Aggregate supply of organic farming products under the new CAP – results for Austria

Das Angebot biologisch produzierter Produkte unter einer neuen GAP - Ergebnisse für Österreich

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Zusammenfassung

Im Jahr 2003 wurde die Gemeinsame Agrarpolitik (GAP) grundlegend reformiert. Ein Kernelement der Reform ist die Entkoppelung der Direktzahlungen. Wir untersuchen in welchem Ausmaß die biologische Landwirtschaft von dieser Reform betroffen ist. Dazu wird ein Agrarsektormodell eingesetzt, welches die regionalen, strukturellen und bewirtschaftungsrelevanten Besonderheiten der österreichischen Landwirtschaft abbildet. Die Ergebnisse zeigen, dass die Reform zu einer Stärkung des Angebots von Bioprodukten führt.
Schlagworte: Agrarsektormodell, Gemeinsame Agrarpolitik, biologische Landwirtschaft

Abstract

In 2003, the Common Agricultural Policy (CAP) was reformed. Decoupling direct payments from farm output is a core element of this reform. To which extent organic farming will be affected by this reform has not been explicitly analysed at regional and sectoral levels. We try to answer this question by comparing scenarios during and after implementation of the reform with a situation in 2003. We assume that the programme for rural development does not change. The results show that organic farming will become more attractive when the reform is implemented.

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1. Introduction

Organic farming is widely considered to be a production system with a wide range of benefits. Many consumers appreciate the fact that organic food is produced without the use of certain inputs (e.g. pesticides, mineral fertilizers, genetically modified organisms). In addition, stricter animal welfare requirements guarantee that food is produced at ethically high standards.

In many countries, the public is supporting the adoption and sometimes even the maintenance of such practices (SEMOS, 2002). In the EU, the programme for rural development is the most important tool to promote organic farming (HÄRING et al., 2004). From an economic point of view such assistance is welfare enhancing, if external benefits (and costs) are associated that cannot be internalised in markets.

Certainly, higher product prices are a signal that internalisation actually takes place (OFFERMANN and NIEBERG, 2002). There are also some benefits that go beyond the relationship of producers and consumers of organic products. One of them is that surplus production is reduced due to lower average yields, another one are environmental benefits (WEINSCHENCK, 1990). They have been estimated to be very high (e.g. compared to livestock production with purchased feed), or negligible (e.g. compared to extensive grassland farming) depending on the reference system.

A benefit that has not been intensively analysed is that organic farming stimulates innovations. In particular, techniques saving inputs through improved biological pest control or nutrient management systems (e.g. DIMA and ODERO, 1997) can be adopted by conventional farms, too. Such benefits cannot be internalised by those developing them, and consequently public subsidies can be welfare enhancing.

Agricultural policy makers in Austria and in the EU are convinced of the benefits of organic farming. Action programmes have been put in place in order to stimulate both, demand for and supply of organic products. We describe some details of these programmes in the next chapter.

In the last ten years, exponential growth (number of farms and acreage) has been observed in organic farming that is mostly stimulated by subsidies. We also know that factors, like environmental attitudes of farmers (VOGEL, 1999), and decreasing output prices of conventional products (e.g. PIETOLA and LANSINK, 2001) are accelerating the adoption. This literature shows that influences not directly addressing organic farming are determining the rate of adoption and thus the overall supply of organic food.

The reform of the Common Agricultural Policy (CAP) in 2003 will change the basic conditions of farming significantly from 2005 onwards. Thus, we expect that supply of organic products in the EU will be affected, too. To what extent, is relatively unknown.

We use an agricultural sector model to evaluate likely effects of the recent reform for Austria. This country is chosen as a case study, because it has a heterogeneous set of agri-environmental measures and a broad collection of farm management data has been made available. The topic of the paper is (i) to analyse whether the 2003 CAP reform will reduce or boost the acreage used for organic production, (ii) how crop and livestock outputs are going to be affected, and (iii) which efforts are likely to become necessary to meet policy goals concerning organic farming.

The remainder of the text is structured such that key figures on organic farming in Austria and EU-15 as well as the Austrian and EU action programme for organic farming are summarised next. Then the model used for the analysis is briefly described and the 2003 CAP reform is outlined along with the details of the scenarios. A selection of model results is presented before we draw conclusions for the next programme for rural development in Austria.

2. Organic Farming in Austria and the EU

For decades, organic farmers were a small group of producers with a strong commitment to their special way of production against a mainstream of high input/output farming. Motivations of these farmers are environmental concerns, philosophies of life, traditions of extensive farming systems, and pure economic considerations, in particular cost saving arguments (VOGEL and BICHLBAUER, 1992).

In Austria a support programme for organic farms was established in 1990. Five years later, about 17,000 organic farms were counted, this increase was mainly induced by the Council Regulation (EEC) No 2078/92. It was also possible, because organic crop production was defined in a legal framework (Council Regulation (EEC) No 2092/91 of 24 June 1991 on organic production), and organic farmer associations were established. They created labels to allow their members to differentiate their products and they organised certification and extension programmes. Some of the associations invested in processing plants and established wholesale operations for organic products. In a parallel move, supermarket chains introduced organic brands and today organic products are sold at premium prices in a large number of outlets. However, after a successful boost of organic production, deficiencies in the supply chain and a mismatch between supply and demand for some products (in particular beef and milk) have appeared.

In 2001, the first **Austrian Action Programme for Organic Farming** was established, a co-operation between the Ministry of Agriculture and organic farmer associations. A year later, the official report on Austrian farming concluded that the results were encouraging (BMLFUW, 2004, 2003a, 2002, 2001):

- the number of organic farms has increased after a decline in the previous years (18,760 farms in 2003; 18,576 farms in 2002; 17,773 farms in 2001; and 19,031 farms in 2000),
- the acreage of organically managed land has expanded (326,000 ha in 2003; 295,000 ha in 2002; 276,000 ha in 2001; and 272,000 ha in 2000),
- the sales volume of organic products has increased, and
- consumers have been better informed about organic products.

In 2003, an upgraded programme has been launched. Among the objectives are an additional increase of arable land managed organically, and a further penetration of the catering sector with organic food. A broad set of measures is employed to reach these goals (BMLFUW, 2003b):

- promotion of extension and education, of both producers, and consumers;
- support for better marketing including public relations;
- more research efforts specifically addressing organic farming;

- further improving the control and certification system and extending it to the feed sector;
- a centre of competence in organics (Biokompetenzzentrum) shall be established to integrate three existing umbrella organisations of organic farmers associations in Austria.

In June 2004, the European Commission (EC, 2004) presented an **Action Plan for Organic Farming**. It was initiated by the Agricultural Council of June 2001 and December 2002 and is a follow-up of a previous study (EC, 2002), which provided a basis to analyse the development of organic farming in Europe and possible elements for actions.

Its aim is to identify the requirements to ensure the ongoing development of the organic sector in the community. In addition, imports of organic products from developing countries should be facilitated. It sets out a broad series of policy measures designed to encourage such a development:

- better information and improved transparency with a focus on consumers to establish demand induced growth;
- position organic products as GMO free and thus communicate an important attribute for consumers who may be indifferent towards organic products but are concerned about GMOs;
- further standardisation of methods and procedures covering production, certification, and auditing;
- efforts to guarantee international recognition of EU standards and improved procedures for recognition of foreign certification schemes.

The direct support of organic food production is not on the list of actions to be taken under this plan. This can be interpreted that in future, the focus of measures should shift away from government induced stimulation through production subsidies towards demand incentives.

3. Model, policy reform, scenarios and results

3.1 The Positive Agricultural Sector Model Austria - PASMA

PASMA is employed to estimate the effects of the CAP reform on farm income, crop and livestock production, and farm labour at regional and national scales. Data from Allgemeines Land- und Forstwirtschaftliches

Informationssystem (ALFIS), Integrated Administration and Control System (IACS), Economic Agricultural Account (EAA), agri-structural survey, the standard gross margin catalogue, and standard farm labour estimates provide necessary information on resource and production endowments for 40 regional and structural production units.

The mathematical programming model maximizes farm welfare from crop and livestock production, farm services, and payments subject to resource endowments (i.e. land, livestock, and farm labour) differenttiated by production regions and alpine farming zones. PASMA is calibrated to historic crop and livestock activities by using the method of Positive Mathematical Programming (HOWITT, 1995). Product prices and other model assumptions are referenced in SINABELL and SCHMID (2003a, 2003b, 2003c). Most prices are exogenously given and based on OECD (2003), FAPRI-Ireland-Partnership (2003), and for organic products on EDER et al. (2002) and FREYER et al. (2001).

3.2 The 2003 CAP reform

The objectives of the CAP reform 2003 are:

- economic sustainability through increased competitiveness, stronger market orientation, and more efficient income support;
- social sustainability through more responsiveness to consumer demands, encouragement to improve food quality, and safety and a better balance of funding towards rural development;
- environmental sustainability through a clear framework for a more efficient application, and development of environmental and animal welfare standards (EC, 2003).

In order to achieve these goals, the following measures were agreed upon in 2003 (GREEK PRESIDENCY, 2003; FISCHLER, 2003) to:

- modify market regimes (reduction of administrative prices, special regulations for protein crops and durum wheat, prolongation of the milk quota system until 2014/15),
- decouple direct payments, and
- introduce several accompanying measures (e.g. degression, modulation, new instruments to enhance consumer trust, additional environmental and animal welfare standards).

Member states have got the freedom to fine tune CAP-instruments according to their specific policy goals. They may choose to introduce the single farm payment in full or they may opt to retain part of the

premiums coupled to the output. The funds saved by modulation will be used to reinforce the programme for rural development.

3.3 Scenarios

The scenario analysed in this paper is a comparison between the modelled outcomes in 2003 (with the Agenda 2000 in place) and situations in 2005 (introduction of the single farm payment) and 2008 where the reformed CAP will be fully implemented. The rationale for these comparisons is to contrast a situation in which the Agenda 2000 reform has been almost completed with the anticipated implementtation of a much bolder follow-up reform. We look whether we can expect a stimulation or a weakening of organic farming by the recent CAP reform.

Organic farming will not be affected by the reform directly, but indirectly. We assume that the organic farming support scheme does not change and that farmers will get mark-ups for organic food similar to those observed historically (FREYER et al., 2001).

We also assume a moderate (exogenous) rate of technical progress and constant real input prices. We do not adopt exogenously given labour decline in order to isolate the policy effect on structural adjustment. As required by regulations, decoupled premiums must be matched by eligible hectares of land.

Three assumptions have to be kept in mind when the scenario results are compared:

- exogenously given prices based on OECD (2004) between the reference (2003) and the simulation periods (2005 and 2008) change;
- components and measures of the programme for rural development are assumed not to change between the base period (2003) and the simulation periods (2005 and 2008);
- organic farming schemes and other conditions (e.g. animal welfare requirements and feed composition) do not change.

3.4 Results

The model results reported in Tables 3 show a comparison between the (modelled) situation in 2003 and the likely outcomes in 2005 and 2008. The results are summarized as follows:

Financial consequences

- the programme for rural development will become more important because land use changes have an effect on payments in less favoured areas, and
- farmers are likely to adjust participation in the agri-environmental programme;

Table 3: Percentage change of financial, land use and crop production indicators from 2003 CAP reform in 2005 and 2008

Indicators	**2005**	**2008**
Financial		
volume of programme for rural development	+ 0.6	+1.0
volume of agri-environmental programme	± 0.0	+0.2
organic farming premiums	+0.9	+2.0
Land use		
arable land	-2.8	-3.8
– conventional	-2.9	-3.9
– organic	-0.3	+0.1
grassland (without alpine grassland)	+3.6	+4.8
Crop production conventional		
– cereals	-2.9	-3.8
– protein crops	-3.6	-4.9
– oilseeds	-3.3	-4.7
– forage crops	-2.5	-3.8
Crop production organic		
– cereals	+0.6	+1.6
– protein crops	+2.9	+7.7
– oilseeds	-0.9	-0.9
– forage crops	-1.9	-2.9
Heads of conventional livestock		
Cattle	-0.4	+1.5
male cattle	-3.4	-2.5
female cattle	+0.3	+2.4
Pigs	-1.2	+0.2
Heads of organic livestock		
Cattle	-0.3	+0.8
male cattle	-2.9	-2.0
female cattle	±0.0	+1.2
Pigs	+1.9	+4.8

Source: Own calculations based on prices of OECD (2004).
Note: Comparisons are made to Agenda 2000 in 2003. 50,000 additional suckler cow premium entitlements are shared among owners of heifers. Additional funds for the programme for rural development (€ 17 million annually from modulation) are not accounted for in total transfers.

Land allocation and crop production

- the acreage of arable land will be mostly converted to grassland, which is more extensively managed (and will not be turned into woodland, because of the restriction of the single farm payment);

Livestock production

- cattle production is likely the activity most heavily affected by the reform apart from conventional crop production; both the conventional and organic herd of male cattle is evaluated to decline significantly;
- Austria will maintain the suckler cow premium and part of the slaughter payments, consequently, the number of female cattle is going to increase slightly;

Given these results we conclude that organic farming is going to become more attractive for farmers after the reform. The competitive edge of organic farming is mainly due to the fact that payments from the agri-environmental programme are targeted to process linked premiums. The same is true for most other premiums from the agri-environmental programme. Because most schemes are activity based, production declines are cushioned.

4. Discussion and conclusions

Our results suggest that organic farming will become more attractive to farmers after the 2003 CAP reform. It is mostly due to premiums that are targeted to specific processes and management activities within agri-environmental programmes. As intended, subsidies for organic products stimulate their provision. The overall reform effect on products is that organic output declines to a lesser extent than conventional output.

Organic farms are affected by the abolition of production linked premiums in the crop sector as other farms. But, the reaction is slightly different, organic crop production is expanding whereas conventional production diminishes. This observation from the crop sector does not hold for beef production. We expect that the production of organic beef will be reduced, however, to a far lesser extent than the output of conventional beef. We do not think that this will have price inducing

effects because currently a large share of organic beef is marketed in conventional distribution channels.

Our results are contingent upon a very important assumption. We assume that price wedges between conventional and organic products remain at the same level as observed in previous years. This assumption seems to be justified for two reasons:

- The Austrian and EU action programmes for organic farming strive to boost demand for organic products. If a demand side effect materializes, we expect stable prices at current levels.
- Organic products are free of GMOs. Thus consumers get an additional attribute *for free* when they buy organic food. This is likely to stimulate demand among consumers concerned about GMO food. This effect can only be realised if consumers are aware of this attribute.

Previous studies about the effects of the 2003 CAP reform for Austria showed that the per-capita income effects are likely to be relatively small. To boost organic farming was not explicitly among the reform objectives. Our results show that the output of organic products is likely to increase. This is consistent with the goal of strengthening sustainable farming and thus fully compatible with the reform objectives.

However, observations in Austria show that the limiting factors of further market penetration with organic food are not essentially supply related, but demand driven including a lack of separate distribution channels, organised marketing and processing, standardized labelling, and information of consumers. The follow-up programme for rural development should specifically address these demand gaps and not further increase output stimulating measures.

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