the key determinant of economic growth and development of the sector, its flexibility and stability as well as better income and civilisational situation of farmers. Their funding is a serious challenge, though. This follows from slow capital circulation – which is typical for agriculture, low and highly variable rate of equity creation and surplus cash. To this add failure and incompleteness of financial markets and, above all, loan in the surrounding of agriculture that are strongly underlined by Keynesian and Post-Keynesian economics.

In such conditions, in most of the countries worldwide, state budget is involved in the area of agricultural investments. This support is most often direct, it influences the financial potential of agriculture and due to political economy mechanisms it tends to persist. Therefore, the methods of budget efficiency of the investment aid should, at one go, consider its allocative, redistributive and stabilising aspects.

The review of empirical research results, demonstrated in the paper, shows that efficiency of the aid is usually low and can even strengthen the development problems of the agricultural sector, contributing to take up subsequent public interventions. Consequently, agricultural politicians and makers of the programmes, which provide funds to support agricultural investment, need to devote more attention to creating a climate indirectly encouraging to make investments and make available repayable instruments.

Key words: financial and credit interventionism in agriculture, agricultural investments, efficiency of agricultural investments.

Introduction

Each form of state intervention refers, in a more or less direct fashion, to Keynesian and/or Post-Keynesian economics (Blanchard, 2011; Mankiw, 2011). Consequently, it should be remembered that the former assumes, e.g., that the market mechanism shows different types of failures, slowly restores balance, creates irreversible effects and the competition is, basically, imperfect (Hoover, 2012; Sorensen and Whitta-Jacobson, 2010). Business environment is, simultaneously, full of shocks and discontinuities, and the very business entities are managed by short-sighted people characterised by limited rationality and preferring rather satisfying than maximum economic and financial results. Therefore, what is needed is microeconomic policy focusing on the demand side of the economy in the form of discretionary measures, especially in the area of fiscal policy targeted mainly at short periods, which, however, results in budget deficits and their cumulative form, i.e. public debt (Blankart, 2011; Brümmerhoff, 2011; Cullis and Jones, 2009; Zimmermann, Henke and Broer, 2012). The Post-Keynesian economists, on the other hand, also see market failures, but concerning both their demand and supply side. They allow for optimisation behaviours of economic agents, but then, they negate the existence of competitive markets and elasticity of adjustments of wages and prices. This is followed in the economy by forced unemployment. The macroeconomic policy has to – in such circumstances – have a stabilising character and influence, at the same time, the aggregated demand and supply, thus, production and un/employment rate.

At this point, it is expedient to briefly remind the stands of other orthodox schools of economy, to indicate additional limits of state intervention. The classical school assumes that wages and prices are elastic; hence, that the markets will always find balance. Consequently, actual production equals the potential one. Therefore, macroeconomic policy – understood as a combination of fiscal, budget and monetary policy – is unnecessary because the classical dichotomy applies all the time, i.e. nominal variables impact only identical other aggregates and correspondingly – real variables shape only other real variables. Whereas neo-classicists present a view that none of the systematic economic policies is able to change the path of the economy, since always – excluding unexpected shocks – the pace of short-term changes corresponds to their long-term course. To put it differently, none of the policies can accelerate the pace of adjustments in the economy; it has to stably follow into the steps of the developed type of economic growth. The problem is approached a tad differently by monetarists, who highlight the long-term issues, but with a possibility of short-term imbalances that can be mitigated, at most, with the use of monetary instruments. Also according to them, the government should act in as unobtrusive manner as possible; hence the engagement of the budget in the economy should be minimised and focused primarily on funding pure public goods and internalisation of the

most troublesome external costs. The school of the real business-cycle does not at all differentiate between the micro and macro levels of the economy. According to its guidelines, economic agents should be allowed to optimise their behaviours to achieve equilibrium, which is, at the same time, compliant with the Pareto optimum. This implies that there is no need to stabilise the economy. Despite that there might appear short- and long-term fluctuations that, however, originate from real shocks in the form of changes in productivity and capital resources, but it still remains at a point marking out its natural level. Also here the discretionary measures of the governments should be minimised because it is difficult to find a place for them in a sustainable economy. The supporters of the supply school advocate similar issues, although in a more radical manner, especially when it comes to budget policy. According to them, the market intervention should be as insignificant as possible, taxes should be low, changes in the system of taxes-transfers have to anticipate even the most perverse behaviours of economic actors, but the monetary policy should – on the other hand – be as restrictive as possible.

For years, most of the economists, economic analysts, specialists dealing with economic modelling, macroeconomic in particular, agreed on the fact that good macroeconomic policy should be well grounded in identification of the real behaviours of the microeconomic entities. These in turn, are on a current basis confronted with the effects of decisions taken under the general economic policy and sectoral policies (Blanchard, 2011; Cullis and Jones, 2009; Mankiw, 2011). As for the problem issues covered in the paper, what is important for the macroeconomic policy is the investment function describing behaviours of the micro entities. Its simplest form is as follows:

$$I = I_n\left[MPK - \left(P_k / P\right)\cdot\left(r+\delta\right)\right] + \delta K \tag{1}$$

where:

I – gross investments (expenditures),

I_n – net investments, basically it should also cover $I_n(\bullet)$ function,

K – fixed capital resource subject to depreciation,

MPK – marginal productivity of capital,

P_K – price/cost of purchase of capital unit,

P – price per product unit manufactured as a result of using the capital,

r – real interest rate,

δ – depreciation/write-off rate.

It is necessary to add the term $(P_K / P) \cdot (r+\delta)$ which stands for the real cost of capital (Mankiw, 2011).

As for the reverse impact of the macroeconomic decisions on the behaviours and operation of micro operators, it needs to be noted that, in line with the Austrian school, the greatest impact is exercised by subsidies (Becker, 2013; Cullis and Jones, 2009; Kruschwitz and Husmann, 2012; Nowotny and Zagler, 2009; Rosen and Gayer, 2013). Since they send distorted signals on the real rarity of goods in the economy and through the mechanism of relative prices, they change the profitability of products and the entire branches (Eilenberger, Ernst and Toebe, 2013; Kruschwitz, 2011; Scherf, 2011). Because subsidisation has a tendency to consolidate and spread, the political processes and cycles involved in them consequently lead to budget deficits and their accumulation in the form of public debt. Subsidies, at large, favour chaotic investments, thus they result in suboptimal allocation of resources and encourage to rent-seeking and free-riding (Blankart, 2011; Brümmerhoff, 2011; Rosen and Gayer, 2013). Nevertheless, in agriculture they sometimes trigger boom/bust cycles and lead to undertaking follow-up corrective interventions (Barry and Ellinger, 2012; Dabbert and Braun, 2012; Kay, Edwards and Duffy, 2012, Musshoff and Hirschauer, 2013).

Investment support instruments

One of the possible divisions of the aforementioned instruments is the one which differentiates between the impact on the possibility of investments, i.e. financial potential, and the impact on the readiness to start investments for a defined potential (Zimmermann, Henke and Broer, 2012). In the first group, there are varied types of tax reductions, faster depreciation and public loan, surety and guarantee schemes, schemes of providing seed capital and venture capital, and loan subsidies and premiums as well as investment subsidies. Continual creation of a climate conductive to investments and facilitations in settlement of accounting and financial losses are two key instruments from the second group.

Support instruments can be also divided into direct and indirect, although this classification is neither clear, nor always possible to be practically applied (Nowotny and Zagler, 2009). With this objection in mind, indirect instruments are those which provide legal claims to obtain support upon meeting specified conditions. They include, above all, legal and tax regulations enabling to decrease the taxation basis of the personal and corporate income tax. These are also facilitations in charging depreciation, in creation of investment reserves, settlement of accounting losses, and concerning division of profit and equity creation, and investment subsidies and premiums. Whereas direct instruments refer to specific projects and thus influence the investment costs. This concerns investment subsidies, including preferential loans and loan sureties and guarantees.

The typology of the very subsidies is non-homogenous on financial grounds. For example, G. Eilenberger et al. divide this type of funding into direct, which covers inflow of funds in the form of subsidisation of interest rates, loans and

export, and indirect (Eilenberger, Ernst and Toebe, 2013). The latter decrease the outflow of funds and can consist in tax savings, reduced reporting and administrative duties and facilitations in purchase of factors of production. In turn, S. Haghani uses subsidies to create economic potential, known as positive subsidies, which are composed of cash subsidies, facilitations in purchase of factors of production, subsidies to infrastructure, and sureties and guarantees, and also subsidies saving resources of financial means (Haghani, 1999). The latter are, in fact, identical with the indirect subsidies of Eilenberger et al. It needs to be added that S. Haghani presents some more classifications of budget support. For example, they can be separated by targeting at problems and instruments, entities providing them and groups of beneficiaries. On the whole, they answer the questions: who?, to whom?, how?, for what purpose?, what is the effect?

Support justification and addressing

W. Ort presents a view that all forms of support to the aforementioned investments should be targeted at strengthening the process of equity creation in budget-privileged farms (Ort, 1977). Since, in normal conditions, equity creation is slow and cyclical, this becomes a particularly serious barrier to development, when upgrades of techniques and technologies in agriculture are intended. Switching to their new generations becomes easier and faster if the state is ready to commit itself financially, which is tantamount with taking over some part of risk by the budget. At this point, however – according to Ort – there is a quite important problem boiling down to a simple observation that risk is an inherent component of market economy. Measures to reduce it cause partial delegitimation of structural policy in agriculture. The type of sectoral agricultural policy is connected to the next justification of support of agricultural investments, namely failure of non-financial markets. These can cause difficulties in the process of agricultural adjustment to changed framework conditions of its operation, which again is visible in low equity creation rate in the sector and insufficient income obtained by farmers. At this moment, it needs to be settled with which factor of production, structural policy should be linked. Because of very high mobility, Ort speaks for capital, which exactly implies the appearance of varied forms of interference in financial and loan markets. It is, however, not easy to establish on the increase in the mobility of which factors of production individual instruments of integration should be oriented. A calm market analysis in the EU somewhat automatically leads to a conclusion that for real and only potential production surpluses it would be more rational to create non-agricultural jobs. According to Ort, there should be no doubts as regards the purposefulness of support for such projects, which produce positive externalities or reduce external costs.

W. Albers makes a polemic review of justifications for the provision of investment aid to farmers (Albers, 1983). Their first group refers to the well-

known failures of market regulations and a thesis that state intervention contributed to a faster and more efficient achievement of the assumed targets. Some supporters of interventions add that the process of market regulation should be corrected since it leads to unsatisfactory results, in political terms. Support to investments causes the problem of surplus production capacities in agriculture. For their lowering it is necessary to release different adjustment changes in the sector. To this end, capital is needed and in agriculture capital is scant. The situation can be improved by the very capital aid from the budget. Unfortunately, the problem is still not fully solved, because some countries used and still use the so-called prosperity clauses, i.e. investment aid does not cover farms of appropriately large scale of production. This means that agricultural politicians using these clauses partially deprecate the basic justification for the necessity of intervention, i.e. the necessity for structural reconstruction of agriculture. For these very reasons the microeconomic income target is introduced into such schemes. This refers to two issues. Firstly, it is obvious that cheaper borrowed capital makes it possible to generate higher financial surplus if other conditions are constant. Secondly, using arguments that support to agricultural investments will strengthen the income potential of farms of beneficiaries, it is easier to convince the opponents of resorting to even other agricultural income support instruments. In the EU a special place among the latter belonged and still belongs to price and market policies. This exactly means that support to investments in its income aspect can be a corrective factor or even a factor correcting the mistakes made in sectoral agricultural policies. In other words, resignation from the market mechanism will, generally, lead to the appearance of a long series of corrective and adjustment interventions. Therefore, according to Albers the intervention practiced in Germany in the area of agricultural investments treated only the effects and not eliminated the causes. In such conditions its grounds are very shaky and the specific degeneration of structural programmes, which results from incorporation therein of the agricultural support targets and impact of agricultural pressure groups, proves that the achievement of the two simultaneously assumed targets (structural and microeconomic) will be, as a general rule, problematic.

M. Müller and P.M. Schmitz see a need to offer farmers cheaper investment capital, considering that it leads to acceleration of changes in the existing economic and social structures, facilitates the necessary adjustment processes and creates a possibility to increase efficiency of applications of respective factors of production (Müller and Schmitz, 1996). Investment aid should be, however, limited only to the initial stages of launching activities and projects considered as priority. Beuermann et al. definitely opt for keeping the state intervention in funding of the area of agricultural investments (Beuermann, Oevermann, Köhne and Mann, 1996). At the level of individual farms it would result in better profitability and liquidity and lower risk of development and rationalisation projects.

A well-designed budget support (targeted at prospective entities and, simultaneously, eliminating non-developing entities) should also have a positive influence on accelerated structural changes in agriculture.

Selection of developing farms

Adequate targeting of investment aid to developing farms is a rather hard nut to crack. For example, in Germany this term was assigned to entities which in the fourth year of implementation of the restructuring programme – supported with budget funds – will achieve income from labour comparable to that obtained in the region in the non-agricultural sector and will be marked by adequate equity creation rate (Albers, 1983; Dabbert and Braun, 2012). Several economists questioned the criteria for delimiting developing farms or at least controverted with them. W. Koester et al. considered that farms capable of development should be marked by social profitability of investments co-financed with preferential borrowed capital, higher or at least possibly little different from its microeconomic profitability and obtaining, at least, parity coverage of committed factors of production (Koester, 1974). Operationalisation of the above-mentioned definition would require accurate investment efficiency statement, which would have to use social costs and revenues, and their microeconomic counterparts. No convincing is necessary to realise that this would be difficult in practice. Another setback surfaces at this point, because the selection procedure refers to the future and hence it is a sort of forecast of a given farm's behaviour. Even if – according to Koester et al. – accurate knowledge on the expected price development had been available, income from labour does not seem to be a good criterion to state that a given farm is or is not capable of development. This is because:

- the level of income obtained over a certain period cannot be used as basis to draw conclusions on its future formation;
- the amount of income from labour provides no information on the execution of a profitable investment, since – as a general rule – farm growth takes place via the medium of net investments; as it is clear, growth here is equated with increase in income potential.

Koester et al. do not reckon that equity creation is a very convincing selection instrument. In this case it follows from the fact that it is virtually impossible to determine a single standard for capital growth rate for all farms – potential beneficiaries of investment aid. In these conditions, the researchers reason to classify or not a given farm to the group of developing farms based on jointly meeting the four criteria:

- Internal Rate of Return on investments,
- consumable income,
- changes in income from labour or net income caused by the investment,
- level of income from labour and net income.

G. Weinschenck and E. Reisch also had objections to the official criteria of selecting developing farms, namely:

(1) without defining certain threshold output values the capital demand referred to the level of income from labour (per farm or labour force unit) assumed in a given programme can turn out to be so high that a growth in consumable income over 10-20 years will come at a high price linked to debt servicing;
(2) regions with small amount of agricultural land in market trade will be most probably endangered by extension of livestock production (fattening of poultry and pigs), which can then cause more severe problems with managing their surplus;
(3) the level of equity creation can be defined only when it is possible to determine withdrawals of capital for private purposes of a family (Weinschenck and Reisch, 1970).

Because of the above-objections, Weinschenck and Reisch suggested their own, quite complex, selection procedure. It covers the use of four detailed criteria:

– income obtained by a farm, which should be an average from several years, accounts duly documented with relevant accounting records;
– capital demand for achievement of the assumed targets and relevant level of profitability co-financed by the investment budget;
– acreage of currently utilised agricultural area with clear identification of own lands;
– level of the existing debt of a farm.

Contrary to the governmental proposal, that of Weinschenck and Reisch expected regional differentiation of all four criteria. This was to mitigate the risks involved in leaving in the regions of favourable conditions too large a number of farms classified as developing and avoiding the case of too small number of such farms in neglected areas. Fleshing out the number of needed developing farms on the scale of the whole former Federal Republic of Germany and individual German lands was to take place in a special optimisation account, which envisaged a clear-cut breakdown of tasks between the federal government and state authorities. The account was to determine the utilised agricultural area which should be at the disposal of a farm capable of development, assuming that its technical equipment is optimally used and the set production scheme is being executed. Thus, the case refers to definition of a developing farm based on labour productivity and not on income.

M. Irion argued with the proposal of Weinschenck and Reisch (Irion, 1971). The author considers a total of eight assumptions adopted by the aforementioned two researchers. In general, this involves questioning of the approach in which a certain pattern (full-time employment economy) representing a specific production type is to decide on the direction of structural development in agri-

culture. According to Irion, there should be a lot of such development patterns, because adjustment processes in agriculture and growth processes in individual farms run along different paths. Consequently, Irion suggested to completely stop supporting directly productive areas in agriculture. Funds, thus resealed, should be used to finance tasks securing structural policy and projects of infrastructural character.

To the criticism Weinschenck and Reisch responded, of course, by emphasising the fact that achievement of goals set in the investment programmes will become possible if the three below groups of farms are separated:

(a) farms capable of development being in a transition phase,
(b) ready to curb their activity "transitory" farms,
(c) "transitory" farms with no possibilities to develop or curb the volume of pursued activity (Weinschenck and Reisch, 1971).

Each of these groups should be differently treated by structural policy. As regards the issue of stopping support to direct agricultural production, Weinschenck and Reisch stated that in the conditions of dropping agricultural prices the potential to self-finance in agriculture would be so low that many farms would collapse. The issue becomes topical again because of deflationary trends. The very EU in the current budget perspective allows its Member States to couple some part of direct payments with agricultural production, which means their coupling.

K. Meinhold et al. suggested that what should decide on the capability to develop is profitability of using factors of production, at the same time, respecting the coverage of set consumption needs of a farming family and achievement of the equity creation rate which would be sufficient to finance the needed development investments, because the income potential created based only on borrowed capital would be too low (Meinhold, Lampe and Becker, 1976). These general guidelines should be then differentiated by production types and systems occurring in agriculture, which will constitute the reference system. To get a high efficiency of investment aid, the reference farms should be characterised by as low as possible profitability of equity. Next, regional aspects should be included in the selection procedure. According to Meinhold et al. this involves incorporation of investment aid for agriculture into the concept of overall rural development and not simply differentiation of its technical principles. In the first place, the approach highlights the "attack" against basic hindrances to the mobility of factors of production in a given region with respective aid instruments.

Whereas U. Koester et al. were against regionalisation of investment support to agriculture by simply watering down the criteria to obtain subsidies and preferential loans in less-developed regions or in regions having less-favourable natural conditions (Koester, Loy and Strieve, 1996). Since such method:

– narrows down the actual development chances for many farms,

– omits social and private differences in net productivity growth caused by an investment co-financed by the budget.

Thus, mitigating the conditions of access to investment aid increased the likelihood of erroneous investments from the perspective of general economy. A better solution is targeting the aid at areas, which in the long-term perspective, have chances to keep their comparative advantages. Ill-conceived and poorly executed regionalisation of such aid can cause misinvestments and create illusions on the existence of development opportunities for some farms. On the other hand, the case is the same when the same principles of awarding support are used country-wide and in some regions too many developing farms can remain and in other a lack thereof (Weinschenck and Reisch, 1970). For the other regions it is necessary to find other development opportunities outside of agriculture.

Methods to assess efficiency of support

A method often used to assess efficiency of agricultural investment support is comparison of the values taken in the plans of farm modernisation and their implementation (Heinrich, Steffens, Kramer and Rost, 1997; Koester et al., 1996; Strieve, Loy and Koester, 1996). The latter need to be confronted also with the guidelines included in the provisions determining the conditions of receiving budget investment aid. As seen from the above, the methodology is targeted, first of all, at mistakes in classification of farms as developing and inherent for loan intervention (problems of free-riding and rent-seeking). This approach, which uses simple methods of descriptive statistics and sensitivity analysis, was in general efficient. It allows, e.g., to determine the scale of "adjustments" of criteria to receive investment aid, place of overestimation and risks to planning sizes and potential size of obtained transfers. The latter are expressed by the so-called value of subsidies (transfers) as per the formula below:

$$T = \sum_{i=1}^{n} Z_i + ZD \times \left[\frac{KWF_m - KWF_{ZD}}{KWF_m} \right] + \ddot{O}D \times \left[\frac{KWF_m - KWF_{ZD}}{KWF_m} \right] \qquad (2)$$

where:

T – value of subsidies (transfers),
Z – value of investment subsidies,
ZD – value of discounted rate loans,
$\ddot{O}D$ – value of loans from public sources,
KWF_m – factors of capital recovery at its market rate, calculated as:

$$\frac{(q-1) \times q^n}{q^n - 1}$$

and: $q = 1 + i$; i – interest rate in decimal; n – period, for which the loan was extended (loan term);
KWF_{ZD} – capital recovery factor at its lowered rate (Koester et al., 1996; Strieve at al., 1996).

This formula refers to practically all agricultural investment support instruments, thus it has the advantage of universality. Should the deliberations in the paper be limited to only preferential loans known in Poland, than the formula (2) can be modified as follows:

$$T = D_v \times (W_u - W_v) \times 1 / W_u \tag{3}$$

where:
T – value of subsidies (transfers),
D_v – value of discounted rate loan (credit),
W_u – factors of capital recovery at its market rate (calculated as in formula (2)),
W_v – capital recovery factor at its lowered rate (Bauer, 1983).

As it follows from the above formulas, the value of subsidies (transfers) reflects the entirety of updated (due to discounting) benefits, which were received by a beneficiary of state financial aid, as compared to the situation when the beneficiary would have to obtain borrowed capital under commercial conditions. If, however, considerations refer to transfers of budget resources included in specified loan (financial) intervention schemes, these should be lowered, at least, by the costs of administering them. L. Strieve et al. go even further, namely they consider the above schemes as a type of financial engineering, which involves the funds of the EU, respective central governments and possibly even regions (Strieve et al., 1996). Therefore, these researchers suggest additionally the introduction of the category of net transfers:

$$NT_R = FM - \alpha_1 EU - \alpha_2 FK - FR - AD \tag{4}$$

where:
NT_R – net transfer for a specific region,
FM – all aid funds,
EU – expenditures of the European Union linked to the given aid scheme,
FK – expenditures of the central government per analysed support scheme,
FR – direct expenditures of the region,
AD – costs of administering the scheme,
– shares of a given region in expenditures of the EU and the central government.

At this point, it should be added that according to L. Strieve et al. the final position in the formula (4) – administrative costs – in the Schleswig-Holstein conditions was at the level of 25-30% of entirety of funds supporting investment activity of local farmers. This is an important value, which can undermine economic rationality of such an intervention.

Researching the efficiency of agricultural investment support can be done by material and logical indexing system created as a result of cooperation of advisers, farmers and scientists (Heinrich et al., 1997). Such a system has to reflect basic assumptions that the central place in the assessment of efficiency is taken by the following issues: achieved or achievable consolidating effects in farms; increase in operating results as a basis for better income situation; growth in farms, i.e. formation of equity multiplication rate in farms at acceptable level of debt. Thus, this refers to the whole multitude of impacts of investment intervention instruments on the economics and finances of farms. This scheme sheds some light on the problem.

Scheme 1

Character and intensity of impact of selected agricultural investment support instruments

Risk for a farm	Subsidised loans	Investment subsidies	Loan surety/ guarantee
Insufficient liquidity	++	+++	+
Too high risk	+	+	+++
Insufficient profitability	+++	++	0

Source: N. Hirschauer, M. Odening, A. Geldermann, Erfolg braucht Sicherheit. DLG – Mitteilungen, no. 8, 1996.

In case of assessment of impact of investment aid instruments in the form of varied preferential credits the following three effects should be achieved:

a) lessening the debt burden,
b) extension of loan possibilities,
c) transfer of funds (Hirschauer, Odening and Geldermann, 1996).

Ad (a). The debt burden, i.e. the amount of capital instalments and interest rate, is compared to the market and preferential conditions of loan extension. The difference between the two values is exactly the saving on account of being covered by a given loan scheme. However, this should be a category reflecting the changes in the value of money over time. Referring to the formula (2), it can be seen that the decrease in debt burden amounts to:

$$ZD \times \left(KWF_m - KWF_{ZD}\right) \tag{5}$$

where: key as in formula (2).

Of course, a simple method to assess the debt savings is determination of the difference between its market and preferential interest rate. Whereas Köhne additionally suggests a formula for a relative saving in capital servicing (Köhne, 1967). This is defined as follows:

$$E_{KD} = 1 - \frac{\dfrac{q_v^N \times (q_v - 1)}{q_v^N - 1}}{\dfrac{q_k^N \times (q_k - 1)}{q_k^N - 1}} \tag{6}$$

where:

E_{KD} – relative saving in capital servicing,

N – length of the loan term,

q_k – market interest rate,

q_v – preferential interest rate.

In general, the saving effect grows when the difference between the market and preferential rate increases and the loan term extends. The last phenomenon results from the fact that along with extension of the loan term the importance of interest rates in capital servicing grows. Subsidisation of loan interest rate can, moreover, bring a saving effect in the form of lower capital costs, i.e. their interest rate by function and depreciation. Köhne determines the effect as:

$$E_{KK} = \frac{(1-S)\times[1/N + x_K \times (q_K - 1)] - (1-S)\times[1/N + x_v \times (q_v - 1)]}{S\times[1/N + x_e \times (q_e - 1)] + (1-S)\times[1/N + x_k \times (q_k - 1)]} \tag{7}$$

where:

E_{KK} – relative saving of capital cost,

q_e – equity interest rate,

S – share of equity in the entirety of the capital,

x_e – factor to determine the average value of equity subject to interest rates,

x_k – factor to determine the average value of borrowed capital subject to interest rates by commercial rates,

x_v – factor to determine the average value of borrowed capital subject to interest rates by preferential rates,

other – as in formula (6).

Ad (b). Extension of the loan possibilities is a simple consequence of the above-stated lower interest rate on licensed loans. According to the above the following formula emerges:

$$\frac{ZD \times \left(KWF_m - KWF_{ZD}\right)}{KWF_m} \tag{8}$$

where: key as in formula (2).

It needs to be explained at this point that the result obtained in formula (6) can be given, e.g. per 1 ha of UAA. Hence, for the entire farm the final result will need to be multiplied by the acreage at the disposal. Regardless of the calculation method, extension of loan possibilities should be each time understood as the capability to service additional loan portion, and not the very amount of such a loan (this will be, as a general rule, much higher).

Ad (c). The transfers included in the investment aid instruments are best determined by formula (2). Of course, it is possible to analyse separately loans from public sources and subsidised loans. Then formula (3) or (5) can be used.

Ambiguous efficiency

Agricultural investment support has always raised controversies. It has some positive effects, but generally these are outweighed by the negative ones. For example, investment subsidies can have a positive impact via:

- focusing on building investments, which can improve the production structure, working conditions and profitability of farms, giving good grounds for their further development;
- increasing the international competitiveness of agriculture;
- contributing to keeping in agricultural production a greater number of individual entities participating in the overall development at the expense of overconcentration, but large enough to be able to achieve economies of scale (which should lead to cheaper food);
- mitigating regional differences in development of agriculture (Henrichsmeyer and Witzke, 1996; Köhne, 1996; Köhne, 1983).

Focusing exclusively on microeconomic issues, it is possible to name a whole string of weaknesses and dysfunctions of investment aid provided to farmers. This concerns mainly the following:

1. Budget funds are used also by farms, which could make do without them (free-riding effect). This may concern even 30-40% of cases.

2. The use of maximum limits (i.e. prosperity clause) and minimum physical values of livestock density leads to inefficient investments.
3. Cheaper borrowed capital increases the risk of misinvestment, which is additionally magnified by maximum and minimum support limits.
4. Provision of investment aid in the sector, which is characterised by strong integration in markets of producers, is highly problematic since it inevitably involves further regulation of the markets.
5. Procedures of application for aid are time- and cost-consuming, and often too many months lapse between submission of an application and its approval and receipt of funds. This forces farmers to shift the moment of starting investments and/or their refinancing, as a result of which financial costs can grow and the moment of obtaining positive financial flows shifts in time.
6. Restrictions in the amount of investments co-financed by the budget can reduce the potential benefits of scale, which leads to obtaining insufficient efficiency of commitment of public funds.
7. The state aid is in general subject to taxation and the higher it is, the taxation burden is higher.
8. Very often the access to cheaper borrowed capital leads to farmers choosing more capital-consuming variants of a given investment implementation.
9. Participation of banks in investment aid programmes is linked with specific inputs and costs, which are transferred to farmers, reducing the net effect of support (Koester et al., 1996; Köhne, 1983; Köhne, 1996; Musshoff and Hirschauer, 2013).

Selection of the support instrument can also be important as it comes to efficiency of the entire governmental programme. This is evidenced by the research of, e.g., H. Jochimsen and G. Leiner (Jochimsen and Leiner, 1978). These researchers compared farms with preferential loans and preferential public loans. As a result of control it was found that in the first subgroup 26-42% of farms were termed as non-developing (differences followed from using varied types of entities), and in the second subgroup there were 12-14% of them. These numbers confirm the above-mentioned difficulties in the satisfactory delimitation of candidates for provision of aid. The reasons for the situation in place can be generally boiled down to underestimation of some planning assumptions (mainly concerning withdrawals for private purposes, capital costs and rents), and overestimation of other (efficiency, revenues, cost degression).

A direct manifestation of inefficiency of the support scheme is the appearance of equity losses at farms of beneficiaries. This can be caused by:

– imprecise estimation of financial needs and inadequate methods of coping with their gradual piling up;
– taking too optimistic assumptions as regards the expected revenues and efficiency, and the price-cost relation;

– underestimation of the possible risks and inability to manage them;
– higher withdrawals from the farm for private purposes (Bauer, 1983).

Thus, it comes as no surprise that only less than half of the supported farms reaches a real increase in equity (Dabbert and Braun, 2012; Musshoff and Hirschauer, 2013).

Among the weaknesses of steering of the process of transferring investment funds for agriculture the first to mention is a significant imperfection of the procedures for selection of developing farms and mellowing the system by the activity of varied interest groups in agriculture and contradictions with other types of interventions (Albers, 1983; Hirschauer et al., 1996). Moreover, there are usually important difficulties in matching the aid scheme targets with the regional development. Finally, serious doubts are raised by the purposefulness of supporting investments, which force the state to extend price and sales guarantees, which as a result leads to greater imbalance in some agricultural markets and will require taking up intervention measures, which causes that:

(a) some part of farms, without the state aid, would resign from agricultural activity, which would improve the functioning conditions for entities that cannot apply for preferential loans or investments subsidies;
(b) majority of budget aid is allocated to investments in economic construction or goes to entities located in grasslands; this led to a growing market value of milk quotas and restriction of development perspectives for entities "undeserving" of the taxpayer's money;
(c) it is straight out unjustified to finance land purchase with subsidised funds, since it leads to land market deformity and already known constriction of development opportunities for farms not benefiting from governmental aid; a smoothly run lease market would allow farmers to spent their funds on modernisation of their farms instead of spending it on land purchase (Kay et al., 2012; Koester et al., 1996; Musshoff and Hirschauer, 2013; Strieve et al., 1996).

Conclusions

Only Keynesian and Post-Keynesian economics directly justify the direct budget intervention in investments in agriculture; hence, extending the financial potential of the sector and emphasizing the failures and incompleteness of financial and loan markets, and unpredictable shocks and various discontinuities, followed by slow return to the equilibrium of the real area. Other schools of orthodox economy can suggest, at most, that there is a need to exercise indirect impacts, i.e. basically focused on encouraging farmers to invest by creating favourable conditions for such an activity. Traditional public and agricultural finances extend the list of justifications for intervention with slow capital circulation in agriculture and, consequently, low profitability, equity creation rates

and cash surpluses. Orientation of public and agricultural finances on the public selection school, then shows that all financial interventions in agriculture have its source in the activity of interest groups, resulting in rent-seeking and free--riding, and trends for its self-support and consolidation. Hence, the methods of researching the efficiency of public investment aid have to, at the level of the national economy and the agriculture, consider its allocation, redistribution and stabilising dimension. Whereas at the level of farms it is also necessary to research financial profitability, liquidity and stability. Most of the empirical research shows that efficiency and effectiveness of the direct budget support to agricultural investments is, in general, low. This suggests a need to re-orient aid more too indirect instruments and eliminate barriers to investments and structural changes, and in the very financial instruments to their greater concentration in returnable forms.

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DYLEMATY BUDŻETOWEGO WSPIERANIA INWESTYCJI ROLNICZYCH

Abstrakt

Inwestycje rolnicze są kluczową determinantą wzrostu i rozwoju ekonomicznego tego sektora, jego elastyczności i stabilności oraz poprawy położenia dochodowego i cywilizacyjnego producentów rolnych. Z drugiej natomiast strony, ich finansowanie stanowi poważne wyzwanie. Wynika to z typowego dla rolnictwa powolnego cyrkulowania kapitału, niskich i wysoce zmiennych stóp kreacji funduszy własnych i nadwyżki pieniężnej. Do tego dochodzą, mocno akcentowane przez ekonomię keynesistowską i postkeynesistowską, zawodności i niekompletności rynków finansowych, a szczególnie kredytu, w otoczeniu rolnictwa.

W takich to warunkach w większości krajów świata budżet angażuje się w sferę inwestycji rolniczych. Wsparcie to najczęściej ma charakter bezpośredni, a więc oddziaływuje na potencjał finansowy rolnictwa, i na skutek mechanizmów ekonomii politycznej ma tendencję do utrwalania się. Dlatego też metody oceny efektywności budżetowej pomocy inwestycyjnej powinny równocześnie uwzględniać jej aspekty alokacyjne, redystrybucyjne i stabilizacyjne.

Z dokonanego w artykule przeglądu wyników badań empirycznych wynika, że efektywność tej pomocy jest zazwyczaj niska i może nawet pogłębiać problemy rozwojowe sektora rolnego, prowadząc do podejmowania kolejnych interwencji publicznych. Pożądane byłoby zatem, aby politycy rolni i twórcy programów budżetowego wspierania inwestycji rolniczych więcej uwagi poświęcali tworzeniu klimatu pośrednio zachęcającego do ich podejmowania i udostępnianiu instrumentów zwrotnych.

Słowa kluczowe: interwencjonizm finansowy i kredytowy w rolnictwie, inwestycje rolnicze, efektywność inwestycji rolniczych.

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