The characteristics of farmers applying for the EU investment support in Poland[1]

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Abstract: The paper aims at improving our knowledge about the response of farmers to a major instrument of the rural development policy in Poland. Close cooperation with the managing Agency was established in order to collect and analyze the data included in the application forms. They served as a basis for calculating linear correlations and descriptive statistics, which in turn, wherever possible, were compared with the relevant data for the entire farming population in the region under study. It turned out that our sample was characterized by a significantly higher level of education and bigger holdings than the national or regional averages. Furthermore, we observed that the SAPARD contributed to the backward contractual market channel integration in the agri-food sector. Finally, it was found out that Polish farmers showed a very limited interest in those schemes that promoted specialization of their farms, contrary to the assumptions endorsed in the Operational Program.

Key words: investment support, market channel integration, diversification strategy, farmers, Poland

One of the most fundamental barriers to the modernization of the Polish agri-food sector, there is the shortage of capital, which could serve to finance investments, although in certain branches of the food-processing industry, Foreign Direct Investments have played a positive role with regard to this (Senior Nello 2002: 12–13). The key to success lies in the adoption of a strategic approach, the condition sine qua non of which is the availability of capital to make the necessary investments. The SAPARD program attempted to provide a solution. Indirectly, it encouraged the beneficiaries to adopt marketing strategies, which are invaluable as far as raising their competitiveness is concerned, especially taking into consideration the fact that in the Central and Eastern Europe, mass production too often tends to prevail over targeting specific market segments (Viaene and Gellynck 1999: 126). In the analysis of investments generated with the aid of the SAPARD fund, we should bear in mind that investment decisions depend on numerous factors, many of which are independent on the program, like the current and expected macroeconomic situation and legal environment, as well as the costs of bank loans and opportunity costs of investing the capital elsewhere, e.g. in state obligations. The choice of an optimum business investment strategy depends not only on the goal of minimizing the transaction costs but also on the approaches to manage risk and flexibility as suggested by the real options theory as well as the critical strategic objectives (i.e. the exploration of new technologies and partners, the exploitation of the technology rents through the market power, the pre-emption and retaliation) (Pena 1999). Critical success factors for the diversification of small and middle-size farming businesses in the Czech Republic were distinguished by Hron et al. (2008). An appropriate diversification of the portfolio of economic activities may help to reduce the potential losses (Buchta and Buchta 2009). The SAPARD offered opportunities to adopt a diversification strategy not only inside agriculture (towards other products), but also outside it (towards other activities in the rural areas). In Slovakia, the greatest interest after the EU accession was aimed at agritourism and rural tourism (Buday et al. 2009).

It is worth noting that the EU aid programs do not replace the national policies, but only complement them. It is often pointed out that the state should consider its engagement in the following domains: food aid programs for the poorest strata of the society, promotion of Polish food abroad, better enforcement of the existing regulations, increasing their flexibility, spreading information about the available opportunities (Urban 2002). Furthermore, it ought to be empha-

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sized that the policy of stimulating rural development should have a much broader scope than the SAPARD measures which have been implemented in Poland. Many authors underline that the sectoral approach of supporting the agri-food system should be replaced by a horizontal, territorial-based policy of stimulating rural entrepreneurship (Leon 2000; Bryden and Hart 2001). The balance between these two approaches is still subject to hot debates at various levels and has a prominent political dimension in Europe.

MAJOR CHALLENGES FACED BY POLISH AGRICULTURE

It seems that a greater importance should be attributed to the relative labour productivity in the agriculture of the Central and Eastern European Countries (CEECs) (measured as a ratio of the output value per person employed in agriculture to the value added per 1 employee in other sectors of the economy) than to the absolute figures. It turns out that the competitiveness of Polish agriculture measured in this way is lower than in the other new EU member states, and worse by half than in the EU-15. It is the result of a huge covert unemployment in the primary sector of Polish economy. The low productivity of agricultural labour in Poland constitutes one of the major obstacles to its successful integration into the EU. One of the major problems of Polish agriculture is the obsolete machinery and equipment. It is estimated that only every seventh Polish farm is equipped well enough.

Some experts see a chance in the development of organic agriculture or the so-called ecological alternative, as it may be a way to 'consume the rent of underdevelopment' of the CEECs. Since the popularity of organic food grows quickly in the European Union, which is accompanied by a fast expansion of the areas granted a special certificate, the prospects for this kind of activity seem favourable. The increasing demand for organic products is stimulated by the growing ecological consciousness of consumers and the rise in the affluence of European societies. Other reasons include a higher quality and a better taste of organic products and a mere curiosity. We must not pretend, however, that organic farming, which sometimes may be regarded as a model path to sustainable development, will solve the problems of the CEECs' countryside in a miraculous way, because they stem to a large extent from the low productivity of production factors and from international circumstances. Although in the 1990s the number of organic farms in Poland increased six times, the scale of the phenomenon remains rather marginal because of insufficient profits. A significant barrier to their development is posed by the weak distribution networks and processing industry for organic products.

To some extent, the low land productivity in the CEECs is a consequence of the production structure and the farm structure. Generally, the number of livestock per 1ha is lower than in the EU 15. Horticulture and viticulture are not so well developed. However, the yields per 1 ha for the traditional crops are also significantly lower than in the EU 15 in most cases, which is due to many causes, including a lower use of external inputs like fertilizers and crop protection chemicals. The generally low productivity of factors in the agriculture of the CEECs is the result, *inter alia,* of their disadvantageous farm structures. During the period of the centrally planned economy, most of these countries had a low share of private holdings in their farm structures, ranging from zero in the Czech Republic to 13% in Bulgaria, with the notable exceptions of Poland (77%) and Slovenia (92%) (European Commission, 1998: 19). The common feature of the CEECs that used to have a collectivized agriculture is that the dualistic character of their farm structures, consisting, on the one hand, of huge co-operatives and state holdings, and, on the other hand, of very small private farms or plots, is becoming outdated. This favourable trend is likely to continue, thanks to which the efficiency of the primary sector in these countries will grow. The great farms will reach a size allowing for a more sound management, whereas the small ones will increase their area, so that they can take advantage of the economies of scale. However, the latter will produce mainly for their own needs and the local markets, which will prevent them from reaping substantial benefits from the integration with the EU, given their reluctance to form producer groups and co-operatives based on new principles.

In Poland, where the processes of collectivization have never been strong, private farms occupy 83.7% of the agricultural area. Before the SAPARD was launched, their average size was 7 ha, which was 38% of the EU-15 average (Ministry of Agriculture 2000: 12–15). In 2002, there were 1.956 million farms with over 1 ha of the UAA in Poland, the majority of which (58.7%) had only 1–5 ha, which accounted for 19.1% of the UAA. Farms with an area of over 20 ha constituted only 5.8%, but covered over 1/3 of the UAA. It should be noted, however, that the regional differences in Poland are considerable (from 3 ha in the South to 18 ha in the North-West) (Ministry of Agriculture 2004: 17–18). Since 1990s, Poland has undergone a process of polarization of its individual

farm structure. If we consider a longer time horizon, we will realize that the structural changes had been taking place much faster in the EU-15 countries than in Poland. Since 1960, the average size of an agricultural holding in the EU-15 has increased by 4/5, whereas in Poland not even by 1/5 (Kolodziej 2000). Therefore, the CAP contributed to structural adjustments or the Polish economic system prevented them or – which is the most probable – both factors played a role, together with the crucial impact of the sustained and dynamic development of the service sector in Western Europe. A structural reform of the agricultural sector in Poland is necessary to raise its productivity, irrespective of the European integration. According to the 2002 Agricultural Census, a vast proportion of Polish farms had weak or no connections with the market. Among farms having at least 1 ha of the UAA, 17.1% were not involved in farming on a permanent or temporary basis, 10.6% produced exclusively for their own needs, 25.5% produced mainly for their own needs and sold only the surpluses (subsistence farming), and only 46.8% produced mainly for sale (Ministry of Agriculture 2004b: 19). The unfavourable farm structure, coupled with a low level of state intervention in agricultural policy, contributed to a disadvantageous income situation of Polish farmers compared to the rest of the society. In the period 1995–2000, farm income dropped by as much as 50% in average, whereas the real income of all Polish households grew by 21%. In 2002, the disposable income of a family living in the rural areas was lower by 30% than in the urban neighbourhoods (Ministry of Agriculture 2004b: 14).

It should be emphasized, however, that the economic success of a given farm is not unequivocally determined by its size. Some experts claim that it is the quality of labour that is decisive. Nevertheless, the production units should adapt their strategy to their area conditions. Smaller farms should adopt a strategy of differentiation, the example of which may be the production of local specialty articles, organic agriculture, agri-tourism. The main condition of success of such a strategy is the right recognition of market niches and placing there one's product, for which a minimum of marketing knowledge and a well-developed system of agricultural counselling are indispensable. Bigger agricultural holdings may also use strategies aiming at reducing unit costs. It is estimated that under Polish conditions, it applies to about 15–20% of farms, which are capable of exploiting the economies of scale, whereas it concerns about one half of the EU-15 farms (Pulinski 2000: 130). Moreover, it should be underlined that all CEECs' farms that wish to preserve or acquire a market character must create sufficiently strong links with the processing industry. Thanks to it, the standardization of agricultural products and their appropriate quality would be ensured on the one hand and the certainty of the outlet on the other hand. Vertical integration in the agri-food sector would contribute to the reduction of transaction costs, and thus increase the efficiency of the entire system. Finally, to face the foreign competition, which is bound to increase, a concentration of enterprises is needed in certain branches (e.g. milk co-operatives), which will enable, *inter alia,* a better conduct of the advertising and promotion activities. It may already be observed that as far as the East-West agricultural trade is concerned, the non-price competitiveness like economies of scale, technology gaps and strategies of product differentiation are gaining importance (Berkum 1999: 267).

The situation of Polish food-processing enterprises has an important influence on the competitiveness of Polish farms, as it determines the ability to respond to the demand for high value-added products and export opportunities. The low efficiency of the factories before the EU accession resulted from their outdated technology as well as the generally poor management skills. The industry was highly fragmented, which aggravated their chances to implement rapid modernization strategies. At the end of 1990s, the average efficiency of Polish food industry was 2/3 below the EU average. This comparison was made on the basis of an index constructed with the use of three indicators: labour productivity, the share of exports in the total sales, and the quality of the production potential (Urban 1999: 16–17). In addition to the demand pressures, Polish food-processing industry, especially the dairy and meat sectors, was confronted with the necessity to adjust to the transformation of its legal environment due to the introduction of the highly demanding EU quality standards in the sanitary, veterinary and ecological domains. There was a need to start the implementation of the HACCP quality management system. The adjustments to be made were often very expensive, which justified some form of state intervention to help the firms concerned. It was the role of the SAPARD. The emergence of export opportunities both within the enlarged EU and beyond it constituted another important factor in the decision-making process regarding technology investments in the Polish food-processing enterprises.

SAPARD IMPLEMENTATION

The SAPARD applications started to be collected in Poland by the implementing agency on July 17,

2002, with a delay of 2.5 years. As far as the measure focussed on the diversification of economic activities in rural areas is concerned, the delay was as much as 4 years, which was particularly disappointing in the context of the extremely high unemployment rates at that time. Only farmers could submit their projects uninterruptedly, whereas food-processing enterprises and local authorities had several periods during which they could apply. The interest on the part of food-processing enterprises and farmers was initially lower than expected, though the trend was positive and very similar to a square function, possibly due to the demonstration effects and information campaigns. The success of the SAPARD program depended to a large extent on the ability of all the interested parties to draw the appropriate conclusions from their experiences by becoming 'learning organizations'. Everyone needed to learn quickly to adjust to the emerging circumstances. This quickness of reaction seemed to be missing in almost the entire system, i.e. in the national and the European institutions and among the potential beneficiaries (maybe with the exception of local authorities). This argument may be supported by numerous examples. Let us draw your attention to the extremely long accreditation and other administrative procedures linked to the program management. For instance, on December 18, 2002, the Polish Monitoring Committee proposed certain changes regarding the co-financing level, the eligibility criteria and financial limits, but they have not been implemented until the end of May 2003, even if no other administrative body involved expressed its clear opposition. It is also crucial that farmers understand the logic of the free market system and adopt a marketing approach to the management of their holdings. To put it crudely, they should become aware that one should sell to be able to produce, and not the other way round (Andrychowicz et al. 2000: 74). The delay in the SAPARD implementation may have contributed to the slow average annual rate of increase of fixed assets in Polish agriculture. The study of Zwolak (2008) showed a decreasing productive efficiency of Polish agriculture in the period 2002–2005.

Until the end of the phase of collecting applications, 15 586 farmers applied for the farm investment grants in Poland, and 2693 farmers applied for the support for non-agricultural undertakings. Table 1 presents the uptake of the SAPARD farm investment grants by Polish farmers. It is worth noting that while the structure of applications submitted by the food-processing enterprises is roughly consistent with the expected allocation of the SAPARD funds, farmers have shown their vivid interest in the scheme of the diversification of agricultural production, which was assumed to take only up to 10% of the available funds. The research study conducted by the author in the regional branch of the implementing agency showed that 70% of the SAPARD funds requested by farmers concerned the agricultural diversification scheme,

Table 1. The SAPARD applications submitted by Polish farmers by the branch of activity

Region	Index	Farm investment support applications						
		milk	animals for slaughter				agricultural diversification	total
			cattle	sheep	pigs and poultry	subtotal		
Lodz	sum	121	3	4	54	61	895	1077
All 16 Polish regions	sum	1 178	68	44	937	1 049	13 359	15 586
	structure (%)	7.56	0.44	0.28	6.01	6.73	85.71	100.00
	mean	73.625	4.250	2.750	58.563	65.563	834.938	974.125
	median	34.5	3	3	35.5	42	517.5	632
	standard deviation	83.693	4.987	2.082	72.293	71.838	869.500	928.157
	variance	1.137	1.173	0.757	1.234	1.096	1.041	0.953
	minimum	7	0	0	9	20	154	186
	first quartile	17.25	1	1	23	29.5	215.5	276
	third quartile	115	4.75	4.25	54	59.5	1 096	1 299.25
	maximum	306	20	6	286	294	3467	3718
	skewness	1.714	2.393	0.228	2.629	2.697	2.013	1.895
	kurtosis	2.882	6.535	–1.371	6.891	7.250	4.973	4.308

Source: own calculations on the basis of the Ministry of Agriculture (2004a)

whereas at the national level, it was 78.2% of payments executed until 30 June 2004. Furthermore, this scheme accounted for 85.7% of all SAPARD applications made by Polish farmers interested in developing agricultural activities. At the same time, the interest of Polish farmers in those schemes that favoured specialization was very limited. As far as milk producers are concerned, there were 1178 applications instead of 8–9 thousand assumed in the SAPARD Operational program. As for meat cattle, there were 68 applications instead of 3–3.5 thousand. Sheep owners submitted 44 applications instead of 800–1000. We should note, however, that the Operational Program was designed for the seven years (2000–2006), while the actual time of implementation was much shorter due to a very long initial delay, and an earlier termination stemming from the accession of Poland into the EU in May 2004. Notwithstanding this, the interest in the scheme of agricultural diversification was much greater than expected, as the Operational Program assumed 2–2.5 thousand applications, and the real figure was over 13 thousand over a much shorter time-span!

There were considerable discrepancies among different Polish regions, regarding the number of applications not only in absolute terms, but also in relation to the number of agricultural holdings and the utilized agricultural area. For instance, in the Pomorskie Voivodship (Central North of Poland), one SAPARD application came out of 69 agricultural holdings in average, whereas in the Podkarpackie (South-east), more than twelve times more farms (868) were necessary in this regard. If we take into consideration the ratio of the number of applications to the utilized agricultural area, it is the Swietokrzyskie (26.6 applications per 10 000 ha UAA) and the Mazowieckie (18.5) regions that were the most active, while the Zachodniopomorskie (3.3) and the Podkarpackie (4.1) performed the worst.

There exist strong (linear function) correlations between the number of the SAPARD applications by farmers across the regions and the number of farmers assessing their holdings as having potential for further development, and the number of farms producing mainly for the market (Table 2). It is significant that these correlations are much stronger than those between the number of the SAPARD applications and the overall number of farms, if we ignore their development potential. Therefore, one may cautiously infer that the SAPARD benefits mainly the best performing, optimistic and dynamic farmers.

Hypotheses on the selective uptake of the SAPARD among Polish farmers

Polish farmers preferred to apply for a SAPARD grant to diversify their agricultural activities instead of seeking the support for specialization. The causes of the observed phenomenon are difficult to determine. We may suppose, however, that one of the reasons was the lack of tradition of specialized farming in Poland. Another explanation can be linked to the issue of risk. On the one hand, initiating a new direction of agricultural activity is inevitably prone to the risk of failure, strengthened by the lack of experience and market knowledge, but on the other hand, diversification of activities is a way of reducing the total risk in any enterprise, and in an agricultural holding in particular, as it is especially vulnerable to price fluctuations and weather conditions. Finally, we may suspect that the unusually high return rates expected for certain schemes in the Operational Program could stem from the desire of the authors of

Table 2. Potential causes of regional differences in the number of SAPARD farm investment grant applications in Poland (linear function correlation coefficients)

No.	Correlation	*r*
1.	number of applications and the number of holdings	0.63
2.	number of applications and the UAA	0.82
3.	number of applications and the value of fixed assets in agriculture	0.88
4.	number of applications and the value of agricultural investments in 2000	0.70
5.	number of applications and the average size of an agricultural holding	–0.23
6.	number of applications and the region's share in marketed agricultural production	0.84
7.	number of applications and the number of holdings producing mainly for sale	0.90
8.	number of applications and the number of farmers assessing their holdings as progressing	0.92

Source: own calculations on the basis of the Ministry of Agriculture (2004a); Main Statistical Office (2002, 2003a, 2003b); Michna (2001: 56)

this document to conform to the general philosophy of the SAPARD program, based on supporting mainly those branches of the agri-food sector that faced the strictest EU regulations and the most dramatic changes in their legal and administrative environment due to the forthcoming accession.

The lower than expected uptake of the SAPARD funds by certain categories of Polish farmers may stem from the following factors: too restrictive conditions of receiving the aid, regarding e.g. The current production, co-financing rules; the lack of one's own funds to finance the investment; too expensive bank loans; a too complicated application form and procedure; too short deadlines for applications; an insufficient level of the education of Polish farmers; a lack of experience in preparing business plans and bookkeeping; insufficient information about the program; the reluctance to form producer groups; improper functioning of agricultural counselling; a long delay in the implementation process (Bryla 2002). Most of these obstacles were confirmed in the European Commission report (2003: 50–51). Based on the contacts and interviews with Polish farmers, the following main factors were identified as discouraging farmers from applying for the assistance under the SAPARD program: a difficult financial situation of agricultural holdings; costs of credits involving refunding; the fact that costs incurred are only reimbursed after the completion of the project; the lack of own funds; the volatile situation on the market, and the apprehension relating to the possible lack of outlets for the given products; a short project duration; low eligible initial and target production levels; a volume of financing; formal difficulties in collecting the supporting documents; difficulties in meeting the age, education, insurance or experience formal criteria; and the possibility of financing the project from other sources, like the national preferential credits.

More generally, the propensity to make investments has a strong correlation with the business outlook. If there is a boom, v farmers tend to think that it will continue, therefore they invest more. If their expectations become less optimistic, they have a weaker propensity to invest. In order to generate new investments, then, much stronger incentives are needed than would have been necessary to sustain a favourable business outlook according to the leading Polish agricultural economists (Wos 1999: 20). By no means should the psychological factor be underestimated (Nuthall 2001). Moreover, it seems very important to develop in Poland a habit and a capacity of long-term planning and strategic thinking. The extreme economic and legal volatility so far has had a negative impact on these processes. The long-term programming procedures, which form the basis of almost all EU actions, have been lacking in the Polish socioeconomic reality (Wilkin 2003: 51). This short-term approach, reinforced by the lack of multiannual budgetary planning, constitutes a significant obstacle to the development of the evaluation culture in Poland (Bryla 2007).

The scarcity of producer groups among Polish farmers deserves a special attention as well. Well functioning co-operative institutions could have a considerable impact on the SAPARD uptake indicators. Therefore, it is absolutely crucial to identify the existing barriers to the producer group formation. They may be divided into three categories: 1) mental, 2) economic, organizational and legal, and 3) related to the agricultural counselling system (Boguta 2003). A precise definition of the conditions of the relationship between a producer group and its members would have to be established. A greater reliance on written contracts, the inter-group cooperation, and the involvement of the local authorities are also recommended (Witoslaw 2002). Better information about the potential benefits of one's belonging to a producer group is hard to overestimate. A serious barrier to the action by Polish farmers is the tradition of the excessive independence, which is very well expressed by the overinvestment in the specialist farming equipment, whereas it would be much more effective to agree on a common exploitation of machines (Chalupka 1999). These problems inevitably lead us to the recently very fashionable concept of social capital. Let me only draw your attention to the excellent article discussing the link between the social capital and entrepreneurship and producer surplus (Westlund and Bolton 2003). Finally, an interesting comparative study for co-operative movements in Denmark and Poland drawing on the concept of social capital was published recently (Chloupkova et al. 2003). It argues that the level of social capital is significantly higher in Denmark, because the original accumulation of social capital in Poland was destroyed by the communist system. By no means should we underestimate the importance of the factor of trust. It applies both to the propensity towards horizontal integration (producer organizations), vertical integration (cooperation between farmers and food processors), and the relations with government agencies. The third aspect was explored by Zawojska (2010).

The characteristic features of farmers applying for the SAPARD

It seems interesting to verify whether the profile of the actual beneficiaries of the program resembles the

characteristics of the average farmer. Therefore, some comparisons need to be made, especially regarding the holding size and such socio-demographic features as gender, age, and the education level of the farmer. Our research concerns 42 SAPARD applications submitted by farmers in the Lodz region during the first year of the program implementation. A number of research methods were considered while designing the study. The principal reason for selecting the SAPARD documentation was the conviction about its relatively high credibility as the data source.

According to the results of our research study, the average size of the agricultural holding of farmers applying for the SAPARD in the Lodz region was 23 ha, and the median was 18 ha. Full 3/4 of the applicants' farms had more than 12 ha. The milk-producing holdings applying for the SAPARD had as much as 39.1 ha in average, for pork and poultry producers it was 12.2, and for the applicants aiming to diversify their production patterns, the average farm size reached 20.2 ha. This is significantly above the corresponding levels for all the farms located in this area. The agricultural census of 2002 showed that over 60% of agricultural holdings in the Lodz Voivodship had less than 5 ha, and less than 6% had more than 15 ha (Main Statistical Office 2003b). Among the actual beneficiaries' holdings, the average employment of men was 1.33, whereas for women it was 0.74 of the full-time employed persons. Among the holdings managed by farmers having only primary or vocational education, it was 2.89, whereas farms belonging to persons with at least secondary education had a lower average employment level: 1.78, even if their size was almost the same. Therefore, we may expect that labour productivity in the farms of better educated applicants was significantly higher. If we only take the number of persons employed in all the farms under study without making the adjustments for the working time, it was 2.93. For the entire farming population in the Lodz region, no comparable data were obtained. However, the agricultural census showed that 183.9 thousand people were employed in their own agricultural holdings, 83.2 thousand of whom were women, while there were 209 679 farms in the Lodz region. We should also bear in mind that women staying on the farm devote about 1 hour less per day to agricultural activities than men.

The average age of the employed persons in the beneficiaries' holdings was 38, and the applicants themselves were 42 years old in average. The program requirements set the maximum age of the applicants at 50, which was quite a serious restriction. Because of their age, many Polish farmers might not pass their holding on to their inheritors (they were too young to be granted the agricultural retirement pension in Poland), but their being over 50 eliminated them from the participation in the. Some young farmers, in turn, were not able, for the same reason, to prove a sufficiently long experience in managing a farm on their own (European Commission 2003: 50). A high share of female applicants could also be linked to this age criterion. Namely, some farmers' wives may have signed the application form, because their husbands were already too old.

As far as the education level is concerned, out of the 42 applicants under study, 23 had secondary education, 8 graduated from a university or another higher-education institution, 7 had only vocational training, 3 completed their education at the primary level, and for 1 farmer no data were available.

Table 3. The linear function correlation coefficients for the selected features of farmers applying for the SAPARD in the Lodz region

No.	Correlation	*r*
1.	size of the holding and the age of the applicant	0.14
2.	number of persons employed and the age of the applicant	0.23
3.	number of persons employed and the size of the holding	0.44
4.	number of calculated full-time employees and the age of the applicant	0.19
5.	number of calculated full-time employees and the size of the holding	0.47
6.	number of women employed on a calculated full-time basis and the size of the holding	0.24
7.	amount of the grant and the size of the holding	0.37
8.	amount of the grant and the age of the applicant	0.14
9.	amount of the grant and the number of persons employed	0.29
10.	amount of the grant and the number of calculated full-time employees	0.46
11.	amount of the grant and the number of women employed on a calculated full-time basis	0.30

Source: own research

This structure of the educational background of the SAPARD applicants was largely incompatible with the proportions observed in the entire farming population in the Lodz region or in Poland as a whole. The 2002 census painted not a very bright picture in this regard: 42% of Polish farmers had only primary education or even incomplete primary education, 36% ended their education with a vocational training immediately after the primary school, 19% had secondary education, and a mere 1.4% boosted a higher-education diploma. Therefore, the average SAPARD applicant is much better educated than the average Polish farmer. On the one hand, it seems to be a positive phenomenon, as the public resources are allocated to the best prepared farm managers, but on the other hand, it is not entirely consistent with the solidarity and equity principles. Thus the economic angle seems to outbid the social one. Probably better educated farmers were at the same time better informed about the opportunities provided by the SAPARD and were able to prepare their applications properly. Presumably, they were also more open to changes and eager to adopt highly entrepreneurial strategies. The role of human capital in agriculture was explored by Soukup (2007).

It may be interesting to look at the (linear function) correlation coefficients for the selected features of the SAPARD applicants and their holdings in the Lodz region (Table 3). For instance, there is a fairly strong correlation between the size of the requested grant and the number of the equivalent full-time employees on the farm.

The financial aspects of the SAPARD investments made by farmers

The author's research shows that the mean total value of an investment submitted for the SAPARD co-financing by farmers in the Lodz region was 90 577 PLN (i.e. about 20 thousand EUR). 96.3% of it constituted the so-called net qualified costs, on the basis of which the actual subsidy was calculated. As far as the aid is concerned, it amounted to 42,687 zlotys in average, which accounted for 49.3% of the qualified costs due to the co-financing rules. Only 23.4% of the total costs were covered by bank loans. It is worth noting that over a half of the applicants did not use a bank loan at all. Therefore, certain adjustments seem necessary so that the availability of external sources of financing should be improved. In order to improve the functioning of rural development programs among Polish farmers, their access to bank loans needs to be facilitated. The highest SAPARD subsidies were claimed by milk producers (49 068 zlotys). Farmers wishing to diversify their production received 41 816 zlotys on average, while the pork and poultry producers got only 36 456 zlotys. Bank loans were the most popular among those applicants who wanted to diversify their production (25.8% in average).

Regarding the destination of the SAPARD-supported investments, it might be interesting to look at the following data. The structure of the value of investments for milk producers applying for the SAPARD was the following: 22.4% for buying machines to produce and store fodder, 20.9% for animal waste management equipment, only 2.2% for machines to freeze milk, 21.7% for the extension of buildings, 9.7% for the modernization of buildings, 12.5% for purchasing animals, and for 10.5% of the investment value the data of which were incomplete. If we take those SAPARD applicants who specialize in pork or poultry production, 62.8% of the total investment value was earmarked for new machines and equipment, 11.2% for waste management, and 26.0% for the modernization of buildings. As far as the most popular SAPARD measure among the farmers in the Lodz region is concerned, i.e. agricultural production diversification, it is worth noting that farmers planned to spend 91.3% of the funds on the development of horticulture, 6.8% on other kinds of plant production, only 0.2% on animal production, and 1.7% on the equipment used for the preparation of the products for sale.

It may be interesting to point out that the proportion of the costs of the construction and modernization of buildings in the total investment value was extremely different for farmers compared to the food-processing enterprises in the Lodz region. The latter devoted to this end as much as 67.4% of the qualified costs, whereas new machines and equipment consumed only 29.4% of the SAPARD investments undertaken by the industry. A further research seems necessary to explain this curious discrepancy in the preferences of farmers and enterprises regarding their investment plans.

The impact of the SAPARD on agricultural holdings

It was found out that the SAPARD program exerted a positive influence on the entrepreneurship of those entities which were relatively stronger, more courageous, optimistic, who better analyzed market signals and had a vision of their own future. Therefore, one may infer that the SAPARD benefited mainly the best performing, optimistic and dynamic farmers, which

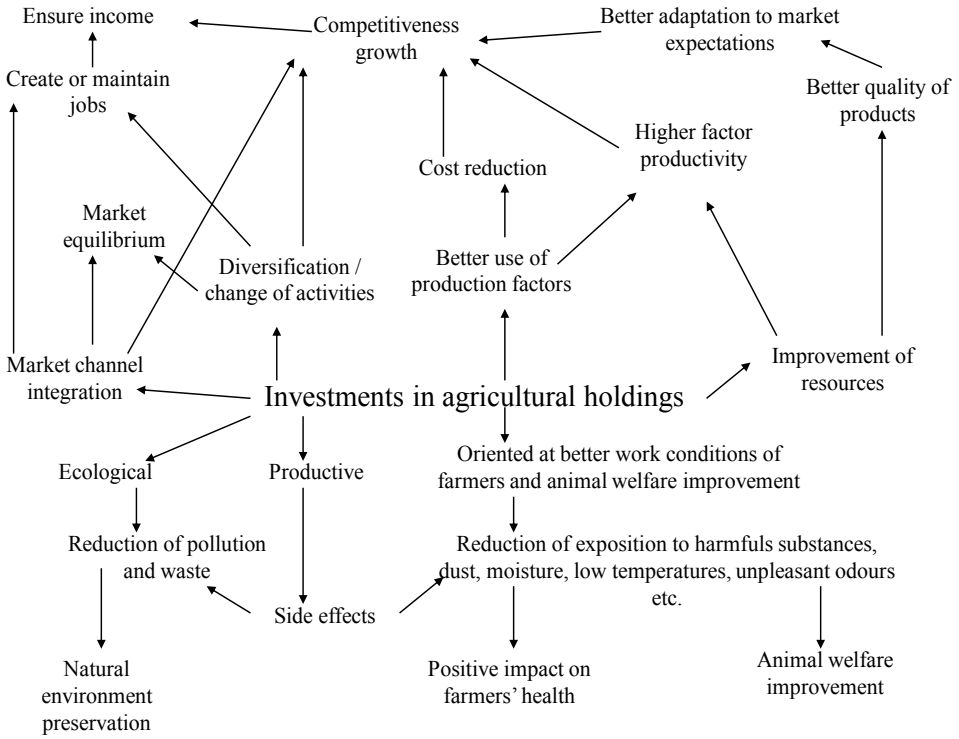

Figure 1. The conceptual model of the possible impacts of granting investment support to farmers

Source: own concept, inspired by the European Commission (2000)

Table 4. The expected impact of SAPARD investments in food-processing enterprises on the backward market channel integration in the Lodz region

Index	Share of raw materials purchased on the basis of long-term contracts (%)	
	before	after
Mean	63.615	75.455
Median	70	90
Standard deviation	36.677	30.606
Variance	0.577	0.406
Minimum	0	0
First quartile	33.2	50.4
Third quartile	100	100
Maximum	100	100
Skewness	–0.586	–1.193
Kurtosis	–1.046	0.428

Notes: These calculations are based on the analysis of all SAPARD applications submitted by food-processing enterprises in the Lodz region during the first year of its implementation; the term 'before' means 'before the submission of the SAPARD application'; the term 'after' means 'expected after the completion of the investment project co-financed by SAPARD'

Source: own research

could be controversial in the context of sustainable development. In fact, we may face in this case the dilemma between the short and the long run. In the near future, it may be considered attractive to support subsistence farms on social grounds, but in the long term, it is those that are most competitive that will survive and constitute a healthy part of the economy. Obviously, a lot depends on: (1) the ability of farms and other kinds of enterprises to move from this inefficient stratum to an internationally competitive position, and (2) the ability of other sectors of the economy to become more competitive and absorb the excess labour in the rural areas.

Let us attempt to put the goals and objectives of a key measure endorsed within this program (concerning farm investment grants) into a conceptual framework in order to show possible interdependencies (Figure 1). It is worth noting that certain effects of the SAPARD may be either final or intermediary depending on the type of the given investment proposal. This measure was allocated 18.0% of all SAPARD resources in Poland.

Through a measure addressed to the food-processing industry, the SAPARD program contributed to the development of the backward contractual market channel integration (Table 4). The establishment of a system of long-term contracts between food-processing enterprises and farmers has clear advantages for both

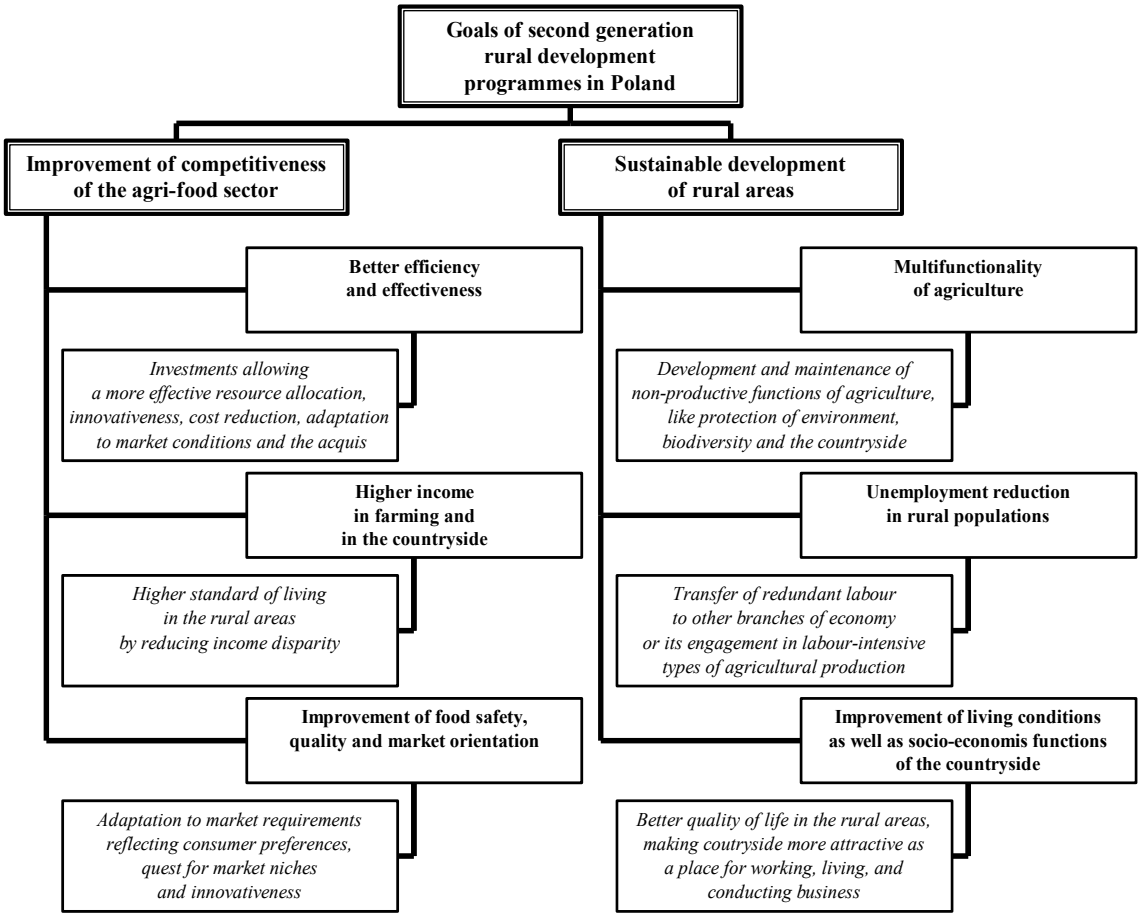

Figure 2. The conceptual framework of the second generation rural development programs in Poland

Source: own graph on the basis of the Ministry of Agriculture (2004b: 84–85)

sides. It contributes to the stability of production on the part of farmers and to a consistent quality of the raw materials for the industry, which, unfortunately, is very often lacking any quality management system. For instance, only 4 enterprises out of 34 under study had the HACCP, whereas 22 declared that it was being implemented. The proliferation of long-term contracts will facilitate the introduction of a quality management system and increase the chances of both parties to survive on the highly competitive Single European Market. Besides, it is beneficial all over the world (Stewart 2001; Requier-Desjardins et al. 2003). Nevertheless, one should not neglect the potential threats posed by the contractual system, including the over-intensification of the agricultural production methods with an excessive use of chemicals and monocultures, as well as the possible abuse of the monopsonistic position by the food processors (Vanclay 2003: 86). According to Seják and Zavíral (2007), the future Common Agricultural Policy cannot rely on subsidies, but must correct the institutional conditions in the production verticals (agri-food chains) in a fundamental manner. According to Boehlje (1999), the agri-food sector is in the midst of a profound structural change based on: (a) the transition from economic stages coordinated primarily by markets to a tightly aligned food supply or value chains coordinated by the negotiated linkages and (b) the implementation of biological manufacturing and the process control technology throughout the entire chain, enabling it to increasingly function as an assembly line. The interconnection of the individual stages of the vertical is a prerequisite of competitiveness (Bečvářová 2008).

CONCLUSION

It should be underlined that the SAPARD program had a double objective. On the one hand, it aimed to improve the situation of the agri-food sector in Poland in the wake of the accession to the European Union. On the other hand, it served as a preparatory ground for the institutions which were to be responsible for managing the EU rural development funds inflow in future as well as for the potential benefici-

aries of these programs. The latter objective is often forgotten, although it seems much more important from the strategic point of view, as the scope of the transfers after the accession were expected to depend largely on the effort invested into the absorption capacity building in the pre-accession period (Guba 2001: 132).

Important in conceptual terms as it was, the SAPARD was primarily a preparatory ground for full-scale rural development strategies to be implemented after the accession of several CEECs into the EU. These second-generation programs drew on the experiences gained in the pre-accession period, but offered a much wider range of instruments. The logic behind the Polish rural development strategy for 2004–2006 is depicted in Figure 2. Its construction stems from an official document adopted by the Ministry of Agriculture in July 2004 and it seems somewhat controversial. In particular, the dichotomous structure of the policy logical framework may – in our opinion – lead to certain misunderstandings. Namely, the attribution of the phrase 'sustainable development of rural areas' only to such objectives as: multifunctionality of agriculture, unemployment reduction and the improvement of living conditions of rural inhabitants and of the socioeconomic functions of the countryside, is not sufficient. We argue that in fact this expression is relevant to *all* policy objectives enumerated under another subtitle 'improvement of competitiveness of the agri-food sector', including: a better efficiency and effectiveness, a higher income in farming and in the rural areas and better safety and the quality of food as well as the adoption of a marketing orientation by the industry. This dichotomy between 'the sectoral' and 'the territorial' seems rather artificial, especially in Poland, where such a large percentage of the rural population is involved in farming. Furthermore, there is a mutual causal relationship between the economic progress achieved in the agri-food sector and a higher standard of living for the entire rural population and the multifunctionality of the countryside. This dichotomous structure of the strategy was reflected, albeit not rigorously, in the division of the financial portfolios in two rural development programs for the same territory and the same period of time. It had its origins in the historical division of competences between two directorates-general in the European Commission: the DG AGRI and the DG REGIO.

Last but not least, it is impossible to avoid asking the question what kind of public policies should be pursued in the agri-food system. Undoubtedly, the structural policy, which is exemplified by the SAPARD, seems much more justified than the traditional Common Agricultural Policy, based on price intervention and production quotas (Bryla 2003). Nevertheless, one may ask if the agri-food system should enjoy *any* privileges at all. According to Caswell (1997), it is not different from other sectors of the economy and it should have a comparable level of government policy involvement, with the public policy addressing only market failures and imperfections and rewarding public goods. It is hard to disagree in principle, but it seems extremely difficult to translate these ideas into practice. Regarding the EU context, it may be argued that even if certain policies are suboptimal from the point of view of the entire organization, they may well be very beneficial for a given Member State thanks to the principle of solidarity.

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