



TRADE AND AGRICULTURE DIRECTORATE

**THE ROLE OF AGRICULTURE AND
FARM HOUSEHOLD DIVERSIFICATION**

IN THE RURAL ECONOMY OF

AUSTRIA

Foreword

This report reviews information on the role of agriculture and farm household diversification in the rural economy of Austria. It was prepared by a consultant, Marie-Luise Rau, Research Assistant at Humboldt University of Berlin, Institute for Agricultural Economics and Social Sciences, Department International Agricultural Trade and Development.

It is one of 13 country reviews prepared under Output area 3.2.1: Agricultural policy reform (Item 3.2) of the programme of work and budget of the Committee for Agriculture for 2007-08.

Based on material compiled from the available literature, these country reviews address all or most of the topics listed below:

- Definitions and underlying concepts of “rural” as they exist at the national level.
- The availability of data pertaining to the share of agriculture and the agro-food sector in the economies of OECD countries at the national level and in rural areas and trends therein.
- The availability of data relating to the income situation of farm households and in particular the availability of information related to non-farming activities.
- The extent to which non-farming income-earning activities of farm households are farm based (*i.e.* using farm resources as in the case of farm tourism) or rural based (located in rural areas).
- The extent to which the industries upstream and downstream from primary agriculture are located in rural areas.
- The strength of multiplier effects between farm/farm based and up/downstream industries and rural economies.

The information in these country reviews was used as background to the report "The role of agriculture and farm household diversification in the rural economy: evidence and initial policy implications" [TAD/CA/APM/WP(2009)1/FINAL], which was declassified by the Working Party on Agricultural Policies and Markets in February 2009.

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THE ROLE OF AGRICULTURE AND FARM HOUSEHOLD DIVERSIFICATION IN THE RURAL ECONOMY OF AUSTRIA

Agriculture is generally considered as the backbone of rural areas in Austria and thus often praised as a motor for rural development. Little is known, however, about the actual role of agriculture in Austrian rural areas and research studies applying qualitative and quantitative analysis are rare, mainly due to conceptual issues and lack of data. In addition to employment and income, agriculture is widely held to have key functions related to the environment, cultural characteristics, and the quality of life in general. This is particularly so in rural areas where these functions go well beyond the production of agri-food products and have been extensively discussed in the context of multifunctionality. Nevertheless, while this study considers the multifunctional role of agriculture, its focus is on economic indicators, such as employment and gross value-added, in order to shed light on the role of agriculture in rural areas in Austria.

This study is organised as follows: first, an overview of the definition and typology of rural areas in Austria, as well as possible data sources for analysing agriculture in rural areas is provided. Based on the available data and information from existing studies, this study elaborates on the economic importance of agriculture in Austrian rural areas. Due to their frequently difficult economic situation, farmers have taken up alternative income-generating activities, and this is also examined. The study concludes with a brief section on the linkages between Austrian agriculture and other sectors of the economy that should ideally be considered when evaluating the role of agriculture.

Definition and typology of rural areas in Austria

Rural areas in Austria are defined as non-urban areas according to the concept of urban regions elaborated by Fuchs (1997). These regions are classified as urban, urbanised areas and commuter belts when situated in concentric circles around urban centres or cities, reflecting the theory of central places. Although not explicitly referring to rural areas, this classification defines these as residual without specifying their specific properties. Thus, any region or area that does not fall under the categories “urban”, “urbanised” and “commuter belts” is in principle considered as rural. The dividing criteria of the classification by the official concept of urban regions are determined by settlement and employment patterns. For example, urban centres are characterised by more than 100 000 inhabitants and/or more than 5 000 persons working outside agriculture (agricultural employment rate $\leq 6\%$). As residual areas, rural regions are thus predominantly characterised by low population densities and a high level of agricultural activity.

The Austrian Conference on Spatial Planning (*Österreichische Raumordnungskonferenz, ÖROK*) recently stipulated that rural areas are no longer synonymous with agricultural space as traditionally held (ÖROK, 2001). This statement accounts for the complex nature of rural areas in Austria that need to be

defined by various criteria beyond agricultural activity and population density. In a study commissioned by ÖROK, Falch (1999) applies a multidimensional approach for classifying different types of rural areas so as to derive specific policy goals and associated measures for supporting rural development in Austria. The different categories of Austrian rural areas are based on socio-economic, natural and cultural characteristics, thereby acknowledging their diversity and heterogeneity. But the differentiated classification by Falch remains descriptive, presumably to capture various local needs and initiatives that are deemed to contribute to rural development, and to leave options for accommodating the policy environment of rural development programmes.

Other studies derive and/or apply more precise classifications for regions, including rural areas. Most importantly, they use measurable indicators that reflect the location, socio-economic characteristics and the availability of services and goods in Austrian regions and consider concrete thresholds for different types of regions. Typically, some kind of cluster analysis of the various indicators is applied in order to generate more or less homogenous units of area types for quantitative analysis. Moreover, the method of cluster analysis helps to identify significant indicators and criteria that clearly define different types of regions and gives the derived classification a certain degree of empirical foundation.

When defining different types of regions, the basic classification units mainly relate to political and/or administrative units, such as the NUTS levels (*Nomenclature d'Unités Territoriales Statistiques*) of the EU's hierarchical system of regional classification for member states¹ because they deliver information of the respective indicators. In recent developments, statistical data is referenced by information from geographical information systems (GIS) in order to derive regional classifications. Only Höfler *et al.* (2007) applies geo-referenced statistical data in the context of rural areas. Since grid cells of geo-referenced data are considerably smaller than administrative units, GIS-based classifications of regions tend to be more accurate. However, if complete data sets are available, the small units can only offer a more representative classification, and thus analysis. Missing data can considerably obscure regional classifications (Statistics Austria, 2006).

For Austrian regions, GIS-based classifications seem to be particularly useful because they can reflect the natural characteristics of region types. Topography, for example, is a crucial factor in Austria that is characterised by mountainous/alpine regions. Since natural borders, like mountain ridges or slopes for example, can segment areas that belong to the same administrative unit, regional classifications neglecting the topographical characteristics of Austria may be misleading. Depending on the purpose of the regional classification, it may also be useful to include other natural characteristics, for example soil, flora and fauna. For defining Austrian rural areas, natural characteristics have not been used so far, but they are used in other classifications, for example geographical area classification. Important regional classifications that use the criteria of topography refer to less favoured areas as well as areas of mountain farming/alms. The location above sea level (height) and slope are typically used as criteria for assigning different area types, next to other factors such as farm characteristics and organisational structures. For Austria, Wagner (2006b), for example, defines mountain areas according to types of Alm farming. At the EU-level, less favoured areas and areas with specific handicaps are defined in the context of regional policy objectives and respective support programmes (see http://ec.europa.eu/regional_policy/intro/regions8_en.htm).

The classification and analysis of regions crucially relies on detailed information at the regional level. Next to data availability, the choice of specific indicators included in regional classifications depends on the purpose of analysis. In order to identify possibilities of development and economic growth in Austrian rural areas and to give policy recommendations, Sinabell (2006) applies a typology of economic regions based on a cluster analysis by Palme (1995). Next to characteristics of the regional economy, particularly population density is found to be a dominant factor in the cluster analysis. The following three categories

1. For the different NUTS level in Austria, see www.statistik.at/web_de/statistiken/regionales.

of economic regions are differentiated: 1) human capital-intensive regions, 2) capital-intensive regions and 3) rural areas whose regional economies are neither specifically human capital-intensive nor capital-intensive. It should be noted that under this typology of economic regions, many Austrian tourist areas fall under the category of capital-intensive regions. Other classification systems, for example the OECD classification of regions based on population density, would designate them as rural. As this example shows, different indicators and thresholds typically lead to very different results; for an illustration of the difference between the classifications by Palme and OECD, see Annex Figure A1.

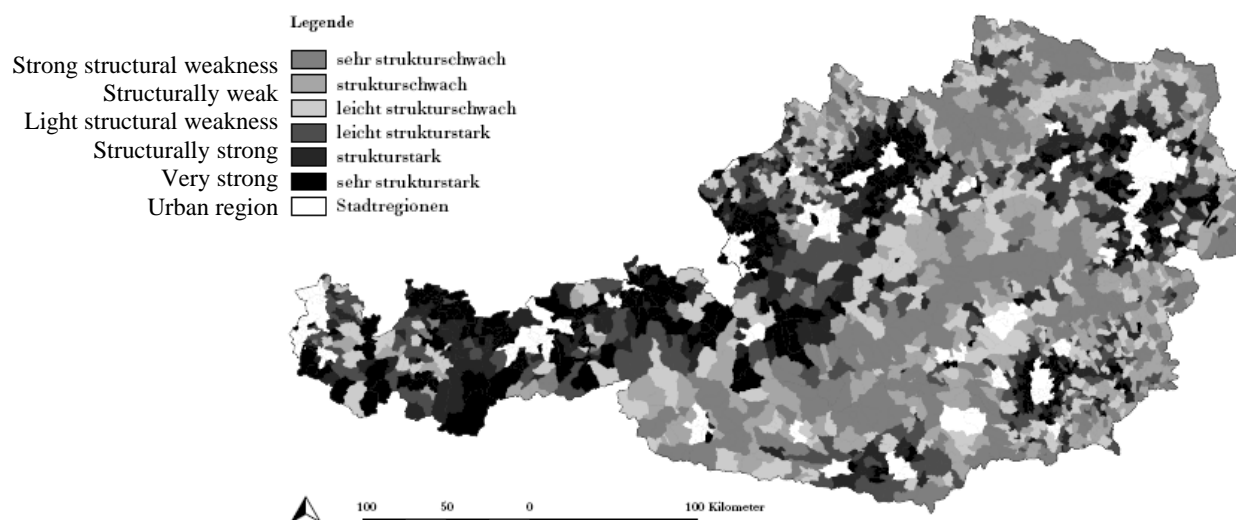
Weber and Seher (2006) specifically focus on the classification of rural areas as an argumentation basis for regional as well as agricultural policy measures in Austria. Building upon a research project on the mobility and availability of services and goods in Austrian rural areas (Sammer *et al.*, 2000), they derive a “problem-oriented” typology of Austrian rural areas by using indicators of structural as well as economic strengths and weaknesses.² Overall, the structural and economic situation in Austrian rural areas significantly depends on their location, including their accessibility as well as attractiveness for visitors and tourists, and the authors define the following types of rural areas:

- Peri-urban rural areas
- Rural areas close to traffic axes
- Rural areas with tourism
- Peripheral rural areas in intra-alpine/mountainous locations
- Peripheral rural areas in border regions

With regard to 2001, Figure 1 illustrates the distribution of these different types of rural areas according to their economic and structural situation. Using data from Austrian districts, it shows these areas in great detail and refers to more or less homogeneous area types. As shown in the map, strong rural areas are scattered around urban regions as well as along the international and interregional traffic axes oriented to the south and west. Spill-over effects from more or less urbanised regions contribute to the economic and structural situation in these regions. Rural areas that constitute important tourist destinations are also strong, mainly situated in the west of Austria. In contrast, economically weak rural areas are predominantly found in mountainous/alpine regions in the east and southeast of Austria as well as in the peripheral regions bordering the neighbour countries of Eastern and Middle Europe. As acknowledged by ÖROK (2001), rural areas in peripheral locations are thus very different from those in the vicinity of cities or urban centres and/or tourist regions.

2. For details about conceptualising and interpreting structural strengths and weaknesses of Austrian rural areas, see for example Höfler and Jelinek (2007).

Figure 1. Map of Austrian rural areas according to their structural strength and weakness, 2001



Source: Weber and Seher (2006).

The aforementioned classifications have been specifically developed for Austria. The respective indicators and thresholds used fit the general situation in Austrian regions, and they are thus only applied in studies of Austrian regions and rural areas. While other countries have their own distinct regional typology, international classification systems are available for comparing areas across different countries. The classification developed by OECD (1994) uses population density as the dividing criteria. Areas with a population density of less than 150 inhabitants/km² are usually considered as rural, and the OECD classification essentially distinguishes between three broad types: 1) predominantly rural regions, 2) significantly rural or intermediate regions, and 3) predominantly urban regions. Annex Table A1 lists the Austrian regions (NUTS 1 and 2 level) according to OECD classification. For an evaluation of the application of OECD classification to the Austrian regions see *Statistics Austria* (2006). This classification system has been most frequently used in comparative studies at the international level; however, in the European context, the Eurostat classification of rural areas may be preferred as it officially uses a lower population density of 100 inhabitants/km² for defining rural areas in the member states so as to account for the prevalence of their relatively small regional structures (Eurostat, 2006).

Data sources for agriculture and rural areas in Austria

At the national level, the Federal Statistical Office (Statistics Austria) provides statistical data for Austria in total as well as for the nine Austrian *Bundesländer*. Regional statistics at the more detailed level of districts and municipalities are also available from Statistics Austria, and could be used for constructing small analytical units in order to analyse the role of agriculture in different area types. The respective data is readily accessible on-line; the web page of Statistics Austria also provides information and data in English. In addition, Austrian national and regional statistics can be obtained from Eurostat. While Eurostat tends to be a comprehensive source of data at the national and regional level (NUTS 2 level), only some information is available at more disaggregated levels. For Austria, Eurostat statistics, for example, gives information on gross value added at the NUTS 3 level.

The database by Statistics Austria contains time-series of key social and economic data from 1995 to the present; in some cases calculated indicators are also provided. The data information covers all sectors of the Austrian economy, generally divided into the primary, secondary and tertiary sector. While information about primary agriculture, forestry and fishery tends to be listed separately, the agri-food

industry falls under the secondary sector of manufacturing and information at the detailed regional level is not provided. For Austrian data, the ÖNACE classification of industry activities is applied as the national version of the NACE system. In order to represent the Austrian economy in a more detailed way, the ÖNACE classification extends the standard NACE categories by additional national sub-classes. Next to some information about the agri-food industry, in-depth data about the primary production of agriculture, including farm structure and characteristics, is published in the annual agricultural reports, the so-called *Green Reports* by the Federal Ministry for Agricultural and Forestry, Environment and Water Management (BMLFUW). Information at the level of the *Bundesländer* (NUTS 2 level) is often included.

While standard income data is generally available, data on farm household income is more difficult to obtain. This is particularly true for income from alternative income-generating activities in which Austrian farm households are increasingly involved. Income statistics may be the most appropriate information source, but in general they only contain data on the main occupations of farm households. The agricultural reports by the BMLFUW provide some information on the production value of different alternative income-generating activities, both at the national and regional level of the *Bundesländer*. Other important information sources comprise national and regional statistics for specific branches and activities (e.g. organic farming, renewable energy and tourism). However, conclusions about the share of farm households in the respective activities cannot be drawn because there is often no direct link with agriculture.

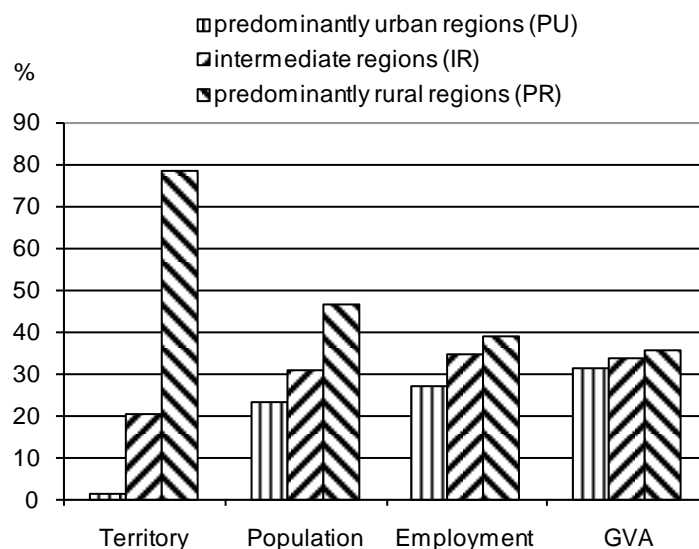
The available data sources for national and regional statistics in Austria usually do not mention rural areas, and systematic documentation for rural areas is largely missing. It should be noted, however, that in some cases information about agricultural primary production is presented according to other regional classifications. For example, the agricultural reports usually dedicate separate chapters or sections to the agricultural situation in both alpine regions (mountain farming/alms) and less favoured areas.

Regional data is particularly well presented by the *Atlas of Spatial Development (ÖROK Atlas)* that the Austrian Conference on Spatial Planning (ÖROK) has developed. The ÖROK Atlas generates maps of raw data, some indicators of regional socio-economic information, and other relevant geographical information based on natural science (e.g. topography, vegetation, climate, and pollution). While agricultural data is included, the main emphasis is on other data information, such as population and infrastructure, that are important for regional planning purposes. The maps contain currently available data either for administrative units, (down to the NUTS 3 level) or for smaller geographical grid-cells, and the type of presentation can be chosen via convenient application tools. Free access to the *ÖROK Atlas* is available at <http://www.oerok-atlas.at/>.

Overview of the importance of rural areas in Austria

In order to give an overview of the importance of rural areas in Austria, their share of territory, population, employment and gross value added (GVA) are examined. Figure 2 illustrates these indicators for Austria according to OECD classification at the NUTS 3 level. Data for GVA and employment relates to 2002 and data for land coverage and population to 2003. The OECD classification, with 150 inhabitants/km² as the dividing criteria of regional types, is applied. According to this classification many political and administrative districts fall under the category of predominately rural regions. With regard to all indicators, rural areas scored the overall highest shares and Austria exhibited a high degree of rurality although, as mentioned above, using different classification criteria beyond population density may reduce the dominance of rural areas (compare definition and typology of rural areas and Annex Figure A1).

Figure 2. Share of rural area in territory, population, employment and GVA in 2003 (2002)*



* The data relates to groups of political and administrative districts (*Bezirke*) corresponding to the NUTS 3 level.

Source: European Commission (2006).

As shown, the share of predominantly rural regions (PR) in land territory was most pronounced. They made up for almost 80% of the total land territory, whereas predominantly intermediate regions (IR) and urban regions (UR) covered considerably less land territory (IR: 20% and UR: 1%). The very high share in land territory for rural regions seems to influence the results of the three socio-economic indicators. Almost half of the population (46%) lived in rural regions; less people lived in intermediate and urban regions (IR: 31% and UR: 23%). Given that predominantly rural regions had a very large share in land territory, they were comparatively sparsely populated. It should be noted, however, that while generally low, the population density tends to be quite high in some rural regions. That is the case in enclosed inner-alpine valleys for example, and the actual settlement area should be ideally considered here.

The large number of people living in rural areas seems to explain that predominately rural areas scored a high share of employment (39%). Based on developments in the last decades, ÖROK (2004) predicts population and employment trends until 2031. It is mainly those rural areas outside the commuter belts of cities/towns and in peripheral locations that have lost and will continue to lose inhabitants. While too far away for commuting, these areas are also likely to lose employment opportunities in the future. In contrast, other rural areas that are relatively easily accessible will be increasingly attractive both for living and for industries/service enterprises, and thus the employment and population can be expected to increase. However, rural areas in Austria, as in many other countries, generally face the problem of out-migration, particularly of young people.

In 2002, predominately rural regions contributed 35% to total GVA; the share of the other types of regions was almost as high (IR: 33% and PU: 31%). The high contribution of rural areas to GVA may have several reasons. In addition to the overall dominance of rural regions, another reason could have to do with the OECD regional classification that designates many Austrian tourist regions as rural areas. With tourism being an important economic activity in Austria, tourism generally generates a considerable amount of value added, and under the OECD classification this may explain the significant contribution of predominately rural regions to GVA. In comparison, predominately rural regions in OECD countries on average contributed only about 15% to GVA (OECD, 2005).

The role of agriculture in rural areas in Austria

As in other countries, the role of agriculture in Austria has many facets that go well beyond the production of agri-food products. Next to the agri-food production, the key functions of agriculture are commonly summarised under the concept of multifunctionality. While important for European agriculture in general, the multifunctional role of agriculture can be considered to be particularly relevant in rural areas. Since the 1990s, agricultural multifunctionality has been intensively discussed in Austria, mainly with regard to mountainous areas that cover approximately 80% of the total land territory (BMLFUW, 2006) and are often designated as rural, at least according to the OECD classification (compare Annex Figure A1). Based on a literature review on multi-functionality, Sinabell (2001) identifies key functions associated with agricultural land use and activities in Austria. More recently, Weber and Seher (2006) describe the multifunctional role of agriculture in different types of Austrian rural areas according to their regional classification based on economic strengths and weaknesses (see definition and typology). An overview of the findings is provided in Annex Table A2.

In the context of multifunctionality, the functions of agriculture can be summarised as follows:

- Production function (*e.g.* agri-food products).
- Economic function (direct and indirect employment effects, income generation).
- Spatial function (road infrastructure, open space, settlement/living).
- Ecological, environmental and landscape functions (*e.g.* water management, ecological balance, maintenance and preservation of natural resources, habitat and landscape features).
- Social and cultural functions (*e.g.* local services, local activities, traditional heritage).
- Recreational function (*e.g.* tourism, agri-tourism, free-time activities).

Multifunctionality in agriculture generally refers to particular characteristics of agricultural production processes and its outputs, and more specifically the existence of multiple commodity and non-commodity outputs that are jointly produced by agriculture. Some non-commodity outputs may exhibit the characteristics of externalities or public goods (OECD, 2001). From the Austrian perspective, Wiesinger and Dax (2004), for example, investigate elements of agricultural multifunctionality in terms of externalities. In addition to positive external effects, the authors also consider the possible negative external effects caused by agricultural land use and activities. The multiple functions of agriculture listed above obviously relate to the positive external effects as well as non-commodity outputs, both of which farmers are usually not paid for.

Various methods have been applied to measure the multifunctional role of agriculture, but quantification remains difficult. One main challenge refers to measuring the value of non-commodity outputs because markets for these goods tend to function inefficiently or are non-existent. Moreover, Dissemmond *et al.* (2003) argue that standard measurement methods, for example those based on the theory of economic externalities, are unsuitable and suggest using a system theoretic approach that more appropriately capture causal relationships as well as different actors involved. While many studies are qualitative, quantitative studies are rare and their results greatly depend on the quantification method applied (*e.g.* Pevetz *et al.* 1990; Schmid and Sinabell, 2004). Quantitative results about agricultural multifunctionality are often at a highly aggregate level and do not specifically refer to rural areas. As such, conclusions about the multifunctional role of agriculture in several Austrian regions are difficult, and this study abstains from presenting results. In the context of the EU-funded project “Towards a policy model of multifunctional agriculture and rural development” (TOP-MARD), Dax *et al.* (2005) provide an overview of studies that attempt to quantify the multifunctional role of agriculture in Austria. The study by Wagner

(2006a) is another recent example. In the case study of the Ybbs-region, the author analyses agricultural multifunctionality and draws conclusions with regard to rural development in that region.

The following sections focus on agricultural employment and the gross value-added generated by agriculture in rural areas, next to land use patterns. The analysis takes the database compiled by Sinabell (2006) as a starting point. As mentioned above, Sinabell applies the classification of Austrian economic regions by Palme and matches the three types of human capital-intensive, capital-intensive and rural regions with the relevant data at the district level (NUTS 3 level). While convenient, the classification can be appropriately used to shed light on the economic importance of agriculture in the three aforementioned regions and thus serves the purpose of this study well. Particularly with regard to alternative income-generating activities, the income situation of farm households is also covered, but since regional data is unavailable the respective section refers to the national Austrian level only.

Land use and farm structure in rural areas in Austria

Agricultural land and woodland are important in Austria. In 2005, the share of agricultural land and woodland in total land territory was respectively about 43% and 31% (BMLFUW, 2006). These two types of land uses were also prominent when differentiating between the three economic regions under the classification developed by Palme. Table 1 gives details on agricultural land use and woodland in the respective regions in 2005. As shown, even in human capital-intensive regions where the main urban and urbanised centres in Austria are located more than one third of the respective land territory was agriculturally used (41%). The share of woodland amounted to about 33%. Agricultural land and forest in such rather densely populated regions generally play an important role to ensure open space and/or to provide amenities for recreation and free time activities for city dwellers, *e.g.* through the maintenance of landscape and natural features. However, the share of agricultural land in human capital-intensive regions seems to be surprisingly high, particularly in comparison to rural regions with only slightly more agricultural land (43.4%). In capital-intensive regions, agriculture was the overall most prominent land use, and almost half of the total agricultural land in Austria (47%) was found there, followed by rural regions (42%). Woodland covered about 40% of the land territory in rural areas, making up for more than half of the total forest area in Austria (58%).

Table 1. Agricultural land use and woodland in different types of economic regions, 2005

	Human-capital intensive regions	Capital- intensive regions	Rural regions	All regions*
Agricultural land (km²)	5 073.6	16 607.6	15 657.5	37 338.7
Share per region type	41.1%	46.5%	43.4%	42.9%
Share of total agricultural land	13.6%	44.5%	41.9%	100.0%
Woodland (km²)	4 014.6	6 376.1	14 488.5	24 879.2
Share per region type	32.5%	17.9%	40.5%	28.6%
Share of total woodland	16.1%	25.6%	58.2%	100.0%

* Due to the regional classification, the figures for "all regions" do not exactly correspond with those for total Austria.

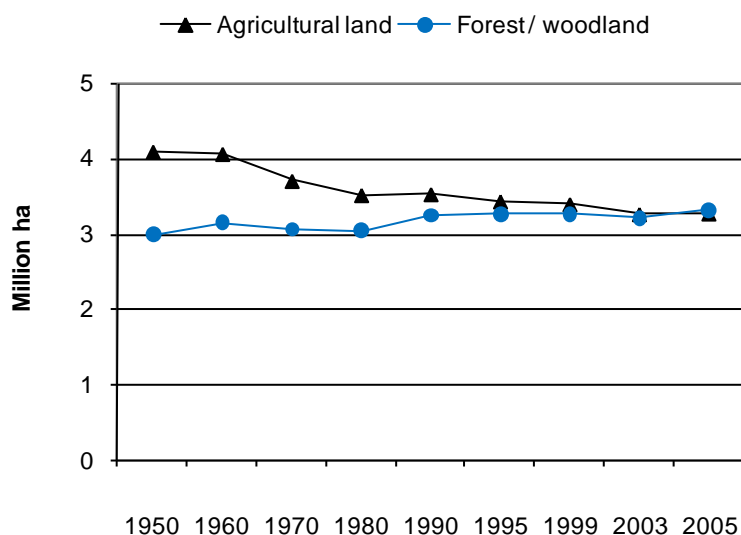
Source: Sinabell (2006) based on data from Statistics Austria, regional classification by Palme (1995).

During the last decades, the area used for building has significantly increased, leading to the loss of valuable natural, agricultural and woodland areas. Overall, settlement and transport activities consume almost 15 hectares per day (BMLFUW, 2005). The increased demand for building land has been met mainly by giving-up agricultural land, particularly in rural areas that are close to cities and towns or comparatively well accessible. One reason for this may be that agricultural land has not been as protected

as woodland under the spatial planning regulations (Lexer and Linser, 2004). While agricultural land has been transformed into building land, those areas that are interesting for building/settlement are also most suitable for agricultural activities. Agricultural land use thus stands in direct competition with building activities, and if permitted building is the much more profitable land use in Austria.

While agricultural land use has been decreasing, woodland has increased continuously in Austria. Figure 3 illustrates this trend with regard to the period 1950-2005. The changes in agriculturally used land and woodland were most pronounced until 1995 when Austria joined the EU. With EU membership agricultural land use has decreased less, probably due to measures implemented under the EU common agricultural policy. As mentioned above, the pressure from non-agricultural land uses, however, continues and tends to be extremely high in some rural regions. Next to rural regions close to urban areas, mountainous areas have been particularly subject to changes in land use pattern (Wiesinger and Dax, 2004). On the one hand, settlements and infrastructure have substantially expanded in the mountain valleys. In peripheral and inner-alpine mountainous areas, on the other hand, a marginalisation of farming activities has been observed, and in the extreme case, agricultural land has been entirely abandoned, contributing to the general expansion of woodland.

Figure 3. Development of agriculture land and woodland/forest in Austria, 1950-2005



Source: BMLFUW (2005).

Almost 80% of the agricultural land in Austria is found in regions with unfavourable climatic and topographical conditions and thus qualifies as less-favoured areas (LFA) according to the EU classification system. Such areas are typically dominated by pasture/grassland and are often situated in alpine/mountainous locations. In 2006, more than 70% of all farms were located in mountain areas and operated in less-favoured areas (BMLFUW, 2007). In general, but particularly in these areas, Austrian agriculture is characterised by small-scale farms. According to the farm structure survey, the size of Austrian farms averaged 39 ha in 2005. This corresponds to 18.4 ha of utilised agricultural area (UAA) per holding whereas mountainous farms tend to be smaller. In combination, small-scale farm structures and low productivity due to location have led to concentration processes in Austrian agriculture. According to information in the BMLFUW's agricultural reports, the average farm size tends to increase and the number of farms to decrease. After a considerable decline between 1999 and 2003, the overall number of farms fell by only -0.4% in the time period 2003-2005, but this decline was much more pronounced in mountainous areas where the income perspective in farming activities is very low. For the economic regions as defined

by Palme, Annex Table A3 gives the number of farms in 1999: more than 50% of all farms were situated in rural regions. While Austrian agriculture is generally characterised by part-time farming, the number of part-time farms in rural regions exceeded the national average. Thus part-time farming can be considered as particularly relevant in rural regions (compare with the section on alternative income-generating activities). In contrast, full-time farming is more pronounced in the other types of regions, mainly due to more favourable conditions for agricultural production.

Economic role of agriculture in rural areas in Austria

Agricultural employment

Recently, the European Commission launched a study on employment in rural areas in EU member states³ As in the other EU member states, the lion's share of employment has been in the tertiary service sector, followed by the secondary sector. In 2003, the respective employment shares were about 70% and 25%. Only approximately 5% of persons were employed in agricultural primary production, including forestry. In comparison to other EU member states, this share of agricultural employment is quite high (European Commission, 2006) and may indicate the overall importance of agriculture in Austria. For the nine Austrian *Bundesländer*, Statistics Austria explains the differences in agricultural employment by their individual traditions, regional structures and other employment opportunities depending on the prevailing economic conditions. While increasing from west to east, employment in agriculture tends to be particularly high in peripheral regions that are deprived of other employment possibilities due to the lack of centres with industrial activities and services. Agricultural employment has been most important in Niederösterreich where about 30% of all persons working in agriculture and forestry are found. Oberösterreich and Steiermark follow with respectively about 22% (BMLFUW, 2005). According to the OECD regional classification, both Niederösterreich and Steiermark are predominately rural regions whereas Oberösterreich is considered as an intermediate region.

Table 2 shows the employment situation in the different economic regions as defined by Palme. While the first part of the table gives the respective shares of persons employed in agriculture, manufacturing and the service sector in 2003, the second part refers to the growth in agricultural employment between 1995 and 2003. The share of agricultural employment is highest in rural regions (11.8%), composed of mainly part-time farmers (compare with the section on farm structure). In both capital and human-capital intensive regions, fewer people work in agriculture and forestry. From 1995-2003, employment in agriculture drastically decreased in all economic regions. This decline, however, was most pronounced in rural regions, where the number of persons employed decreased by almost 20%. Looking at the employment development in the other sectors, it is interesting that the number of persons working in the service sector increased most in rural regions where between 1995 and 2003, the growth rate was 18%. Given the regional classification, the decline in agricultural employment in rural regions was thus almost compensated by the employment growth in services there.

3. For detailed results and a European comparison, see European Commission (2007).

Table 2. Employment situation in different types of economic regions

	Employment shares in 2003 (absolute number of employees in 1 000 persons)			Growth in agricultural employment 1995-2003 (absolute difference in 1000 persons)
	Agriculture / forestry	Manufacturing	Services	
Human-capital intensive regions	1.7% (34.1)	19.5% (397.6)	78.8% (1 601.7)	-11.9% (-4.9)
Capital-intensive regions	6.0% (60.5)	31.3% (314.5)	62.7% (629.1)	-15.3% (-10.9)
Rural regions	11.8% (88.7)	30.1% (226.9)	58.1% (437.1)	-19.3% (-20.8)
All regions*	4.9% (183.2)	24.8% (939.0)	70.4% (2 668.5)	-16.7% (-36.6)

* Due to the regional classification, the sum of the persons employed in the different regions does not add to the total number for Austria.

Source: Sinabell (2006) based on data from Statistics Austria, regional classification by Palme (1995).

Most persons working in agriculture are unpaid farm workers. In 2003, for example, almost 85% of were unpaid (BMLFUW, 2006). During the last decade the number of unpaid farm workers drastically fell, however, and the number of paid agricultural employees slightly increased. While leading to an overall decline in people working in agriculture, the opposing trends in the number of paid and unpaid farm workers may point to structural changes in Austrian agriculture. With regard to the economic regions defined by Palme, Sinabell (2006) reports the number of family members working on farms that are typically unpaid. The data information comes from the Austrian farm structure survey and refers to the year 1999. Although somewhat dated, the employment structure in the different types of regions is interesting (Annex Table A3). With regard to all regions, family members largely dominated the agricultural labour force (92.1%). More than 50% of the total number of the agricultural population worked in rural regions, where the great majority of family farm workers was found (56.4%). In total, there was a decreasing trend as the number of family members averaged about 1.6 per farm.

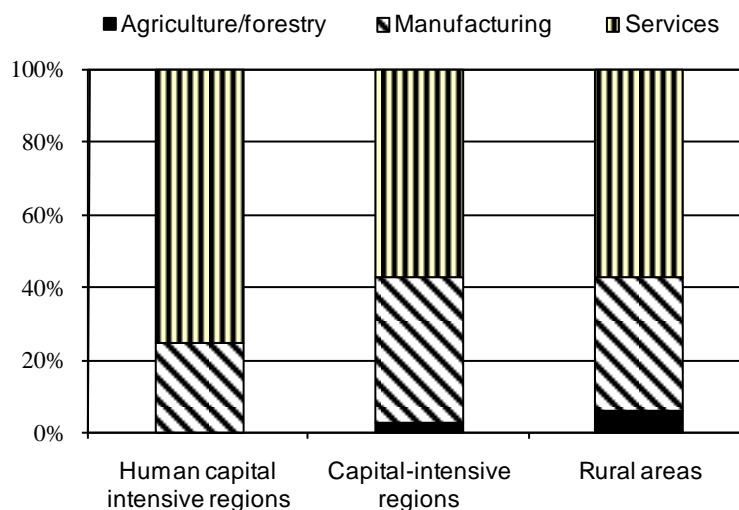
While non-family farm workers were predominantly male, the presence of women is significant as family members working on farms. More than 50% of all female family members worked in rural areas, and their share in the agricultural labour force was particularly high amounting to 44.3%. Farm women are not only responsible for organising the household but are actively engaged in farm activities, typically animal production and milk. The share of female farm managers is rather high (compare Boenink, 2004), but this could be explained by some particularities in the statistical reporting. For example, under part-time farming far more men are employed outside agriculture, and in these cases farm women are automatically registered as managing the farm. Boenink (2004) gives a current account of the role of women in Austrian agriculture, and Oedle-Wieser (2004) specifically describes the situation in Austrian rural areas and their contribution to rural development.

Agricultural gross value-added

The gross value-added (GVA) generated by agricultural primary production and forestry is very small in comparison to the GVA of the manufacturing and service sector. In the time period 1997-2006, the contribution of agriculture to the Austrian gross domestic product decreased from about 2.5% to only 1.7% (BMLFUW, 2006). For the three different economic regions, Figure 4 illustrates the GVA shares of

agriculture/forestry, manufacturing and services in 2003. Primary agriculture has consistently had the lowest share in GVA across all types of regions. For the different regional types, information on the GVA generated in up- and downstream sectors is not available (see section below on multiplier effects). When comparing across regions, the share of agriculture in value added was most pronounced in rural regions, amounting to about 5% of regional value added. In human capital-intensive and capital-intensive, agricultural GVA was considerably smaller, respectively only about 2.5% and 0.5%. Services generated most value-added in all regions. While particularly large in human capital-intensive regions, the respective shares of services were almost 60% in both human capital-intensive and rural regions. During the last decade, the value-added from both services and manufacturing considerably grew in all types of regions, and it is interesting to note that the largest increase took place in rural regions, respectively about 33% and 37%. While decreasing in all types of regions, the share of agricultural GVA fell most in rural regions (-7%). With the growing economic importance of the other sectors, this negative trend can be expected to continue.

Figure 4. Share of gross value added according to the different economic regions, 2003



Source: Sinabell (2006) based on data from Statistics Austria, regional classification by Palme (1995).

Importance of agri-food industries in rural areas

Data for the agri-food industry is only available at the national level (compare with section on data sources) and this study thus does not consider the agri-food industry in detail. With regional data information missing, it is impossible to analyse the importance of agri-food industries in rural areas. However, some information about the agri-food industry, even at the national level, seems to be useful because agri-food processing may be attractive to agricultural persons in rural areas looking for employment outside the shrinking primary production. In addition, agri-food processing can serve as an alternative and additional income source, and this is elaborated upon in the following section.

From 1999 onwards, agri-food processing consistently accounted for almost 5% of the Austrian national gross domestic product, thereby exceeding the contribution of primary agricultural production. On average, one out of six persons is employed in agri-food processing. Over the years, the number of persons employed in agri-food processing has been decreasing, mainly due to rationalisation. In Austria, the processing of animal products and milk processing has been most relevant. A recent report by BMLFUW (2008) provides further detailed information about the situation of the respective branches. According to this report, Austrian agri-food processing has good future prospects particularly with regard

to the production of high-quality regional food products, possibly leading to new employment opportunities.

Alternative income-generating activities

Farm households have been traditionally engaged in other activities so as to sustain their income. Such alternative and additional income-generating activities comprise off-farm as well as on-farm activities. While using agricultural inputs, typically machinery and labour, alternative on-farm activities go beyond primary agricultural production, both traditional and more special agri-food products such as organic products, for example, that tend to achieve higher prices on the market and thus add to the income of farm households. Combining farming with other on-farm and off-farm activities results in the pluriactivity of farm households. Austrian agriculture can generally be characterised by a high degree of pluriactivity, revealing the importance of alternative income-generating activities of farm households and which in turn has become a topic of importance on the national research agenda. Several studies, *e.g.* Pevetz (1996), Dax *et al.* (1995) and (1993), have conducted in-depth surveys on farm household activities and income in specific study regions, although not necessarily rural areas. The main focus of these studies is on the determinants that influence the income strategies of farm households. As more recent studies on alternative income-generating activities are not found in the literature, the available results are considered to a certain extent in this section.

Alternative income-generating activities generally play a role for both part-time and full-time farming, and the farm status thus tends to be an unsatisfactory indicator of the importance of alternative income-generating activities. However, since all activities farm households are engaged in compete for resources, alternative activities may conflict with full-time farming. Some combinations of alternative activities also seem to be incompatible. On the same token, if the income from merely agricultural production does not suffice for living farm households start alternative activities and may become part-time farmers. The latter seems to be the case in many Austrian rural regions, particularly in mountain areas where part-time farming dominates (compare section on land use and farm structure). In 2006, the average output per farm operating in mountain areas was 20% less than the one for farms in non-mountain areas due to low productivity and other factors. While substantially varying across location and specialisation, the income gap between farm households in mountain and non-mountain areas amounted to about 6% (BMLFUW, 2007).

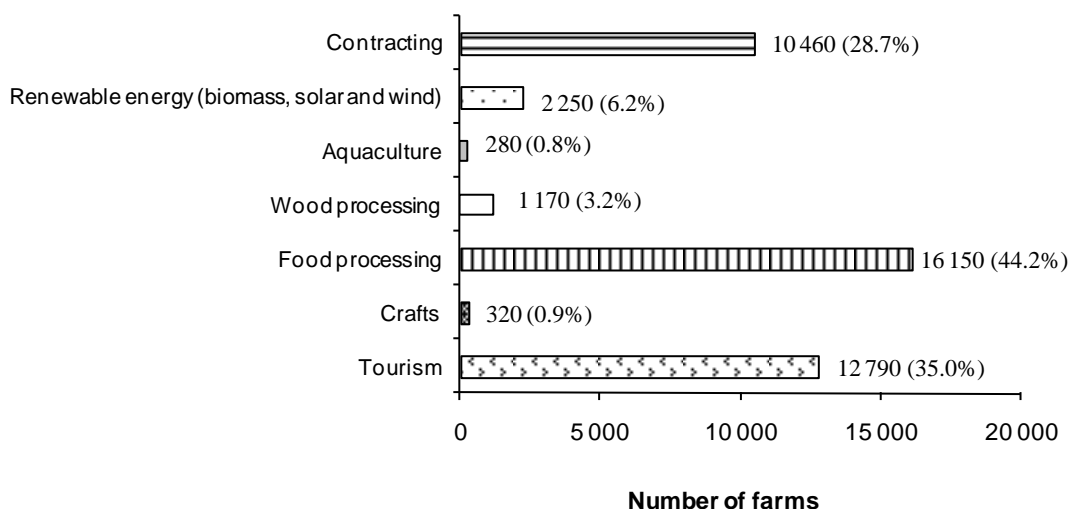
Whether and to what extent farm households engage in alternative income-generating activities depends on many factors. In the literature, farm size, age of the farm manager and education are mentioned as important determinants. With regard to farm size, it was found that small farms more frequently engage in full-time alternative off-farm and on-farm activities. In contrast, part-time activities taking place on a regular or seasonal basis are more attractive for large farms. In general, income opportunities from employment outside agriculture constitute important income sources for farm households in Austria. Off-farm activities obviously depend on the labour market situation that is often difficult in rural areas, commuting possibilities and last but not least on the attitude of farm households. In 2006, approximately 50% of all agricultural persons were engaged in off-farm activities, and in terms of wages/salaries the share of non-agricultural activities in farm household income was about 47% (BMLFUW, 2007).

While the employment statistics in Austrian agricultural reports indicate the up-take of off-farm activities, agri-tourism, direct marketing and contracting in terms of activities within “Maschinenring” and other services, *e.g.* snow removal, are covered in a separate section. The aforementioned activities constitute only a selection of possible alternative farm activities and the data provided is based on voluntary information from farm accounts or farmers’ organisations. As such, the available statistics may not present the whole picture. Moreover, another major limitation arises from the difficulty to disentangle the respective activities that use the same input and resources like traditional farming. In total, alternative on-farm activities accounted for about 9% of the agricultural production value in 2006 (BMLFUW, 2007).

Given the available statistical data, the contribution of on-farm activities could be calculated for different years as well as for different types of Austrian regions such as less favoured and mountain areas (compare section on data sources). While some information about the number of farms engaged in the distinct alternative on-farm activities is also provided in the annual reports, this study evaluates the data of the farm structure survey (FSS) in order to present a more detailed account of the uptake of alternative on-farm activities. Austria Statistics (2006) provides the entire FSS data, but for practical reasons the relevant data on alternative on-farm activities is taken from the on-line database of Eurostat. The results of the FSS are not available at the regional level and do not contain information about the share of the respective activities in farm household income or in agricultural value-added. The FSS reports that 36 500 farms engaged in alternative on-farm activities in 2005, equalling about 19% of all Austrian farms. This is a surprisingly small proportion, possibly because off-farm activities are not included. As mentioned above, off-farm activities as alternative and additional income sources are particularly important.

Figure 5 illustrates the number of farms involved in various alternative on-farm activities in 2005; the percentage shares in brackets refer to the total number of farms with income diversification. It should be noted that combinations of alternative activities are possible and thus the sum of farms undertaking the respective activities exceeds the number of all farms with income diversification. As shown, most Austrian farms diversified into on-farm processing of agri-food products, including direct marketing (44%). While less farms engaged in agri-tourism (35%) and contracting (landscape and nature management, harvesting, building, transportation) (29%), these activities were also relatively popular. Other alternative income-generating activities were much less popular. The moderate engagement in the generation of renewable energy (biomass, solar and wind) (6%) and in wood processing (3%) is rather surprising. Annex Table A4 presents how the uptake of the respective activities evolved in the time period 2003-2005. Between 2003 and 2005, the overall number of farms with alternative on-farm activities rose by 12%. In particular, the absolute number of farms engaged in food processing and contracting substantially increased. Engagement in renewable energy also increased and can be expected to do so in the future when considering its potential as a new source of farm income. With the relative small share of farms involved in renewable energy generation, there seems to be scope for further expansion. While contracting, renewable energy and food processing became more popular, the number of farms undertaking other alternative income-generating activities fell. The decrease in farms offering agri-tourism was most pronounced in absolute terms but rather modest in relative terms and in comparison to the other alternative on-farm activities (-7%). The following section looks at the importance of agri-tourism in more detail.

Figure 5. Different alternative on-farm activities for farms with income diversification in Austria, 2005



Source: Eurostat, Farm structure survey (FSS).

Role of agri-tourism in rural areas

The characteristic scenery, cultural heritage and leisure possibilities in Austria have traditionally attracted many holidaymakers and visitors. This is particularly true for the mountain areas, many of which can be considered as rural and where agri-tourism has been very successful. Agri-tourism offers accommodation, food and leisure activities in both the summer and winter season. As shown in the previous section, many farm households engage in agri-tourism that then serves as an alternative or additional income source. In order to sustain their income, farmers typically rent out rooms or holiday flats as well as provide meals, often prepared from their own products or other local speciality food products. As preference is given to local products, agri-tourism can be considered to strengthen agricultural production in the respective region. In traditional farm holidays, guests are in close contact with the agricultural activities of their hosts and this is a common form of agri-tourism, possibly due to the rather small scale farming structure. Other forms of agri-tourism that do not have a direct link to the farming environment can be more appropriately referred to as land tourism. The role of farmers in land tourism is much broader than in traditional farm tourism and includes elements of the multiple functions of agriculture. In addition to offering holiday accommodation, farmers, for example, maintain village structures, landscape features and environmental amenities that make rural areas attractive for holidays and day trips.

Since tourism in general is considered an important component of the regional economies in Austria, much research on tourism has been undertaken. Some studies that investigate the relationship between agriculture and tourism also cover agri-tourism to a certain degree, *e.g.* Pevetz (1983) and Gattermayer (2006). While they relate to Austria in general, other studies specifically consider mountain areas, *e.g.* Groier (1993) and Reiner (2008). Here, one main focus for example is on the development of land tourism in mountain areas and associated risks in terms of land use conflicts, socio-economic and environmental problems. For the BMLFUW, Schipfer (2007) undertakes a supply and demand analysis for farm holidays. In comprehensive interviews with guests and potential guests, the author finds that the main reasons for going on farm holidays are to enjoy good homemade food, to relax in the countryside, and to experience farm life. Families regard farm holidays as particularly attractive due to the possibility of leisure time and space for their children. While most persons interviewed highly appreciated the contact with the host/host family, some farm households who offer farm holidays mention constraints on their private life. In the great majority of cases, farm women are responsible for the entire organisation of the farm holiday, from the booking arrangements to the cleaning after the guests' departure.

In 2005, a total of 5.1 million over-night stays on farms were registered, equalling 4.4% of all over-night stays in Austria. For farm holidays, the market share in terms of the number of beds amounted to 7.3%, and the share in terms of the number of suppliers offering holiday accommodation was almost twice as high (14.5%) (Gattermayer, 2006). Although these results clearly indicate that the share of farm holidays is relatively small within the tourist industry, agri-tourism does play an important role for farm households and has a long tradition in Austria. The BMLFUW provides data on farm holidays for the *Bundesländer*. While only a small number of farms engage in farm holidays in the Burgenland, much more farms with farm holiday activities are found in Tirol and Salzburg. In 2005, more than 50% of all farms with farm holiday activities were situated in these two *Bundesländer* (BMLFUW, 2006). As such, the distribution of the farms offering farm holidays shows a strong difference between east and west Austria, with regard to both absolute numbers and the share in total farms per *Bundesland*, and this underlines that regions with unfavourable conditions for agricultural production are often popular tourist regions. According to information from the Austrian association of farmers engaging in farm holiday activities (*Bundesverband "Urlaub am Bauernhof"*), farm holidays offered employment to 23 000 persons and generated a total turnover of EUR 1-1.2 million. On average, the income from farm holidays contributed 34.5% to the total income per farm.

In recent years, there has been an overall decrease in the number of farms engaged in farm holiday activities. While the number of farms offering rooms fell, the number of farms renting out holiday flats and houses increased. There may be several reasons for this. One certainly relates to the decreasing demand for farm holidays as more and increasingly diverse offers of other holiday arrangements are available. However, farm households improved and extended their offer of farm holidays. On the one hand, there is a clear quality orientation that is, for example, reflected by the occurrence of various quality marks. In 2004, more than 50% of the farm holiday providers (members only) reached the highest quality certification by the national association (BMLFUW, 2006). On the other hand, farm holidays have become more professional in terms of developing special arrangements (*e.g.* wellness and organic farm holidays) and marketing their offers. Despite the effort to meet the changing demands of guests and attracting new guests, however, a considerable decline in the number of over-night stays and guests, both Austrian and foreigners, has been observed. The increase in the number of farms offering holiday flats may also be due to changes in demand. For farm households, holiday flats mean less work as food is typically not provided.

Multiplier effects of agricultural activities in rural areas

Agriculture is closely integrated with other sectors of the economy. Through the strong linkages with other sectors, agriculture affects income and employment in up-stream and down-stream sectors. These effects in the up-stream and down-stream sectors are indirect and in addition to the direct effects in the agricultural sector. If income generated by either direct or indirect effects is spent within the region, further economic effects are induced. Such effects are commonly referred to as multiplier effects. Due to multiplier effects agriculture plays a considerable role in the economy, despite its overall low share in employment and income. This may be particularly the case in rural areas where agriculture is often claimed to be a motor for economic development. The possible multiplier effects of agriculture should therefore be ideally included when analysing the importance of agriculture in rural areas.

Although a variety of methods can be used to account for multiplier effects, input-output tables are the most popular tool for such analysis. For Austria and the individual *Bundesländer*, input-output tables have been constructed, but they are not commonly used in the analysis of agriculture in rural areas. Indeed, studies in the literature neither specifically analyse the possible multiplier effects of agriculture nor do they relate to rural areas. Input-output analyses are mainly applied for evaluating regional policy measures, for example Tamme (2000). In a recent study, Fritz *et al.* (2005) introduce their input-output model “MultiREG” that contains detailed input-output tables for the *Bundesländer* and statistically describe the respective regional and inter-regional relationships across sectors and regions. Since the statistical underpinning adds dynamics features, the MultiREG model may capture reality better than other comparable static models. Due to the lack of data, the structure of the agricultural sector in the regions is, however, assumed to be identical across regions and the regional agricultural input-output tables are derived from the national one. While promising, the current MultiREG model seems to be inappropriate for analysing agriculture in Austria, let alone agriculture in rural areas.

National input-output tables and the calculated multiplier effects are provided by Statistics Austria. Kolleritsch (2000) gives information about selected multipliers; the whole set of multipliers including input-output tables has to be purchased. Although not relating to rural areas, the publicly available multipliers for agriculture, forestry and the agri-food industry are presented in Table 3. For example, the production multipliers refer to the indirect effects in up-stream sectors, *e.g.* agricultural input suppliers, as well as to the direct effects in the respective sector. The higher the value of the multipliers, the higher the multiplier effects are. In 2004, forestry, for example, generated the largest multiplier effects in the up-stream sectors, in addition to the direct effects. Since the values of the multipliers for agriculture are mid-range its multiplier effects (direct and indirect) can be expected to be rather moderate in comparison to forestry and the agri-food industry. Multipliers for different region types would probably result in a different picture.

Table 3. Selected (direct and indirect) multiplier effects for the Austrian agricultural sector, 2000

	Production multiplier domestic	Production multiplier imports	Value-added multiplier	Wage multiplier
Agriculture	1.68	0.19	0.81	0.18
Forestry	1.80	0.05	0.94	0.16
Agri-food industry	1.56	0.36	0.64	0.30

Source: Statistics Austria.

Conclusion

Utilising publicly available data and published research results, this study has attempted to shed light on the economic importance of agriculture in rural areas in Austria, in addition to its role in land use. Due to the high share of agricultural land use, agriculture in rural areas is generally important in terms of income and employment. However, agricultural activities are not confined to rural areas and also offer income and employment in other, more urbanized, types of regions. Overall, the contribution of agriculture to income and employment in rural regions has been decreasing. This negative trend can be expected to continue because other sectors of the economy, most importantly the service sector, tend to become even more important, both at the national and regional level.

For rural areas, evidence about income and employment possibilities potentially offered by alternative on-farm and off-farm activities could not be provided due to lack of data at the regional level. However, given the large number of part-time farmers, alternative income-generating activities seem to play an important role in agriculture and this may particularly be the case in rural areas where the income from traditional agricultural production tends to be insufficient to make a living. Income from employment in other sectors more or less linked to agriculture may be especially attractive. For rural areas, evidence about the multiplier effects that agriculture has on upstream and downstream sectors is missing, and this would be an interesting topic for further research. In general, the results of this study have to be carefully interpreted because the disaggregated regional data required for an appropriate (systematic and comprehensive) analysis is not available. Quantitative studies on the importance of the agri-food sector in Austrian rural areas are by large missing.

Analysing the role of agriculture in rural areas is a difficult undertaking, and this study encountered numerous problems. In addition to data availability, major challenges relate to conceptual issues. Although widely discussed in Austria, there are for example only a few attempts to handle the multiple functions of agriculture in rural areas and to derive indicators that are suitable to measure them. Such indicators would be indispensable for quantitative analyses. Furthermore, a common concept of rurality does not exist in the Austrian context. As the focus of most studies in the literature is on mountain areas, the term “mountain areas” seems to be used as a synonym for rural areas. However, even when using low population densities as the only indicator of rurality, not all parts of mountain areas, for example mountain valleys, qualify as rural. The classification of rural areas thus requires more precise criteria, beyond population density. Considering these issues and the various shortcomings of this study, further research is necessary to better understand the link between agriculture and rural areas, and this would most probably require new analytical approaches.

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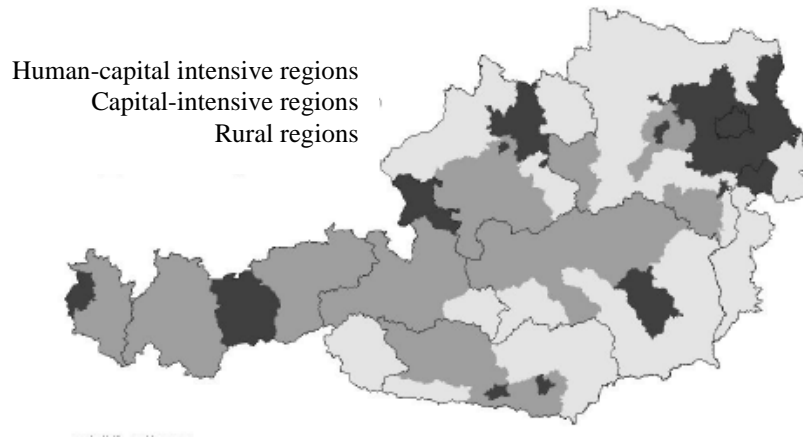
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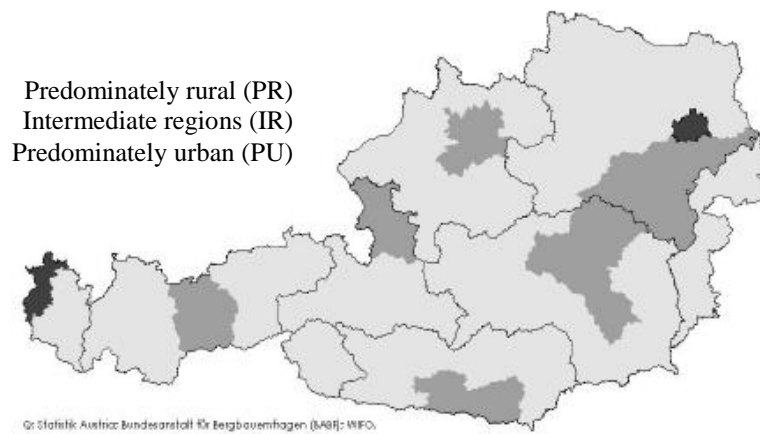
ANNEX

Annex Figure A1. Map of different types of Austrian regions according to Palme (1995) and OECD (1994)

a) Regional typology by Palme (1995)



b) OECD regional typology



Source: Sinabell (2006), based on data from Statistics Austria

Annex Table A1. Types of Austrian regions according to the OECD classification*

AT1	Ostösterreich	NUTS1	(2) IR
AT11	Burgenland	NUTS2	(1) PR
AT12	Niederösterreich	NUTS2	(1) PR
AT13	Wien	NUTS2	(3) PU
AT2	Südösterreich	NUTS1	(1) PR
AT21	Kärnten	NUTS2	(1) PR
AT22	Steiermark	NUTS2	(1) PR
AT3	Westösterreich	NUTS1	(2) IR
AT31	Oberösterreich	NUTS2	(2) IR
AT32	Salzburg	NUTS2	(2) IR
AT33	Tirol	NUTS2	(1) PR
AT34	Vorarlberg	NUTS2	(2) IR

* UR: predominantly urban areas, IR: intermediate regions, PR: predominantly rural areas.

Source: European Commission (2006).

Annex Table A2. The role of agriculture in different types of rural areas

Type of rural areas	Role of agriculture
Peri-urban rural area	<ul style="list-style-type: none"> - Settlement and living - Recreational function - Landscape and ecological balance
Rural areas close to interregional and international traffic axes	<ul style="list-style-type: none"> - Production of agri-food products, including food processing - Employment and income function - Settlement and living - Social and cultural function
Rural areas with tourism	<ul style="list-style-type: none"> - Employment and income function - Recreational function - Landscape and cultural heritage - Social and cultural function
Peripheral rural areas/mountainous areas	<ul style="list-style-type: none"> - Employment and income function - Spatial function - Ecological, environmental and landscape function - Social and cultural function
Peripheral rural areas bordering Eastern and Middle European neighbour countries	<ul style="list-style-type: none"> - Production of agri-food products, including food processing - Employment and income function - Increasingly settlement and living - Social and cultural function

Source: based on Weber and Seher (2006).

Annex Table A3. Overview of agriculture in different types of economic regions, 1999

	Human-capital intensive regions	Capital-intensive regions	Rural regions	All regions
Number of full-time farms	14 011	21 779	44 425	80 215
Share per region type	41.4%	38.1%	37.4%	38.3%
Share of total full-time farms	17.5%	27.2%	55.4%	100.0%
Number of part-time farms	19 835	35 431	74 229	129 495
Share per region type	58.6%	61.9%	62.6%	61.7%
Share of total part-time farms	15.3%	27.4%	57.3%	100.0%
Number of total farm labour	94 082	162 416	318 593	575 091
Share of total farm labour	16.4%	28.2%	55.4%	100%
Number of family farm workers	80 535	150 429	298 936	529 900
Share of total family farm workers	15.2%	28.4%	56.4%	100%
Share per region type	85.6%	92.6%	93.8%	92.1%
Share of women	43.8%	43.4%	44.3%	43.9%
Number of non-family workers	13 547	11 987	19 657	45 191
Share of total non-family workers	29.9%	26.5%	43.5%	100%
Share per region type	14.4%	7.4%	6.2%	7.9%
Share of women	0.1%	19.1%	29.9%	1.6%

Source: based on Sinabell (2006) who matched the data of the farm structure survey with the regional classification by Palme.

Annex Table A4. Changes in alternative on-farm activities, 2003-2005, Austria

	Change in number of holdings	Percentage change
Contracting	4 490	75.2
Renewable energy	530	30.8
Aquaculture	-380	-57.6
Wood processing	-370	-24.0
Food processing	2 320	16.8
Craft	-390	-54.9
Tourism	-970	-7.1
Total	3 950	12.1

Source: Farm Structure Survey, Eurostat.