



IAMO 2013

Leibniz Institute of Agricultural Development in
Central and Eastern Europe (IAMO)

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Introduction

The formerly socialist, large and predominantly rural states of Eurasia have a key role to play in combating the increasing shortage of agricultural raw materials across the globe. Here there are large reserves of land and production, which can alleviate the growing pressure on the ever-scarcer resource of land while avoiding as far as possible the destruction of untouched natural areas. The legacy of real socialism and the course of the transition process often impede, however, the exploitation of the enormous agricultural potential in these countries. This is where IAMO comes in with its research profile, which is unique in the world. Only IAMO focuses exclusively on agricultural development in the Eurasian region, for which it has built up an unparalleled expertise during the almost twenty years of its existence. These skills are translated not only into excellent research, but also make a decisive contribution to capacity building in the region. At the same time IAMO is a much sought-after partner for policy advice both at home and internationally, e.g. for the German Ministry of Agriculture or the World Bank.

IAMO proves that even a comparatively small institute, through the purposeful bundling of all its resources, can make an important contribution to the continuing development of the Leibniz Association. For example, IAMO has had a leading role in creating two new Leibniz research networks: "Crises in a globalised world" and "Sustainable food production and healthy nutrition". These networks bring together the expertise of several Leibniz

Institutes to help solve important problems of our time using application-oriented basic research in an interdisciplinary approach as per the remit of the Leibniz Association.

Moreover, IAMO's participation in the "Plant-based Bioeconomy" Science Campus, which was opened in June 2012 in Halle (Saale), has contributed substantially to expanding the cooperation between the Halle-based Leibniz Institutes and Martin Luther University, and has also reinforced Halle's position as a centre of higher education.

I wish the Leibniz Institute of Agricultural Development in Central and Eastern Europe the best of luck for its future tasks and projects!



*Professor Dr Karl Ulrich Mayer
President of the Leibniz Association*

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Foreword

Eastern Europe's agricultural and food sector is facing major challenges. While wheat prices have more than doubled since 2005, and new record prices are predicted for 2013, according to current IAMO studies, more than 25 million hectares of land are lying fallow in European Russia alone. Initial productivity analyses by IAMO for Ukraine indicate that with optimal cultivation the cereals yields could be increased by over 50 %. At the same time, institutional deficits and erratic political intervention mean the markets are functioning suboptimally. In this environment radical structural changes are taking place in agriculture. Agroholdings, some of which are larger than 500,000 hectares, are expanding at great speed. A number of such enterprises are now quoted on international stock markets. What remains totally unclear is whether agroholdings represent an opportunity for development for rural areas or whether this is essentially a form of land grabbing which removes net product from rural areas.

Since March 2012, the Volkswagen Foundation has given 566,000 euros to fund the project "The Global Food Crisis – Impact on Wheat Markets and Trade in the Caucasus and Central Asia and the Role of Kazakhstan, Russia and Ukraine". Besides the scientific research, the project will help capacity building at universities and institutes in the partner countries. The project "Global Food Security and the Grain Markets of Russia, Ukraine and Kazakhstan", which is being financed by BMELV (Federal

Ministry of Food, Agriculture and Consumer Protection), is also providing policy advice on food security. One focus of this project is an analysis of the trade relations with the grain-importing countries of the Middle East.

IAMO researchers won several prizes in 2012. For his thesis "The Spatial Dimension of Pricing and Competition in Agricultural Markets" Martin Graubner won both the prize of the German Society of Economic and Social Sciences in Agriculture (GEWISOLA) and one of the three prizes for young academics given by the German Society for Informatics in Agriculture, Forestry and the Food Sector e.V. (GIL). At the beginning of 2012 Judith Möllers and Wiebke Meyer won the "Best Critical Thinking Study" prize, awarded jointly by the United Nations Development Programme (UNDP) and the IMF, for their paper "Remittances, Poverty and Inequality in Rural Kosovar Households". For his "The Economics of Nonprofit Organization: Toward an Integrative Theory", Vladislav Valentinov was awarded the Christian Wolf Prize for the best post-doctoral thesis by Martin Luther University Halle-Wittenberg. As one of three candidates for the best oral lecture, Lili Jia was nominated for the T.W. Schultz prize at the IAAE conference in Foz do Iguacu (Brazil) for her paper "How land fragmentation affects off-farm labor supply in China: Evidence from household panel data". We should also mention here that, at the end of 2011, Nadine Wettstein was one of six recipients of the advancement award in agriculture, given by the Agrarzeitung.

This is a prize which goes to talented young researchers in agricultural trade, science and industry. On 1 February 2012, an IAMO director, Alfons Balmann, was appointed by Minister Aigner to the scientific advisory board of the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV).

An important initiative of the Leibniz Association is the creation of research networks. This involves Leibniz Institutes coming together to bundle their resources and working on current scientific and social questions, using an interdisciplinary and transdisciplinary approach. To date, nine research networks have been set up. In 2012 IAMO took a leading role in establishing two research networks: "Crises in a globalised world" and "Sustainable food production and healthy nutrition".

A highly motivated administrative department which functions smoothly is indispensable to maintain excellent research, the Institute's global connections in the scientific community, the varied scientific and political committee work and, in particular, to overcome the challenge of a constantly growing body of academic staff. IAMO's administration meets the highest standards of international research organisations. Without the exceptional efforts of our administrative staff, IAMO would not be where it is today. We should like to thank them wholeheartedly for their contribution.

IAMO also extends its thanks for the stimulus and important support it received once again in 2012 from the Ministry of Science and Economic Affairs of Saxony-Anhalt, the Federal Ministry of Food, Agriculture and Consumer Protection (BMELV), the members of the scientific advisory board and the board of trustees. The ministries and IAMO committees have come up with many

different ideas, suggestions and concrete proposals. These have substantially helped IAMO meet the growing demands of a research institute addressing the complex problems of today's world.

The next IAMO Forum 2013 (19-21 June), which is being organised in conjunction with the Johann Heinrich von Thünen Institute, is devoted to the important topic of "Rural areas in transition: Services of general interest, entrepreneurship and quality of life". It is not only for this reason that rural development is a focus of this IAMO annual. The opening article offers an overview of the provision of public goods in rural areas during the transition process. Closely linked to this topic is the second article on the persistence of corruption, which continues to be a pressing problem for many transition countries as well as EU Member States, especially as far as rural areas and the agriculture and food sector are concerned. The proper functioning of international futures markets for agricultural raw materials is also important for agricultural development. The third paper considers whether speculation has actually been responsible for the massive short-term increases in food prices over the last few years. The fourth deals with the prospects of, and barriers to, farmers setting up businesses in rural Bulgaria. Only where there are real prospects for (domestic) entrepreneurial activity, can there be development of rural areas from which the broad masses of the rural population can benefit. The fifth and six articles look at an aspiring global player on world agricultural markets: Ukraine. One examines the efficiency and productivity of agroholdings; the other investigates the grain industry and trade in Ukraine. Only by eliminating the serious inefficiencies at both farm and market level can the agricultural potential of

Ukraine, large swathes of which are lying fallow, be exploited. In many transition countries the formation of a Western-oriented middle class may be a sign of things to come. It thus makes perfect sense, as the seventh paper does, to analyse the views of Russian consumers from the metropolis of St Petersburg about organic products. By contrast, the eighth article presents the completely different world of developing countries in its examination of the institutional interconnection of land-use rights and the access to water in the Central Asian country of Tajikistan and in China. The most important findings of the IAMO Forum 2012, "Land Use in Transition: Potentials and Solutions

Between Abandonment and Land Grabbing", are outlined in the ninth article. The tenth article starts out from where agricultural production and ecosystem services – the definition of which are the economically relevant services an ecosystem can perform for human beings (e.g. insects pollinating fruit flowers) – meet. It examines the impact of EU set-aside policies on soil fertility and yields. The eleventh and final essay looks at the effects of diverging decoupling policies within EU agricultural policy on the internal European calf trade. The analysis makes clear that non-uniform decoupling policies lead to trade distortions.



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Summer 2012 in Brandenburg

Rural areas in transition: Different policy approaches to rural development

THOMAS HERZFELD, LILI JIA, AXEL WOLZ

Rural areas face similar challenges, not only in Eurasian transition countries, but in many economies: a low population density, poor infrastructure, a lack of varied employment opportunities, and – often as a result of these – a migration from the country to towns and cities, especially of young, dynamic manpower. At the same time, inhabitants and entrepreneurs in rural areas expect a level of infrastructure which is comparable to that of urban areas, as well as equal access to public services such as education, healthcare and social security. Although rural areas are chiefly marked by agriculture, the contribution of the farming sector to net product is low, and in many cases is falling. Table 1 highlights the importance of agriculture for employment in rural areas of selected countries. Whereas in China more than half of those living in the countryside and in employment are working in agriculture, in Central Europe this figure is now only around one-tenth of the population or less. In the view of many economists and of those affected, rural areas are suffering from an under provision of public goods and services, which reduces

their attractiveness as places to live and thus further exacerbates the trend towards the depopulation of rural areas.

Under the centrally planned economy, agriculture was the most important sector in the rural areas of many current transition countries. Agricultural cooperatives and state institutions provided a variety of services and public goods. In many cases this extensive provision could only be maintained by massive subsidies. The political and economic transition at the start of the 1990s led to a collapse of the institutional arrangements or a withdrawal of the substantial public subsidy of rural areas. With the end of financial support, those countries concerned were forced to draw up new policy ideas for the development of rural areas. These schemes often varied considerably. This paper, which is based on completed and ongoing studies at IAMO, looks at the development in selected transition countries, focusing specifically on a comparison between the new EU Member States and China.

Table 1: Proportion of rural workforce in agriculture

	Proportion of rural workforce in agriculture (%)	Year
China	60	2005
Germany	3	2000
OECD	11	2004
Russian Federation	37	2003
Czech Republic	12	2000
Hungary	10	2000

Source: OECD (2009), OECD (2006), NBS (2006), ZVYAGINTSEV et al. (2008).

From a centrally managed to a decentral-endogenous rural development policy

Over the past two decades the EU's rural development policy has also undergone a transition: from a sector-centred structural policy, focusing on support for agricultural production and structural change, to a more decentralised process built on networks and local community initiatives. The OECD (2006) described this paradigm shift as turning away from a top-down strategy based on subsidies, towards a broader spectrum of policy instruments aimed at promoting regional competitiveness. Key components of this new approach are the rediscovery of the importance of infrastructure and the availability of a well-educated labour force, a greater concentration on local facilities and knowledge bases, and a governance approach that promotes the joint action of different actors, including stakeholders, or to put it differently, those affected and the authorities at various levels.

Since the accession of the new Member States in 2004 (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia), 2007 (Bulgaria and Romania), and 2013 (Croatia), EU structural policy has applied in these countries, too. Although the countries benefit from the availability of financial support, they have to implement the stipulated rules. There already exist a number of studies put together by IAMO staff in cooperation with colleagues throughout Europe, which analyse the successful and less successful examples of EU structural policy in the new Member States. Looking at local telecommunication networks, market access for small producers, the business climate for small entrepreneurs, and the development of tourism, PETRICK and GRAMZOW (2012) examine successful examples of private-public partnerships in Poland and determine the reasons for their

success. The authors identify the complementary use of different governance forms, or of divergent decision, implementation and supervisory mechanisms between the state, the market and private non-governmental initiatives to solve problems. Key factors of success are sufficient recognition the local population's needs, adequate communication of local actors with the population, and making use of the EU's many different funding opportunities, even if these are accompanied by bureaucratic hurdles.

Experiences of past EU enlargements for the countries of Central and Eastern Europe

Prior to its eastern expansion in 2004 and 2007, the EU had already undergone several rounds of enlargement, such as the so-called "northern expansion" in the 1970s, or the southern expansion in 1981-86, to name just two. An EU research project coordinated by IAMO staff (SCARLED = Structural Change in Agriculture and Rural Livelihoods; 2007-10) undertook a comparative analysis of the experiences of the accession countries at the time, drawing important conclusions for Central and Eastern European states (WOLZ et al., 2012). The analysis is based on case studies of example regions from Ireland (accessed 1973), Spain (accessed 1986), Eastern Germany (accessed 1990) and Austria and Sweden (both accessed 1995).

All selected regions are characterised by an unfavourable age structure of their population, increasing the probability of demographic problems in the near future. Adverse changes in the population structure of the regions concerned are the result of an unfortunate combination of demographic, economic and social factors.

Table 2: Important indicators from the SCARLED study regions (2005)

Region (Country)	Population density (inhabitants/km ²)	Proportion of workforce in agriculture (%)	Agriculture's share of GNP (%)
Border, Midland and Western Region (Ireland)	34.3	12.4	4.7
Navarra (Spain)	57.1	5.3	4.9
Schonen (Sweden)	106.0	2.0	1.3
Tyrol (Austria)	55.4	1.2	1.2
Altmark (Eastern Germany)	48.2	5.2	2.5*

Source: *WOLZ et. al. (2012).*

Note: * *Estimate.*

The main demographic problems are the falling birth rates and the out-migration of the younger population in particular. Economic problems include a decline in job opportunities and deterioration in infrastructure. Negative social developments, such as the decrease in the provision of public goods like health-care and schools, ultimately exacerbate rural underdevelopment in comparison with urban areas.

The EU's Common Agricultural Policy (CAP) is of major importance for the living conditions of rural households. Direct payments from the so-called first pillar constitute a significant proportion of agricultural incomes in many regions. Nonetheless, agricultural incomes have not been able to keep pace with rising non-agricultural incomes. Increasing economic heterogeneity within the EU after the southern expansion led to the establishment of a European structural policy, known as the second pillar of the CAP. This was designed specifically as an instrument to harmonise living conditions in rural areas. To begin with these measures were accompanied by relatively low financial resources, and mainly had an indirect influence on agricultural enterprises. In the last few years the financial resources

of the second pillar measures have substantially increased to the point where they have reached around 25 % of the entire budget of the CAP (i.e. almost 10 % of the EU budget). The consequences of this have been significant: the structural policy measures have had a clear effect on the working and living conditions of the rural population. Because of the diversity of rural areas, however, the initial top-down "one size fits all" approach has proved to be insufficiently well targeted. Every measure ought to take into account the specific strengths and weaknesses of a particular region. What has now been recognised is the importance of identifying the individual potential of each region, to use this as a basis for its specific development path. Another realisation is that the inhabitants of the regions in question best know the potential and weaknesses of the areas where they live. The new-style structural policy uses this local knowledge and builds on existing potential. Formulas for success cannot automatically be transferred from one region to another.

A successful development often depends on strengthening the links between agriculture and the other sectors in the regional economy. These links can be consolidated through rural tourism,



The challenge of conversion in rural Brandenburg almost 20 years after the departure of the Red Army

food processing or the introduction of innovative products and services. In some regions, for example, the expansion of bio-energy can make an important contribution to rural incomes and employment. Whereas some of these processes develop of their own accord, thanks to the dynamic of the sectors themselves, and can manage without substantial state support, other innovations need external subsidy to be able to mobilise local actors and realise a vision which is suited to the region concerned. This development can, in turn, motivate the local population and unleash additional momentum. Rural development is no longer perceived as a purely sectoral policy, but as a geographical approach which should take into consideration all aspects of local economic, social and political life.

A key feature of pluralistic societies is the involvement of a large number of actors in formulating, financing and implementing rural development initiatives. Traditionally the most important actors in this sphere have been the public administration, at national, regional and local level. These include the various national ministries and regional authorities, which are composed of employees and elected representatives. Now, however, besides the public administration and political parties, a variety of associations and self-help groups have emerged, which represent the various groups that make up the local population.

Actors must take into consideration certain criteria to ensure the success of a rural development programme. A key finding of the case studies is that horizontally and vertically connected partnerships as well as social networks are very important for successful rural development. On the one hand, a good partnership with all levels of the public administration is essential if local actors are to have success. Building these networks is a

time-consuming process. On the other hand, in addition to implementing laws passed by the administration, local actors need to collaborate in the process of drafting a regional development plan. Such a plan must be supported by a broad majority of actors, not just a narrow spectrum. Even if, in the early stages, many projects are in competition, it is crucial to reach agreement on priorities which support the overall plan. To the outside world all local actors must speak "as one voice" if they are to be successful. It is thus beneficial if representatives of local communities, the various associations and the political parties get together at an early stage. All regional planning activities must be based on a partnership and joint discussion. Finally, it is essential that all individual projects fit into the overall development plan.

Regional actors concur that close local cooperation is the most important factor governing the success of an individual measure. The constant exchange of information and ideas is fundamental. All decision makers in a region need to be brought together in a network. In view of how large some regions are, this represents a considerable challenge. Agreement on common areas of focus and courses of action, rather than a sectoral approach or one based on individual efforts, is imperative. In all of this the geographical dimension must not be lost sight of. The regular exchange of ideas between people who do not usually communicate, either on account of the office they hold, or because they are in very different professions, is in itself a positive outcome. Frequently such meetings produce an interlinking of various programmes leading to a greater common benefit. For example, synergy effects can be achieved by combining state-financed employment measures with programmes for village regeneration. Of course, there will also be competition between

actors over the right development priorities. But the case studies show that after joining forces actors have continued to work together closely and unanimously defend their plans to senior politicians and higher levels of public administration.

From the case studies we can draw several general conclusions. The drafting and implementation of rural development policies should be based on a geographically defined and integrated approach. Available financial support must be distributed according to local needs. Such a course of action requires policies which stimulate social interaction and the formation of networks at all levels. Through education and training as well as advisory services, the policies must also promote investment in human capital, especially in rural areas. The dynamic and significant involvement of actors in networks, both inside and outside the region, is absolutely fundamental. For this reason the organisational skills and involvement of local actors should be encouraged by both the public and private sectors, freeing up internal resources and allowing them to react properly to external developments. In order to extract the greatest benefit from EU membership it is necessary to understand fully the allocation mechanisms of the diverse financial subsidies and to develop appropriate national and regional structures, as well as institutions to apply for, administer and supervise EU funds.

Improving central and local administration for the drafting, choosing and implementation of projects is urgently needed. As most EU projects require co-funding, the encouragement of private-public partnerships is of particular importance. In many new EU Member States, the local institutional structures and involvement of actors are still poorly developed, especially in rural areas. There are also high levels of fluctuation within the

administrations of the new EU Member States. To date, therefore, it has been comparatively difficult to develop the necessary expertise within regional administrative bodies and to make targeted use of this.

Experiences from China

With the start of decollectivisation and the introduction of family farms at the end of the 1970s, the Chinese government gradually lifted restrictions and controls. At the same time the massive discrimination against the agricultural sector diminished. The abolition of taxes pertaining specifically to farmers and the introduction of subsidies for wheat instead of prescribed wheat deliveries are the most recent examples. The result of this has been a large increase in agricultural production as well as a substantial improvement in the incomes of agricultural households. And yet, since economic reforms were introduced for non-agricultural sectors in the 1980s, agricultural incomes have not been able to keep pace with the increase in non-farming incomes. The economic boom has accelerated structural change and triggered a wave of migration from the countryside to towns and cities. In spite of the substantial reduction in poverty in rural areas, the gulf between living standards in the countryside and those in cities has increased. In the past decade, therefore, the government has implemented a number of reforms to improve living conditions in the countryside, particularly as the provision of public services in rural areas is also considerably poorer. For example, a comparison of average time spent in education shows that urban dwellers attend school for three more years (10) than the rural population (7) (OECD, 2009). Under the title "Building a new socialist countryside", the various initiatives aim at increasing agricultural productivity, improving land use,

raising incomes, restructuring local administration, improving education and introducing social security systems.

The principal goal of the new land law enacted in 2002 was to strengthen the protection of property rights for agricultural land. It should also encourage the development of land markets. Since that time land redistribution has fallen, and the number of transactions via land markets has increased. Land use rights for agricultural households, which used to be limited to 30 years, were extended in 2008 to an "indeterminate period of time". The lack of land titles, however, makes it difficult to protect landowners from unlawful land appropriation. This problem is particularly acute in areas where there is substantial competition for land use, for example from urbanisation.

2002 also saw the start of a rural fiscal reform, which lowered agricultural taxes and increased transfer payments from local administrations to rural households. As local public investment in education, irrigation, agricultural extension services and infrastructure is essential, the drop in income resulting from the removal of farming taxes and levies requires a reorientation of fiscal policy. Especially in poor regions, where villages do not receive sufficient compensation through higher administrative units, there is a need for further fiscal policy reforms.

The numerous agricultural taxes borne by the farming population were completely abolished in 2004. A variety of subsidies were introduced instead. These include subsidies for the production of cereals, as well as subsidies on the input side, such as for the use of modern seed and for machinery. According to OECD figures (2011), financial support for agriculture in China, i.e. payments to farmers, rose from 6 % (1995) to 17 % (2010) of agricultural net product. The OECD also gives

figures for expenditure on public services, which is benefiting the agricultural sector in areas such as research and development, agricultural schools and infrastructure expansion. Figure 1 shows the relationship between these transfers and expenditure. Both have increased markedly in the past few years. It is also clear, however, that in some years during the 1990s more money was taken out of the agricultural sector than was fed into it (1993 and 1999).

Besides supporting agriculture, rural development policy in China is focusing on the introduction of social security systems in the countryside. In 2009 the New Rural Pension Scheme (NRPS) was established in certain regions. This social policy measure means that anyone over the age of 16 who is not insured by the municipal pension scheme should enjoy basic social security when they are older. One main difference from the previous system, which was entirely dependent on farmers' contributions, is the additional financing with state money. This measure, which to begin with was only introduced in 10 % of rural districts, has since been gradually extended. By 2012 the NRPS covered 1,914 districts in 27 provinces. It includes 326 million inhabitants in rural areas, 85 million of which are already receiving pension payments from the system (MINISTRY OF HUMAN RESOURCES AND SOCIAL SECURITY, 2012). Whether and to what extent the pension system has already helped reduce extreme inequality is a question which has not yet been investigated quantitatively.

At the same time the Chinese government is making efforts to improve medical provision in rural areas through new legislative initiatives. In 2003 the Chinese government introduced the so-called New Rural Cooperative Medical System (NRCMS). This



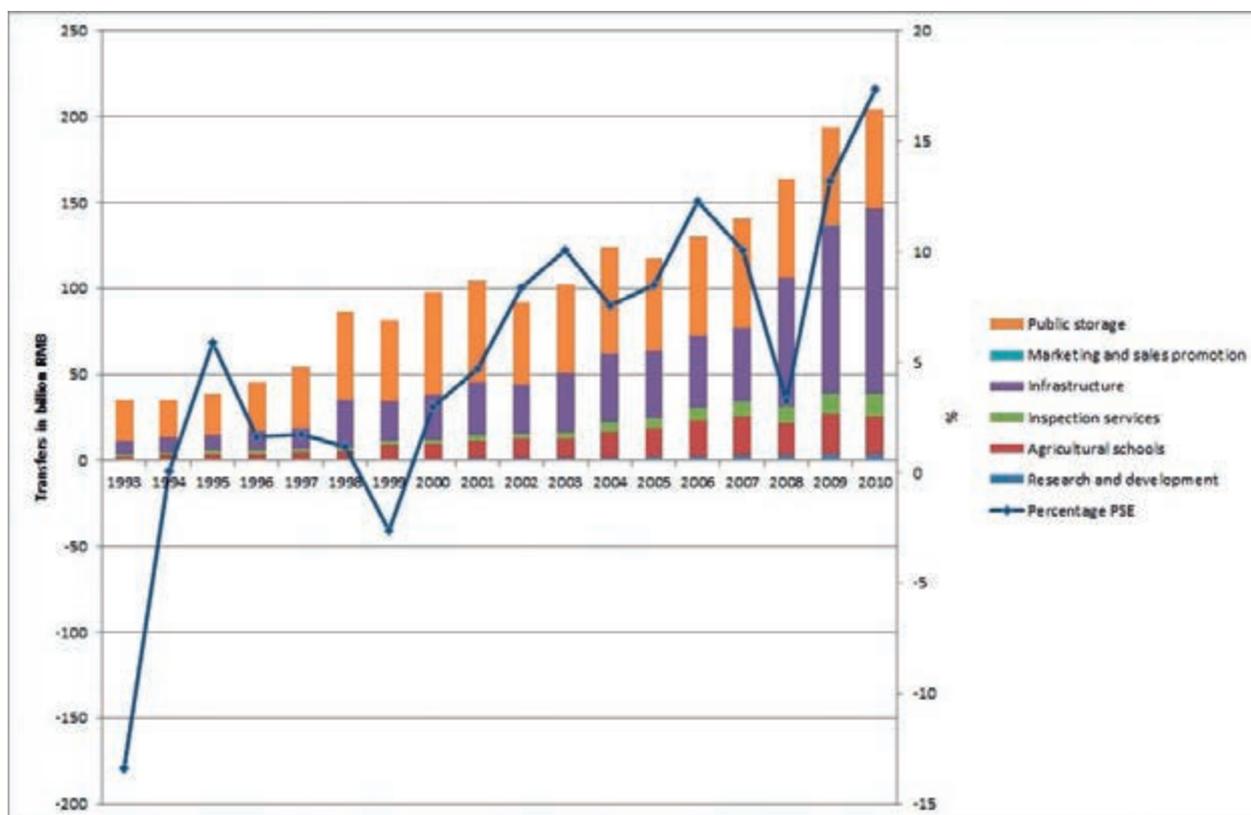
Former Red Army quarters, Fürstenberg, summer 2012

measure is principally aimed at the inhabitants of the poorest areas in Central and Western China. The goal is to improve the provision of health facilities in rural areas. By the end of 2011 the programme covered 97.5 % of the rural population, which corresponds to 832 million people. Because of the very varied development of health services in different regions, however, the implementation of the programme faces a number of challenges.

Conclusion

The critical scrutiny by academics of the EU's structural policy and the recognition that funds were not being employed efficiently have, in addition to other factors, led to a paradigm shift in EU policy on rural development over the past few decades. Even though agriculture is no longer the largest employer and

Figure 1: Development of public services for agriculture and of direct transfers to producers (PSE = Producer Subsidy Equivalent)



Source: OECD (2011).

creator of net product in rural areas, farmers will continue to be needed, perhaps even increasingly so, as disseminators of information and businesspeople in local networks. Farmers are reliant on a well-functioning infrastructure and public services suited to the region. As businesspeople they also have a duty to the lives of their local communities. Development plans which are drawn up decentrally and with a focus on networks offer them the opportunity to participate in these processes.

Other transition countries outside the EU are choosing their own plans for rural development policy. As a result of starting from very different positions, in China, for example, education and social security have a far higher significance. The IAMO Forum 2013 will look in detail at the paradigms in different transition countries. Covering a broad range of topics, from public services provided by the state or the private sector, business management and employment possibilities, to living conditions, the academic conference will highlight diverse aspects of rural development and its associated policies.

Further literature

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The persistence of corruption

THOMAS HERZFELD

Almost daily we come across reports in the media highlighting widespread corruption practices in many countries of Eastern and Southern Europe, as well as Central Asia. Corruption is seen as a key cause of stuttering economic development. Yet corruption is not a problem unique to former centrally planned economies. It exists across the globe and can be interpreted as an indicator of poor or inconsistent implementation of regulations, monitoring and sanctions.

In spite of these endless reports, in the countries concerned there seems to be little change in the circumstances which attract criticism. This observation corresponds with findings from political economics, which uses models to formulate the hypothesis that the poor quality of institutions is maintained by those who gain additional benefits from this state of affairs (ACEMOGLU and ROBINSON, 2011). Other formal models from individual decision theory hypothesise that two stable levels of corruption exist (ANDVIG and MOENE, 1990). The main factors stabilising an already existing high level of corruption are a low probability of uncovering corrupt deals as well as the possibility of avoiding punishment by using bribes. Where there is no corruption, by contrast, the probability of being found out is high, and punishments are meted out. A stable and low level of corruption is the result.

On the basis of these theoretical models, we may ask how the level of corruption in a country changes over time. Can the assumption that there is a stability in levels of corruption be corroborated by empirical data? Are there only negative examples

of increasing corruption, or do contrary examples of successfully fighting corruption exist, too? What is the situation in the former centrally planned economies of Central and Eastern Europe and Asia? This paper presents some preliminary findings from ongoing research at IAMO on this topic.

Methodological background

The empirical analysis uses transition probabilities between different corruption levels as a measure of the change in corruption over time. For the calculation, countries in the sample were divided into classes depending on their corruption level. Transition probabilities indicate the (qualified) probability that a country will change from one class to another within a year. The calculated probabilities are represented in a matrix. The depiction of such a stochastic process goes back to the Russian mathematician, Andrey Andreyevich Markov (1856-1922), and is known as the Markov chain.

Developing indicators for corruption

This analysis uses the corruption indicator from the Global Competitiveness Report of the World Economic Forum (WEF) (SCHWAB et al., 2012). The indicator is based on surveys of business representatives about the redirection of public money as a result of bribery, their opinion on public trust in the integrity of politicians over financial matters, and the frequency of irregular payments by firms to state officials to obtain contracts.

The sample here comprises a data set (panel) for the period 1996 to 2012. The WEF's first report published a corruption indicator for 49 countries. In the latest report the number of countries examined rose to 144. It is not only the number of states analysed which has changed over time, but some countries have fallen out of the panel in spite of the increase in numbers overall, while others have been added. This explains why the total number of countries for which we have data for at least one year between 1996 and 2012 is 150. The original corruption indicator is defined for the interval from one to seven. To allow better interpretation and comparability with other corruption indicators, the index has been converted into a scale of 0 to 9, in which higher values represent a higher level of corruption.

Taking the WEF's indicator, countries such as Denmark, New Zealand and Singapore show a particularly low level of corruption. By contrast, other countries such as Haiti, Nigeria, Venezuela and the Kyrgyz Republic are characterised by a high level of corruption.

Findings of the analysis

Table 1 presents the estimated transition probabilities for the entire sample. The first column gives the starting classes in the previous year ($t-1$), while the first row of the matrix shows the classes in year t . In other words, if a country belongs in the previous year to class 0 with the lowest corruption, its probability of retaining this status the following year is 20%, while the probability of it slipping into the slightly worse class 1 is 50%. If we add up all the (transition) probabilities in a line, after rounding up or down we arrive at 1.0 (=100%).

The findings demonstrate that the corruption level has a high degree of persistence from one year to the next. With the odd exception, the transition probabilities on the diagonal line of the matrix are the highest. Those figures on the diagonal are the ones which refer to the probability that in any country the extent of corruption will remain unchanged at a high or low level. A comparison of the values on the diagonal suggests that the

Table 1: Transition probabilities between corruption levels

	0	1	2	3	4	5	6	7	8	9
0	0.20	0.50	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.09	0.44	0.38	0.06	0.01	0.01	0.00	0.0	0.0	0.0
2	0.0	0.22	0.53	0.18	0.03	0.04	0.01	0.0	0.0	0.0
3	0.0	0.02	0.25	0.45	0.15	0.07	0.01	0.04	0.02	0.0
4	0.0	0.0	0.02	0.20	0.45	0.18	0.07	0.05	0.02	0.01
5	0.0	0.0	0.0	0.03	0.24	0.37	0.19	0.08	0.06	0.02
6	0.0	0.0	0.005	0.03	0.05	0.24	0.42	0.19	0.05	0.02
7	0.0	0.0	0.004	0.01	0.01	0.07	0.23	0.58	0.09	0.01
8	0.0	0.0	0.0	0.03	0.01	0.03	0.01	0.30	0.59	0.03
9	0.0	0.0	0.0	0.0	0.0	0.06	0.09	0.06	0.42	0.37

degree of persistence is relatively high in classes two, seven and eight. The lowest degree of persistence is with countries in classes zero, five and nine. Countries with a very low level of corruption will move towards a slightly higher level, whereas in countries with a particularly high level of corruption there is a great probability that it will fall slightly. For countries in the middle, the probability of a decrease in the corruption level is 28%, and that of an increase around 35%.

What is the situation like in the former centrally planned economies of Eurasia? To answer this question we have used the same analysis for a subsample involving 30 countries from Central and Eastern Europe, Central Asia and South-Eastern Asia. Table 2 illustrates the estimated transition probabilities for the subsample of these transition countries.

The first thing we notice is that none of these countries falls into the two lowest corruption classes (zero and one). Evidently the level of corruption in the former centrally planned economies is considerably higher, even 20 years after the start of political

and economic transition, than in other countries of Central and Western Europe, such as Denmark, Finland or Sweden. With the exception of classes two and nine there is a high persistence of corruption level for this subsample, too. This is most clearly seen in countries in classes six to eight. For all of these three classes, however, the probability of moving to a lower level of corruption is higher than that of a further rise in corruption level. Finally we can see a few exceptions. For example, the indicator shows a rise in the level of corruption in Estonia and Slovenia. Between 2004 and 2005 both countries drop from class three into class four, and between 2006 and 2007 even from class two to class five. By contrast, the indicator for the Russian Federation moves from class nine to class seven between 1996 and 1997, which represents a distinct decrease in the corruption level.

Interpreting the findings

In a global analysis, i.e. when using the entire sample, the calculated transition probabilities indicate that two stable positions exist. As a rule, countries show either a high or low level of

Table 2: Transition probabilities between corruption levels of transition countries

	1	2	3	4	5	6	7	8	9
1	–	–	–	–	–	–	–	–	–
2	–	0.0	0.60	0.00	0.40	0.0	0.0	0.0	0.0
3	–	0.17	0.26	0.22	0.04	0.0	0.17	0.13	0.0
4	–	0.0	0.23	0.39	0.23	0.06	0.10	0.0	0.0
5	–	0.0	0.03	0.17	0.44	0.20	0.06	0.11	0.0
6	–	0.0	0.02	0.03	0.21	0.62	0.11	0.02	0.0
7	–	0.0	0.0	0.02	0.08	0.24	0.60	0.05	0.02
8	–	0.0	0.0	0.0	0.03	0.0	0.33	0.64	0.0
9	–	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0

corruption; medium corruption levels tend to be a temporary phenomenon. For the subsample of transition countries this hypothesis does not hold true. This finding can partly be explained by the lack of countries in the sample with a particularly low level of corruption. Second, this group of countries was and is characterised by profound political and economic processes of transformation. This dynamic impedes the consolidation of long-term stable conditions.

Finally we should highlight two aspects which are relevant for future in-depth analyses. Markov chains are based on the assumption that changes in conditions are independent of each other. In other words, this assumption means that the probability of a fall in the level of corruption from one year to the next is completely independent of changes in the corruption level in previous years. In our study this assumption of the randomness of changes in conditions is very restrictive. Further analyses using alternative econometric methods are thus necessary to substantiate the conclusions arrived at here.

Moreover, both theoretical and empirical studies attest to a close interplay between the level of corruption in a country and other indicators of institutional quality (DE VAAL and EBBEN, 2011; HERZFELD and WEISS, 2003). Amongst other things, widespread corruption can undermine the functioning of the judicial system, while a poorly functioning judicial system hinders the fight against corruption. Further analyses should, therefore, consider the phenomenon of corruption without detaching it from other indicators of a country's institutional parameters.

Conclusion

As a general rule a country's corruption level changes only slightly over time. Theoretical models even postulate that where corruption in a country is high or low, the level of corruption is stable. An empirical verification of this hypothesis with the help of the analysis of Markov chains confirms the predictions of the theoretical model for a global sample, but not for the sub-group of Eurasian transition countries. The findings of this study also demonstrate that measures to combat corruption need to be sustained over the long term if they are to prove successful.

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Alarm or false alarm? The findings from a review of empirical studies about financial speculation with agricultural raw materials

THOMAS GLAUBEN, INGO PIES, SÖREN PREHN, MATTHIAS GEORG WILL

Over the past decade new actors have appeared on the futures markets for agricultural raw materials. Commodity Index Traders (CITs) are involved on a large scale with a business model that consists of permanently taking long positions that are rolled regularly. Without building up any stocks themselves, CITs help safeguard agricultural producers against price risks.

This new development has led to the suspicion that the CITs may have been responsible for the dramatic price fluctuations in 2007-08, 2010-11 and 2012. Given the incidence of hunger demonstrations around the world many academics and business-people have surmised that financial speculation with agricultural raw materials, originating with CITs, triggered the rapid food price increases, causing wide-scale suffering, particularly for those afflicted by extreme poverty.

This suspicion has launched an intensive, international discussion which has already brought about some regulation. The USA, for example, has introduced obligatory position limits. In Europe they are currently working to update the directive for markets for financial instruments ("MiFID"). In this regard, several renowned non-governmental organisations in Germany have joined forces for a public campaign. They are calling for the introduction of a transaction tax, the setting of stricter position limits, and a complete ban on financial speculation by CITs.

To give their demands greater weight, the non-governmental organisations have commissioned their own studies (PIES, 2012).

These claim that a "scientific analysis" of the available data will provide "overwhelming proof" that financial speculation is causing and exacerbating hunger in the world.

These assertions have not gone unchallenged. To cite only one example, Thilo Bode, the senior manager at foodwatch, accuses banks of "creating hunger" with their trading on futures markets. Within three months he has been involved in no fewer than three publicly documented debates, in which professors of economics have pointed out that his claims contradict the latest research in this area (FAZ, 2012; HANDELSBLATT, 2012; SÜDDEUTSCHE ZEITUNG, 2012). Despite this, the non-governmental organisations have not changed their position that the scientific evidence is on their side (ATTAC, 2012).

To resolve this dispute, IAMO, in conjunction with the chair for business ethics at Martin Luther University Halle-Wittenberg, has compiled a review of the literature on the subject (WILL et al., 2012).

Findings of the review of journal articles

The first part of the literature review evaluates ten academic articles which were published between 2010-12 in peer-reviewed journals. All ten studies were discrete pieces of research which implement current econometric processes of time series analysis.

(1) Eight of these ten studies investigate whether financial speculation on the futures market has pushed up price levels

for agricultural raw materials, and thus scrutinise the accusation levelled by the non-governmental organisations. Interestingly, all eight studies are unanimous in their conclusion: there is *no* proof of such an effect.

(2) Of the ten peer-reviewed articles, four address the question of whether financial speculation on the futures market has increased volatility, i.e. prices going up and down, on agricultural markets. If this were the case, CITs would not provide a function of security, but insecurity. As far as dysfunctional volatility effects are concerned, two studies give the all-clear; they are unable to substantiate this concern. Although a third study has identified a statistically significant relationship, this influence is actually *negative*: as the volume of trading increases, volatility decreases. Only a single study reaches the conclusion that speculation leads to an increase in volatility in the short term, but this critical observation is mitigated by the assertion that the identified effect has no influence in either the medium or long term.

(3) Of the ten articles published in refereed journals, seven take an explicit position on the question of regulation. None of the papers supports position limits, let alone a ban on financial speculation with agricultural raw materials. On the contrary, five of the articles warn against regulating futures trading, pointing to the danger that misregulation would make the agricultural markets function *worse* rather than better. There is a specific warning against removing liquidity from the market. This would prevent many agricultural producers from being able to find exchange partners who could safeguard them from price risks. As a consequence the agricultural producers would have to bear their own risks, instead of being able to pass them on to those actors

who, given a suitable premium, are willing and able to shoulder these price risks.

It is not only true that most of the articles believe that financial speculation is harmless. Five papers conclude that financial speculation actually has *positive* effects because it allows the futures markets for agricultural raw materials to function *better*.

Findings of the review of grey literature

To broaden our basis of investigation, and particularly to take in the most current research, a further 25 studies which appeared between 2010-12 were analysed. These are also discrete, empirical studies, but they have not (yet) appeared in refereed journals. Rather, they have the status of a discussion paper and thus must be counted as grey literature.

(1) Thirteen of the 25 papers investigate whether financial speculation on the futures market has increased the volatility of agricultural prices. Four articles give a positive answer to this question and nine a negative one. Of the four articles, two underline that their own research findings must be interpreted with particular caution:

- One of the papers explains the empirically identifiable price effects by an increasing cross-linking of the market.
- One of the papers states that the question of whether the influence of financial speculation of volatility is statistically significant or not depends on the period of time of the investigation.

(2) Nineteen of the 25 articles investigate whether financial speculation on the futures market has pushed up prices on agricultural

markets. Nine articles answer this question positively and ten negatively. Again, it must be noted that five of the nine emphasise that their own research findings must be interpreted with particular caution:

- One of the papers does not ultimately ascribe the price rises to financial speculation, but to the expansive monetary policy of the central banks.
- One of the papers analyses a large number of alternative specifications. Only a few of these tests have positive findings. For this reason the author concludes overall that financial speculation cannot be blamed for negative effects and thus the all-clear can be given.
- One of the papers explains the empirically identifiable price effects by an increasing cross-linking of the market.
- One of the papers warns that their own conclusions of a positive effect may be due to fact that new testing processes were used which have had little experience so far.
- One of the papers can identify a price influence of financial speculation only on those markets which have little liquidity.

To conclude, these four articles stand in opposition to ten studies which unequivocally *cannot* substantiate the existence of a link between financial speculation and price rises.

(3) Of the 25 articles, thirteen directly address questions of regulation. Not one article supports the demand articulated by the non-governmental organisations to exclude CITs from futures markets and ban financial speculation on them. Two papers do advocate a transaction tax, and three support position limits to curb the volume of financial speculation. Seven papers, on the

other hand, warn against the danger of misregulation, while five believe that no efforts should be made to try to curb financial speculation, because overall it produces positive effects. Five studies are expressly opposed to position limits.

Conclusions

(1) On the basis of these findings, our comprehensive literature review points to three conclusions:

- Even though the research literature still leaves questions open, given the current level of knowledge there is much proof that the non-governmental alarm should be regarded as a *false* alarm.
- Political demands for regulation – the introduction of a transaction tax, the establishment of strict position limits, and an outright ban on financial speculation – are *in opposition* to the prevailing mainstream of academic literature.
- On the other hand, demands to improve regulation on the transparency of futures markets for agricultural raw materials are well founded and can be supported by scientific evidence. This is especially true of regulations which raise *information efficiency*. In Europe there is a deficit in this regard compared to the USA.

(2) From the review of the literature and its findings we can infer the following:

- The attempt to pillory CITs and their futures markets for financial speculation with agricultural raw materials has diverted public attention from the properly relevant policy options for combating acute hunger.

- A key reason why such a one-sided argument could made headway amongst the general public was that the criticism from non-governmental organisations fell on particularly fertile ground in the wake of the global financial crisis.
- This viewpoint should be opposed by the notion from business ethics that, because of their safeguarding function, commodity futures markets operate in the mode of *institutionalised solidarity*. It should also be countered by the view of the overwhelming majority of empirical studies that financial speculation has allowed agricultural markets to function *better* rather than worse.
- To combat global hunger effectively we must, in *real economic terms*, ensure that the supply of foodstuffs can keep pace with the rising demand in the foreseeable future.

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Trapped in farming? Barriers to non-farm businesses in rural Bulgaria

DIANA TRAIKOVA

As one of the most recent members of the European Union, Bulgaria has officially completed the transition from a centrally planned economy to a market one. Amongst the many changes brought about by transition is that every citizen now has the right to establish a private enterprise. Although this process has been set in motion in urban areas, the rural parts of the country show a picture of gradual economic decline. After the dismantling of the big state-owned enterprises, which were the main employers in the rural economy, private businesses were expected to fill the vacuum in the non-farm sector. Until these are established the farm sector is to act as a social security net to rural households. Laid-off and without any other means of earning income, even those who used to work in rural towns have returned to farm their land. This at least guarantees they can exist at subsistence level. After the initial shock, rural non-farm businesses were expected to emerge, following the signals of the market. What happened instead was that rural people started searching for new ways to generate income, and when they saw no prospects other than unemployment or farming, many of them decided to leave, heading to the cities or abroad. With a high proportion of elderly people and population numbers continually in decline, rural villages faced new challenges, such as difficulties in maintaining the infrastructure, securing an adequate level of public service provision, and putting a halt to the depopulation process. The non-farm sector caught the attention of policy makers. What was wrong, why were so few

non-farm businesses being established in rural areas? Were people stuck in farming by tradition, and satisfied with the low income it provided? Or maybe there were other barriers? To address this issue, a survey was undertaken, with the aim of understanding the start-up decision process and the perceived barriers hampering non-farm entrepreneurship.

The study was conducted in 2008-09 in three regions with varying degrees of economic development and different farm structures (Pazardzhik, Tarnovo and Burgas). This allowed the study to cover a wide range of challenges and to account for the different context settings. Face-to-face interviews provided the opportunity to ask rural people directly about their livelihood strategies and identify the most important reasons why they have not yet started any non-farm self-employment activity. After the data cleaning a sample of 195 households remained. The insights described below stem from their stories. Although not representative, the study highlights problems which are likely to be common for many rural areas in the new Member States of the European Union.

The problems started when the big enterprises were dismantled and privatised – transferring the land and physical assets, which had been owned by the state for about forty years, back to the initial private owners or their descendants. In this process not everybody had an equal start. Those who had close relationships with the people in power held the better cards and could

benefit from intransparent procedures – usually they took the most valuable physical assets of the local cooperatives, they had the right to choose first from the pool of assets and in many cases took much more than initially foreseen. As a result many others finished up with disproportionately little or practically no property returned. At the same time the few privileged new owners of the production assets were not necessarily the most motivated to use them productively. The justice system had not yet been reformed and those disadvantaged barely had any chance to assert their rights. Here is what one middle-aged man from the village of Dorkovo said:

"The privatisation? My heart still bleeds... I really wanted to get this turning machine. It would have given me the chance to stand on my own two feet and earn some money... I'd been using one of those machines for half my life! But others got it. And then I heard they just took it to the scrapyards! They couldn't use it; they just wanted to grab as much as they could without paying the proper price. They took it to the nearest town and sold it to a scrap merchant. They still made a good profit because they'd paid peanuts for it. Often people come and ask me to make a spare part for their tractors; I'm well known for my precise, detailed work. Then I go to a friend of mine in the city who has a machine and work on his one for few hours. But it's lots of hassle, travelling, arranging, begging... I was an inexperienced fool, I wanted to play by the rules..."

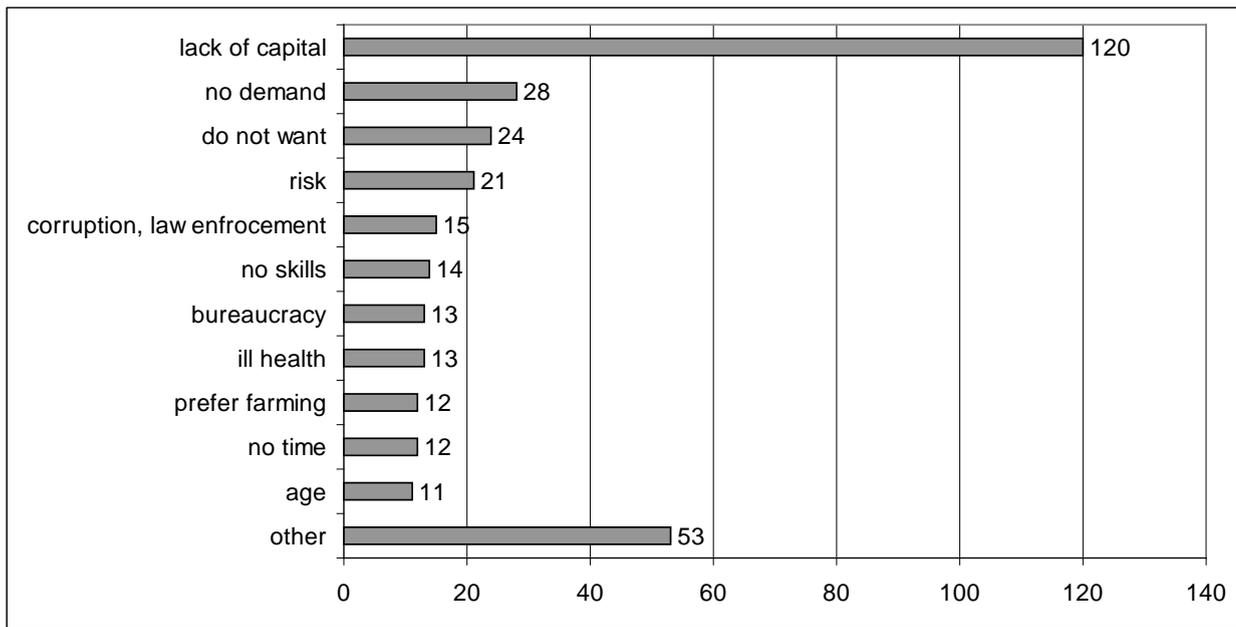
The majority of the workers laid-off from the factories found that their qualifications were no longer relevant for the immediate needs of the local labour market. Due to the difficulties in finding a job, people had to learn new skills, chief amongst them how to take responsibility for their lives without getting instructions

from the state. Returning to traditional survival strategies in rural areas, farming emerged as one of the comparatively rewarding choices during the hungry years at the start of transition. It helped to make ends meet, guaranteeing food for the household at least. This proved to be an efficient strategy, but in most cases these were small-scale subsistence or semi-subsistence farms with low productivity and poor technological provision. Even in fertile regions productivity dropped dramatically. Within a market economy one might expect that over time the land would be allocated to more efficient farmers, thus overcoming the productivity issue. But after the accession of Bulgaria to the European Union in 2007, the meaning of land changed significantly. Because the Common Agricultural Policy applies to all Member States, Bulgarian farmers discovered that it was possible to get subsidies based on the land they owned. Which made them reluctant to sell it. It was not clear when, and how subsidies would be paid, nor how high they would be, so any long-term land rental contracts were avoided. In this "stand-by" mode in some villages people turned back to the cooperatives, pooling their land and paying for the machines to plough, seed and harvest the crops. This arrangement gives every farmer the freedom to exit the cooperative within a year, preventing long-term sustainable land tenure. The rent these farmers get from the cooperatives is in kind – coupons for bread, for oil or some corn for fodder. These products just cover the farmer's own needs and are rarely sold on. Despite the fact that farming is not their dream occupation, the majority of rural residents have stuck to their land, because it literally feeds them. A long-forgotten Bulgarian saying has again become popular: *"You can only acquire land through war or marriage"*. Land is seen as the basis for survival.

One also comes across people in rural Bulgaria, however, who do wish to start non-farm businesses. The most common intention is to open a grocery shop or small café. These business models are known to have limited growth potential due to the low local purchasing power and the unfavorable population development. Because of the low entry barriers there is also strong competition and the market is saturated. Also, in places where more than half of the village residents rely on farming, a bad year means a covariant shock, which would inevitably affect the non-farm businesses as well, because they are aimed at the local population only. The usual idea of coping with shocks through non-farm diversification would not work in such circumstances.

There are also other business ideas, aimed specifically at the needs of an ageing population where out-migration is being accelerated. Traditionally in Bulgaria, the younger generation takes care of the elderly, at least in the immediate family. But when this younger generation has to migrate in search of employment, they must leave their elderly relatives behind, although the money they earn in the city allows them to pay for care. Recognising this niche, some have planned ventures in this area: offering a home-cleaning and cooking service for sick and single elderly people, building a nursing home, providing a service to set up and maintain internet communication with relatives living in the cities, internet training for senior citizens. More ambitious

Figure 1: Reported barriers to starting non-farm businesses



Source: Own depiction.

Note: Up to three answers were possible. Results based on 195 interviews with heads of households.

projects have included plans to build a tourist village or a solar facility for electricity generation. It was interesting to investigate the reasons why these were not realised. The answers are summarised below in Figure 1.

By far the most widespread problem reported was the lack of start-up capital. Given that people in rural areas are typically unwilling to risk their land, it is unlikely that they might obtain credit. Besides land, rural households possess barely any other valuable assets suitable as collateral. Houses in depopulating regions are not attractive to banks, and (old) machinery is usually not accepted. So for those still intent on realising their business idea, they need to rely on savings or to borrow from their friends and relatives. Another observed strategy is to work abroad as an agricultural labourer for several seasons until the required amount of money is accumulated.

Those who have overcome the hurdle of starting capital complain about the clumsy procedures and inefficient administration. Especially when employing staff (creating jobs), issues related to taxes, minimal wages, social and health insurance, which are typical for well-developed economies, tend to be prohibitive to fragile, post-socialist, rural business initiatives. Furthermore, in order to complete the paperwork, individuals need to go to the nearest town or city where the authorities are located. Transport and time costs disadvantage those aiming to start rural businesses. Another problem is the high number of administrative procedures, which gives corrupt officials the opportunity to get rich. For example, in order to register a coffee shop one needs to obtain at least ten permits from different authorities. At each stage the officials can abuse their positions and require some "speeding-up fee", or simply block the documents. In developed economies one

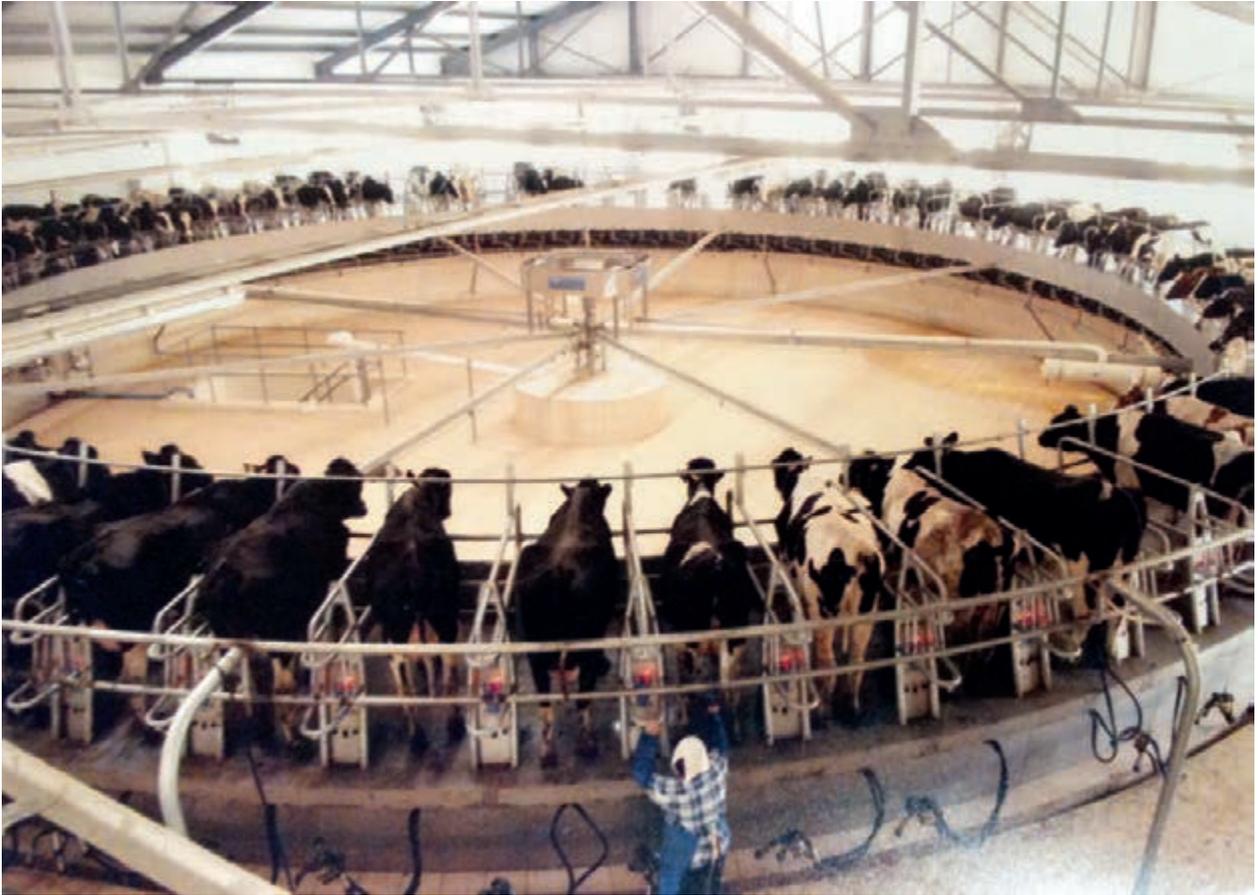
could turn to the courts and enforce sanctions, but in transition countries, the justice system often fails to function properly. More than the half of the sample reported their belief that bribes are a very effective means of influencing the courts in Bulgaria.

Potential entrepreneurs thus try to minimise risk by not letting the situation escalate so that recourse to the justice system is unnecessary. Instead they seem to trust only partners they know. This comes at a price – the pool of possible suppliers and clients is rather limited, making it hard to achieve any economies of scale. Being aware of this fact, many just give up their plans for non-farm businesses and stick to their small farms, avoiding the state and the officials as far as possible.

Without doubt these are harsh conditions for doing business. A constantly shrinking base of people in working age with modest incomes does not really provide a lucrative market for big investors. The average rural inhabitant encountered in this study feels left down and exploited by the state. Such a perception fosters a culture of distrust and risk aversion. When one has never held a management position and approaches pension age, it is hard to risk everything to invest in a business with uncertain prospects. On the other hand, most of the households do not see any other alternatives after several bad harvests and are forced into risky and desperate ventures. Taking into account the fact that most of the business ideas encountered have been born out of need, the study concluded that these people actually require some social support and would be unable to respond to traditional business incentives (e.g. lowering taxes or training in how to draft a business plan). The businesses they would create would rely predominantly on copycatting and not really facilitate innovation spillover. These businesses are not

particularly viable and will most likely vanish from the economic landscape within a few years. No jobs, or only a limited number, are likely to be created in this manner. Engineers without factories, teachers without schools, artists without an audience – all of these became farmers. Some of them like agriculture and

enjoy the rural lifestyle. But the majority are stuck in the sector against their will. While they remain in rural areas, policy strategies must mobilise their talents and show them a route out of the "farming trap".



Agroholding Avida, Ukraine

The efficiency and productivity of Ukrainian agroholdings

KARIN KATARIA, FRANZISKA SCHAFT, ALFONS BALMANN, IRYNA KULYK

Introduction

In the early 1990s, post-Soviet countries such as Ukraine, Russia, and Kazakhstan were expected to become some of the world's main breadbaskets. Until recently, however, these expectations have been far from being fulfilled. After the break-up of the former Soviet Union, yields declined until about 2000 at least. Afterwards, yields started to recover slowly, but only attained the 1990 level in some of the most recent years, even though technological progress should have allowed for significant yield increases. It can hardly be said, therefore, that these countries exploit their production potentials. On the other hand, structural adjustments encouraged the rise of super-large farms, which in the literature on this topic are often referred to as "agroholdings". Since the late 1990s we have seen the emergence of these entities, which are often highly integrated both horizontally and vertically. According to estimates of the Ukrainian Agribusiness Club (UCAB), about 79 agroholdings in Ukraine cultivated around 5.2 million ha. in 2011, which corresponds to 25 % of all farmland under farm cultivation, or 14 % of total agricultural land. The largest agroholding is estimated to control 508,800 ha. and is still expanding. These days it is common to see large agroholdings taking over not only smaller corporate farms, but other agroholdings, too.

Due to their comparably large average size and group affiliation, it could be assumed that farms within agroholdings might

have advantages in establishing productive and efficient structures compared to independent farms. In the case of Russia, HAHLBROCK and HOCKMANN (2011) found that farms belonging to agroholdings were on average less productive than independent farms in 2001, but that they displayed a higher average increase in total factor productivity during the observed time period (2001-07) and had about the same productivity as independent farms in 2007. This was explained by the strong increase, on average, in technological progress among member farms of agroholdings during the observed time period.

As far as we know, the efficiency and productivity of agroholdings in Ukraine has not yet been extensively analysed. Based on indicators like yields, cost, sale prices and profitability, the annual study "Largest Crop Holdings in Ukraine" by the Ukrainian Agri-Business Club UCAB (e.g. 2012) compares the performance of selected agroholdings and independent farms. Findings of previous years indicate that holdings are less effective in the production of most main crops and that the cost of production per unit of output in agroholdings is higher than in independent farms.

This paper aims to analyse in more detail and compare the performance of Ukrainian agroholdings and independent farms by measuring their efficiency and productivity based on more recent data. We will begin with an overview of the data and methods used, present the findings of the efficiency and productivity analysis, and finally outline our conclusions.

Data and descriptive analysis

The data used in this analysis consists of accountancy data that was made available through the association "Ukrainian AgriBusiness Club"; it covers the time period 2008-10. Farms with less than 90 % percent of total value of output coming from crop production, and farms which were not observed for all of the three years were excluded from the original data set, resulting in a data set of 822 farm-year observations (i.e. 274 farms observed in each of the three years). Of these, 27 % (73 farms) are members of an agroholding.

The measuring of efficiency and productivity described in the next section will consider one output and four inputs. The output is the value of total production (crop and livestock) in thousand UAH (the official abbreviation for the Ukrainian currency, the hryvnia) and the inputs are material costs in thousand UAH (seeds, feedstuffs, fertiliser, etc.), capital costs (depreciation of

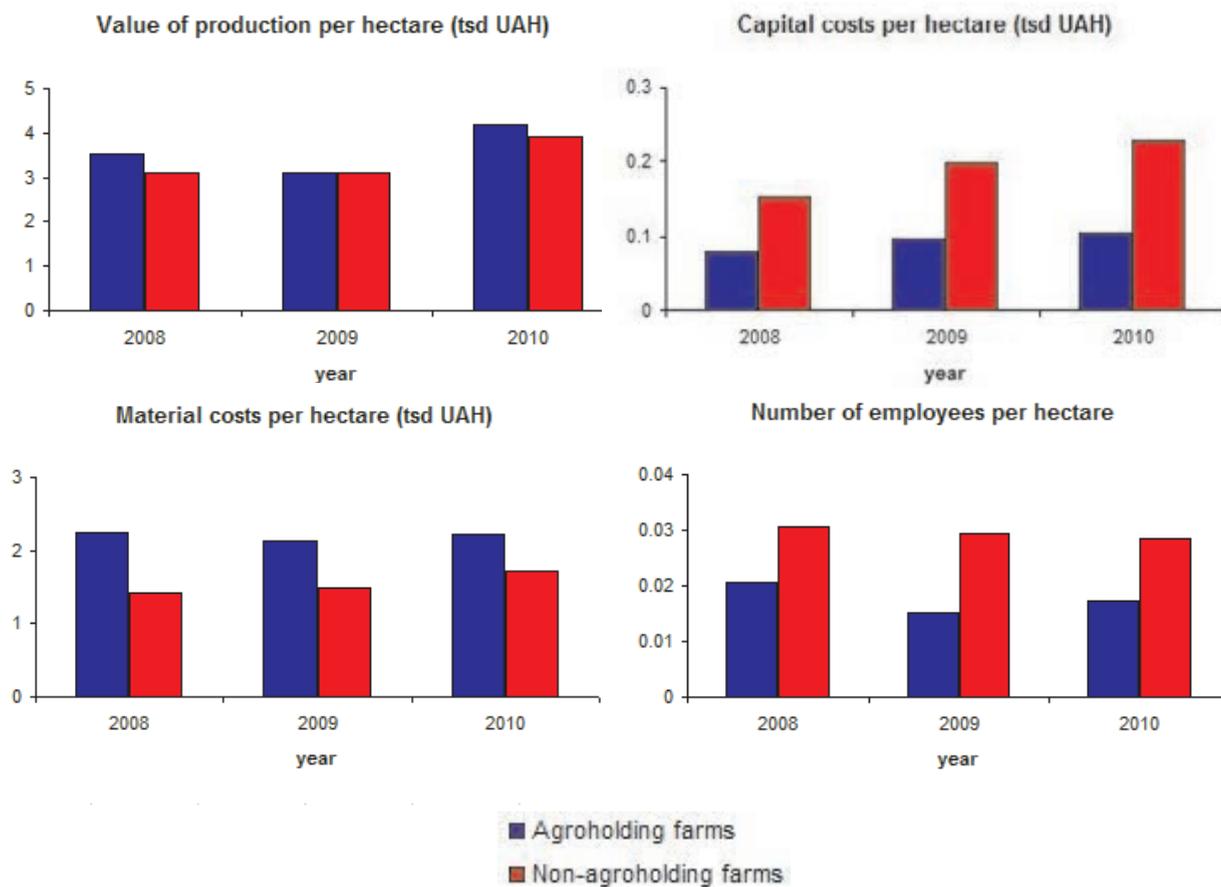
assets) in thousand UAH, number of workers and total agricultural land in hectares. Table 1 shows descriptive statistics for all farms in the sample as well as giving separate figures for farms that belong to an agroholding (hereafter referred to as "agroholding farms") and those that do not (hereafter referred to as "non-agroholding farms"). The farms belonging to an agroholding are, on average, substantially larger than non-agroholding farms (8,200 versus 2,229 hectares).

Figure 1 displays average figures for value of production per hectare as well as input usage per hectare for both groups of farms. As can be seen, capital costs per hectare are lower, on average, for agroholding farms. Interestingly, Figure 2, which illustrates capital costs for various size groups in 2010, indicates that the difference in capital costs between agroholding and non-agroholding farms cannot be explained by differences in farm size. Figure 1 further shows that, on average, more

Table 1: Descriptive statistics for the sample of farms, 2008-10

Variable	Non-agroholding farms (No.=603)		Agroholding farms (No.=219)		All farms (No.=822)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Value of total production, 1000 UAH	6,800	8,082	32,278	58,072	13,588	32,717
Material costs, 1000 UAH	3,462	4,620	19,760	33,879	7,804	19,298
Capital costs, 1000 UAH	391	601	930	2,036	534	1,193
Average full-time workers	51	72	150	271	77	159
Total agricultural land (ha.)	2,229	2,141	8,208	11,534	3,822	6,759

Figure 1: Output and input usage per hectare by agroholding and non-agroholding farms



"material inputs" are used by agroholding farms, indicating higher liquidity in these operations. Agroholding farms also have a lower labour input per hectare, possibly suggesting higher hidden unemployment among non-agroholding farms. According to interviews with representatives of agroholdings, however, hidden unemployment exists in their farms as well, although to a lesser extent. There is still great potential to increase labour productivity in Ukrainian agriculture.

Figure 1 also shows that the value of production per hectare does not reveal a big difference between agroholding and non-agroholding farms, although one might expect that agroholding farms have better conditions for storage and better-developed distribution chains. The recent study by UCAB (2012), however, shows that 28 % of the agroholdings lack their own storage facilities, and those who do have their own granaries cannot not cover their need for storage.

In order to examine further the difference between agroholding farms and non-agroholding farms, efficiency and productivity analyses were conducted. The efficiency measure compares each farm observation with the best farms in the sample and can be obtained using either parametric or non-parametric methods. For this analysis we used the non-parametric data envelopment analysis (DEA) (an overview of this method can be found in, for example, COELLI et. al., 2005), which has the advantage that a functional form for the production function does not have to be specified. On the other hand, it does not account for noise in the data as parametric methods do. Efficiency scores were obtained using different reference groups (all farm-year observations, all farms in a single year, and separately for agroholding and non-agroholding farms). A plot of DEA-efficiencies for the year 2010 (using both groups of farms in this year as the reference group) is displayed in Figure 3. The trend lines show that, on average,

Figure 2: Average capital costs by size group for agroholding and non-agroholding farms in 2010

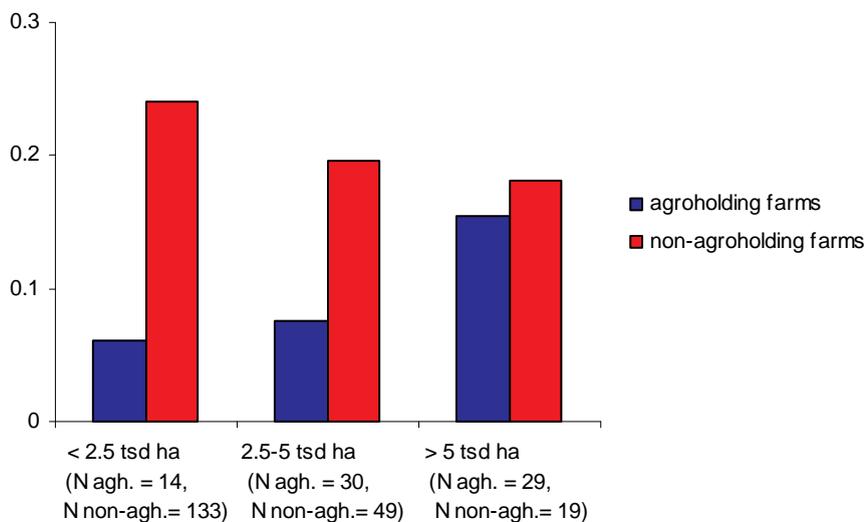
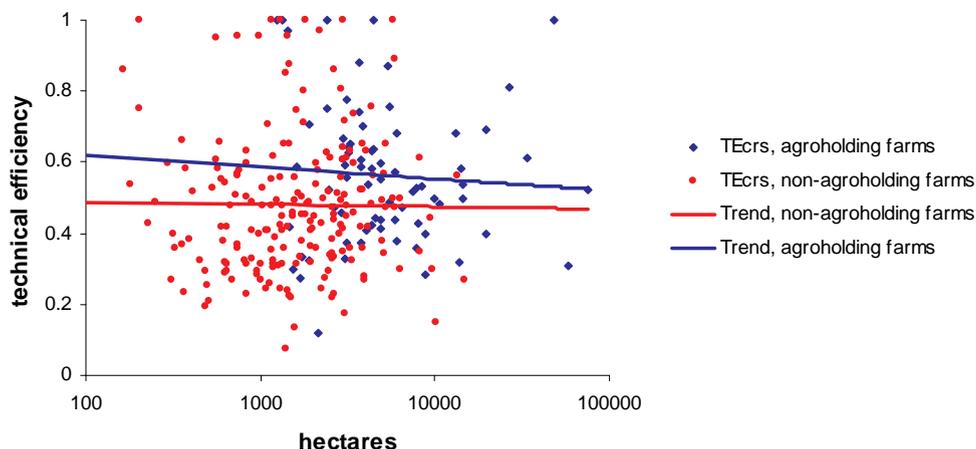


Figure 3: Efficiency plot for the year 2010



agroholding farms are more efficient compared to non-agroholding farms and that the size factor does not seem to exert a strong influence. However, average efficiency scores are low, and huge differences exist among farms within both groups.

Table 2 shows the average DEA efficiency scores under the assumption of constant (crs) and variable returns to scale (vrs) obtained when using all farm-year observations as the reference group. Consistent with Figure 1, it can be seen that the average efficiency score of agroholding farms is higher than the average efficiency score of non-agroholding farms (0.452 versus 0.416 when assuming constant returns to scale), but again, the low average efficiency scores indicate a large heterogeneity among the farms in the sample and substantial room for improvement within both groups. Efficiency scores derived using either agroholding or non-agroholding farms as reference groups (not shown here) also display low average levels, again

indicating a large degree of heterogeneity among farms within the groups.

Figure 4 shows the technical efficiency aggregated to the level of the agroholdings by year for some of the agroholdings represented in the data set (agroholdings with fewer than two farms were excluded from the data set). The figures show that almost all agroholdings improved the average efficiency of their farms during the three-year period. There also seems to be a tendency of convergence in efficiency amongst the agroholdings, i.e. those agroholdings which were least efficient in the first years show the greatest improvement, while the most efficient agroholdings at the start lose some of their advantage.

In a next step, total factor productivity, TFP, and its components (technical change and efficiency change)¹ were analysed for the

¹ Change in TFP = technical change × change in TE(vrs) × change in scale efficiency = technical change × change in TE(crs).

Table 2: Summary of efficiency scores using all farms and all years as reference group

Variable	Non-agroholdingfarms (No.=603)		Agroholdingfarms (No.=219)		All farms (No.=822)	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
TEcrs	0.416	0.172	0.452	0.201	0.426	0.180
TEvrs	0.450	0.198	0.506	0.225	0.465	0.206

periods 2008-09 and 2009-10. Technical change means a shift in the production frontier; here, due to the short time period, it mainly represents variations in weather conditions and output prices between the years. Figure 5 shows that TFP increased, on average, for both groups of farms during both the time periods analysed, and that the increase in TFP in the second period was substantially higher for agroholding farms than for non-agroholding farms. The higher TPF increase of agroholding farms in the second time period was caused by a higher increase in efficiency. This is in line with the previous finding that agroholdings which underperformed initially managed to reduce the inefficiency of their farms.

Evaluation of findings and conclusions

The results presented here show that, in Ukraine, huge differences in efficiency and productivity exist for agroholding as well as for non-agroholding farms. The inefficiencies cannot be explained by differences in farm size. Although agroholding farms were found to have a somewhat higher efficiency on average and particularly in the most recent years, a large degree of heterogeneity was observed within both groups of farms and between different agroholdings. Capital costs per hectare are on average lower in farms belonging to agroholdings, indicating

a more efficient use of capital such as machinery in this group of farms. Other observed differences in input use are the higher expenses for "material inputs" and lower use of labour per hectare in agroholdings farms compared to non-agroholding farms. The former is likely a consequence of better liquidity in agroholding farms, whereas the latter might be due to hidden unemployment in the independent farms and/or a more efficient use of labour in agroholding farms. It was also found that productivity change among agroholding farms was significantly higher, on average, among agroholding farms in the last observed time period. The results suggest that this is due to the agroholdings which underperformed initially catching-up by reducing the inefficiency of their farms. However, due to the short time period analysed here, we were not able to see whether Ukrainian agroholdings were more successful in benefiting from technological change as [HAHLBROCK and HOCKMANN \(2011\)](#) found for Russian agroholdings.

The results suggest that farm efficiency is not predominantly determined by farm size. The large degree of heterogeneity among observed farms, which we have already highlighted, indicates that factors such as management skills, access to know-how and human capital might be crucial for high agricultural

Figure 4: Technical efficiency by agroholding
(N indicates the number of farms of the agroholding represented in the sample)

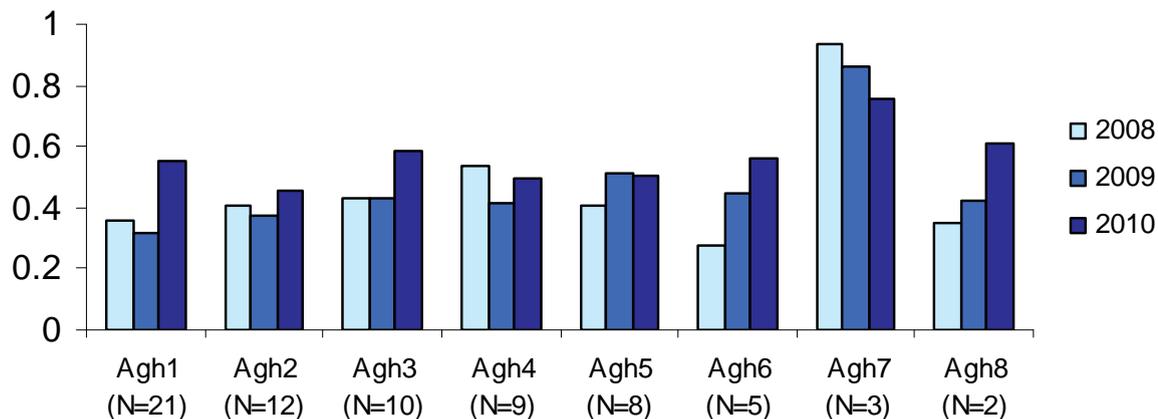
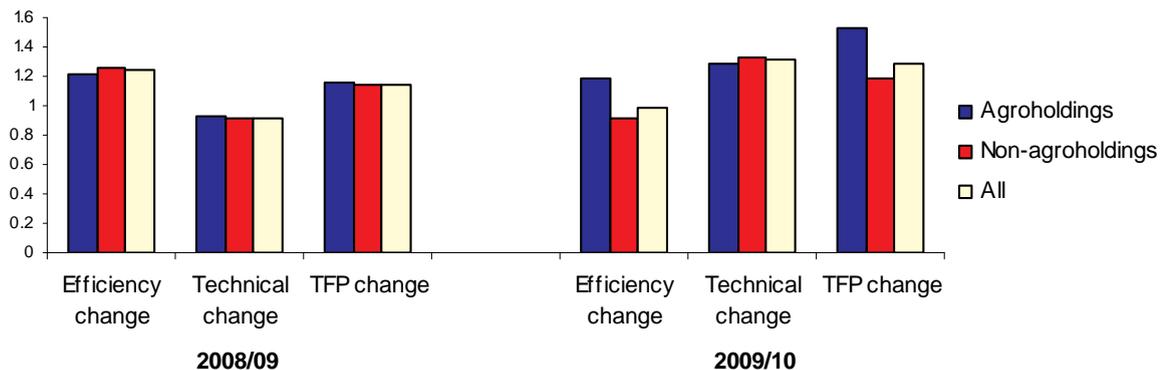


Figure 5: Change in total factor productivity (TFP) and its components during the periods 2008-09 and 2009-10



productivity. Nevertheless, it must be assumed that there is still substantial room for efficiency improvements among both independent large farms and agroholdings. Maybe agroholdings have in general an advantage in this regard, since their group affiliation might offer advantages in overcoming existing management problems more easily than independent farms.

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The cereals industry and trade in Ukraine

OLEKSANDR PEREKHOZHUK

Today Ukraine is again becoming one of the largest producers of cereals in the world. According to figures from the Food and Agriculture Organization of the United Nations (FAO), in 2010 the country produced more than 38 million tonnes of cereals, thereby reaching 13th place in the world rankings, with a share of 1.6 % of total global production (cf. Table 1). With this increase in domestic production and a constantly growing demand worldwide, Ukrainian exports of cereals are on the increase, too. Whereas the output of Ukrainian cereals rose by almost two thirds between 2000 and 2010, cereals exports increased more than nine times. Since 2005 Ukraine has been one of the ten largest cereals exporters in the world. At 4.6 million tonnes, Ukraine has become the second biggest barley exporter in the world, and in 2010 it had risen to become the third largest millet exporter and fourth biggest exporter of rye. With a share of 3 % of global wheat exports, the country has become one of the largest wheat exporters in the world.

At present, Ukraine exports cereals to an average of more than 80 countries per year. For many states in the Middle East and North Africa, Ukraine has become an important supplier of cereals. In 2010, Ukraine exported 2,856,000 tonnes of wheat, or 59 % of its total wheat exports, to the Middle East and North Africa, of which 780,000 tonnes (16.2 %) went to Egypt, 494,000 tonnes (10.2 %) to Tunisia, 253,000 tonnes (5.2 %) to Libya, and 57,000 tonnes (1.2 %) to Sudan.

For many years, however, the Ukrainian ministry of agriculture has causing confusion on the international cereals markets with ever more announcements of restrictions on exports of Ukrainian cereals. At harvest time the ministry repeatedly issues different prognoses and statements on anticipated harvest yields, export potential, and which ranking the country will have that year as an exporter of cereals to the global market. With export quotas the Ukrainian government makes massive interventions in the cereals trade and the business of Ukrainian cereals exporters. Over the last five years quotas for cereals exports have been introduced three times: from October 2006 to April 2007, September 2007 to May 2008, and from October 2010 to June 2011. These opaque, unpredictable and radical interventions by the Ukrainian government in cereals markets unsettle domestic agricultural producers when it comes to taking production and investment decisions, and thus make it harder to attain the goal of global food security. The government justifies its intervention in the markets by pointing to huge levels of damage over winter and poor harvests. It argues that substantial cereals exports from Ukraine will endanger the supply of bread and bakery goods, which is politically and morally irresponsible.

According to figures from the news agency RBC-Ukraine, the Ukrainian ministry of agriculture is planning to double domestic cereals output to 80 million tonnes by 2017. The realisation of these plans depends heavily, however, on heavy foreign direct

Table 1: The production and export of Cereals in Ukraine

	2000			2005			2010		
	'000 t.	Rank	%	'000 t.	Rank	%	'000 t.	Rank	%
Cereals production									
Cereals	23,806.5	20.0	1.2	37,258.0	14.0	1.6	38,678.6	13.0	1.6
Barley	6,871.9	8.0	5.2	8,975.1	7.0	6.5	8,484.9	3.0	6.9
Oats	881.4	11.0	3.4	790.7	8.0	3.3	458.5	13.0	2.3
Maize	3,848.1	19.0	0.7	7,166.6	14.0	1.0	11,953.0	10.0	1.4
Millet	426.1	11.0	1.5	140.6	20.0	0.5	117.1	21.0	0.4
Rye	968.3	6.0	4.8	1,054.2	5.0	7.0	464.9	6.0	3.8
Wheat	10,197.0	13.0	1.7	18,699.2	11.0	3.0	16,851.3	11.0	2.6
Cereals exports									
Cereals	1285.7	21.0	0.5	12518.9	6.0	4.3	12075.5	9.0	3.6
Barley	864.7	8.0	3.6	3501.8	3.0	13.6	4593.4	2.0	17.4
Oats	21.1	11.0	0.8	4.3	19.0	0.2	19.7	15.0	0.7
Maize	163.2	13.0	0.2	2795.6	5.0	3.1	2888.3	6.0	2.7
Millet	13.7	7.0	5.5	57.8	2.0	16.1	42.3	3.0	11.8
Rye	18.4	7.0	0.8	80.5	5.0	4.0	93.3	4.0	6.7
Wheat	201.2	22.0	0.2	6009.5	7.0	5.0	4302.8	8.0	3.0

Source: FAOSTAT.

Note: Own calculations using FAOSTAT data in per cent of total global output and global cereals exports overall, as well as for the individual cereals.

investment in agriculture. Over the past eight years this growth has been relatively as strong as that of the sector in general, but in spite of Ukraine's enormous agricultural potential the growth has been considerably weaker than direct investment overall (cf. Table 2). Between 2004 and 2011 the proportion of direct investment in agriculture fell from 3 % to 1.9 %, in spite of a fourfold increase in absolute terms; and although the total amount invested in the food sector doubled, its share of direct investment dropped from 14.8 % to 4.2 %. Since 2004 more than 15.7 billion US dollars have been invested in agriculture and the food sector: 11.5 billion in the Ukrainian food sector and 4.1 billion in agriculture. Most of these investments have been made in cereals, from cultivation, via processing, to trading.

According to figures from the State Statistics Service of Ukraine, the total output of cereals rose from more than 24.5 million tonnes in 2000 to 56.7 million tonnes in 2011, corresponding to a doubling of production over the period (cf. Table 3). The increase in output has also led to a substantial growth in consumption. In spite of this, the degree of self-sufficiency for cereals in Ukraine is, apart from in 2003, well over 100 %, higher than for any other agricultural product. In 2008 and 2001 the degree of self-sufficiency for cereals was just under 200 %.

We can see, therefore, that the reasons given by the government for export embargos and strict quotas are clearly unjustified. All statistical figures relating to the development of the Ukrainian

Table 2: Foreign direct investment in Ukraine in million US dollars, 2004-11

	2004	2005	2006	2007	2008	2009	2010	2011
Overall	6,794.4	9,047.0	16,890.0	21,607.3	29,542.7	35,616.4	40,053.0	44,708.0
%*	100.0	133.2	248.6	318.0	434.8	524.2	589.5	658.0
Agriculture	206.0	224.0	309.6	404.3	557.3	813.3	793.0	833.7
%*	100.0	108.7	150.3	196.3	270.5	394.8	385.0	404.7
%**	3.0	2.5	1.8	1.9	1.9	2.3	2.0	1.9
Industry	3,394.1	3,867.1	5,169.2	10,470.3	12,421.2	12,469.7	13,276.4	14,042.6
%*	100.0	113.9	152.3	308.5	366.0	367.4	391.2	413.7
%**	50.0	42.7	30.6	48.5	42.0	35.0	33.1	31.4
of which food sector	1,006.4	1,127.6	1,171.6	1,272.0	1,561.2	1,685.9	1,828.4	1,858.7
%*	100.0	112.0	116.4	126.4	155.1	167.5	181.7	184.7
%**	14.8	12.5	6.9	5.9	5.3	4.7	4.6	4.2

Source: State Statistics Service of Ukraine: Statistical Yearbook "Agriculture of Ukraine" (various years).

Notes: Own calculations, * in % relative to 2004 (=100), ** Share of all direct investments.

cereals sector argue against a cereals shortage, even a temporary one, over the past few years.

Rising investments in agriculture and the food sector have produced a doubling of Ukrainian cereals output within ten years. The cereals sector has become a motor of the Ukrainian export industry. It is booming and displaying greater growth than any other sector of the Ukrainian economy. This, however, is solely a result of the constantly rising global demand. IAMO studies have shown that the Ukrainian cereals boom has not come about because of the erratic market interventions by the Ukrainian government, but in spite of them. Rather than producing stability, the political measures have achieved the opposite; they have destabilised the cereals market, leading to reductions in output and exports in Ukraine. All in all, Ukraine could have

derived far greater benefit from the worldwide cereals boom, which is also shown by the fact that export regulations have had a negative effect on willingness to invest. This is confirmed by the statistical figures relating to the development of foreign direct investment, which in spite of Ukraine's huge agricultural potential has had poorer growth than many other branches of industry. Thirdly, it is very possible that Ukrainian market policy has had at least an indirect influence on pricing on national and international cereals markets. Ukrainian farmers and dealers were often forced to change their business plans and production and investment decisions in order to adjust them to arbitrary policy measures.

Figure 1 shows that the sale of cereals in the Ukrainian cereals sector takes place via a number of very different channels. In

the 1990s, the state had almost total control over the sales of cereals from agricultural enterprises. At the time it was obligatory for 80 % of cereals to go directly to the processing industry, 13 % was used for payment in kind, 3 % was sold directly to the population in rural areas, and the remaining 3 % went via other or private sales channels. Around 2000 the sales channels and forms underwent radical change in Ukraine. The state lost its almost complete monopoly on buying up cereals in agricultural enterprises. The obligatory deliveries to the processing industry under the planned economy fell heavily; since 2005 they account for no more than 5 % of total farm cereals sales. With farm privatisation a new sales channel has emerged in the form of lease payments in kind, i.e. paying stockholders in cereals. The share of this sales channel fluctuates between 7 % and 14 %.

The proportion of direct sales has barely changed over the last few years. According to the statistical bulletin from the State Statistics Service of Ukraine on the sales of agricultural products,

the channel "other" has become the main sales channel for agricultural enterprises. "Other" predominantly means the sale of cereals, seeds and feed to private cereals dealers. Since 2005 this sales channel has been responsible for more than 70 % of total commercial sales. The sales volumes have risen from 3 million tonnes in 2005 to more than 23 million tonnes in 2010. The transition to a market economy did not only give rise to new sales channels, but new market structures as well.

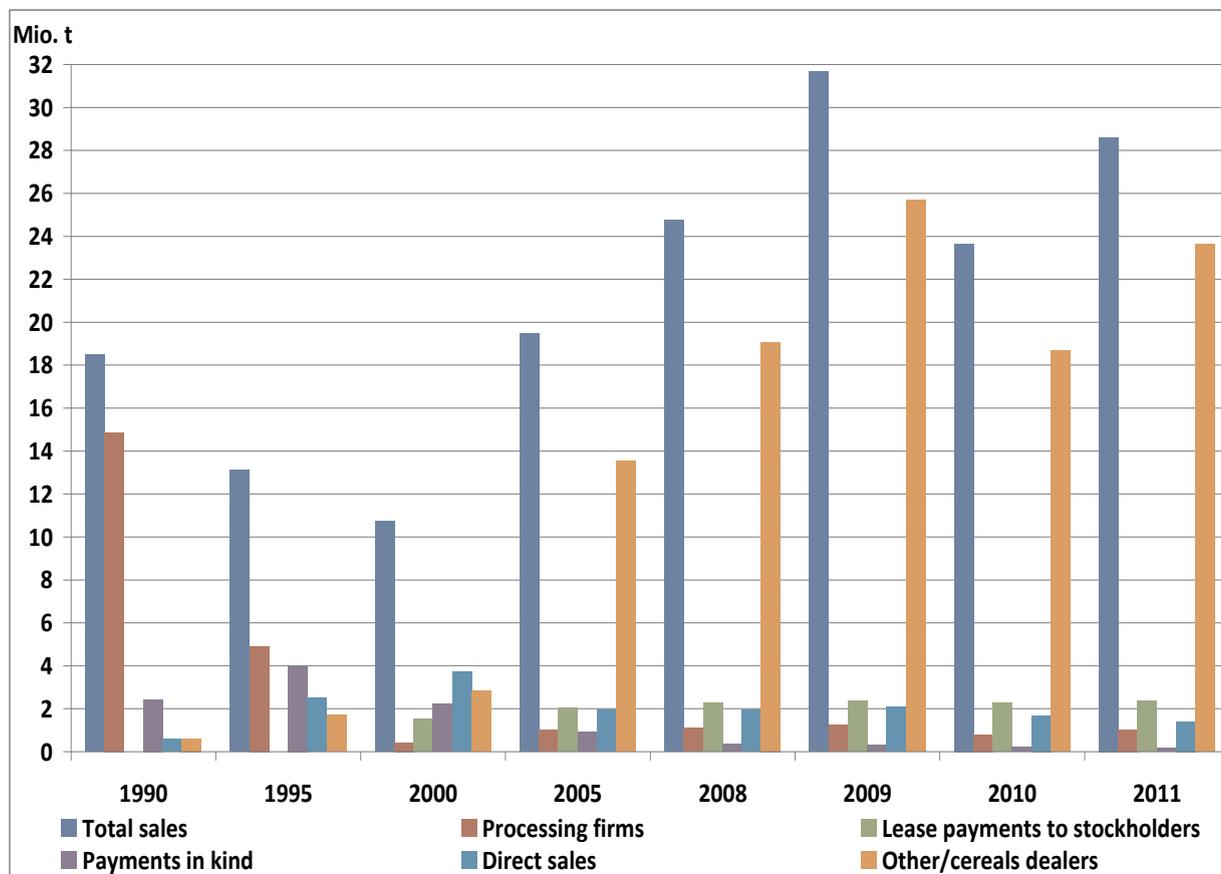
Of particular importance to an analysis of market structure and pricing on cereals markets are the number of market participants (suppliers and demanders), business concentration and farm size distribution. At present, a study of business structures in the cereals trade can only be conducted on the basis of the number of independent business units of the trading businesses, divided into seven classes of turnover size. There is not yet any data on the interlinking of businesses within the Ukrainian cereals trade. But even the data we do have allow us to draw

Table 3: Supply balance sheet for cereals in Ukraine, in million t., 2000-11

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Production	24.5	39.7	38.8	20.2	41.8	38.0	34.3	29.3	53.3	46.0	39.3	56.7
Stocks change	1.3	7.1	-2.8	-3.8	7.8	-0.3	-2.3	0.9	10.0	-6.1	-2.1	12.8
Import	1.0	0.4	0.2	3.8	0.9	0.2	0.2	0.3	0.2	0.1	0.2	0.3
Total supply	24.1	33.1	41.7	27.8	34.9	38.6	36.8	28.7	43.6	52.2	41.5	44.2
Export	1.3	5.6	12.3	3.9	7.8	12.7	11.2	4.5	16.7	26.2	14.2	14.8
Seed	3.6	4.1	3.9	3.2	3.6	3.3	3.3	3.3	3.5	3.6	3.2	3.2
Feed	11.1	14.0	15.7	11.7	13.9	13.8	13.8	12.8	13.6	14.0	14.8	16.3
Losses	0.3	0.4	0.6	0.3	0.5	0.4	0.6	0.5	1.2	0.8	0.8	1.6
Industrial use	0.1	0.7	0.9	0.8	1.2	0.7	0.6	0.5	1.6	0.9	1.7	1.6
Consumption	22.8	27.5	29.5	23.9	27.1	25.9	25.6	24.2	26.9	26.1	27.3	29.4
Degree of self-sufficiency, %	107.2	144.6	131.7	84.8	154.4	146.7	133.7	121.1	198.2	176.5	144.1	192.9

Source: STATE STATISTICS SERVICE OF UKRAINE: *Statistical Yearbook "Balances and Consumption of Basic Foods of the Ukrainian Population" (various years).*

Figure 1: Cereals sales by sales channels in Ukraine (in million tonnes)



Source: Own depiction based on statistical data from the STATE STATISTICS SERVICE OF UKRAINE: Statistical bulletin "Sale of agricultural products" (various years).

important conclusions. Comparing the numbers of business units by class of turnover size, we can identify substantial differences. Table 4 shows the number of independent business units which trade in cereals, seed and feed (cf. Table 4).

Between 2001 and 2010 the number of independent business units in the cereals trade rose by more than three times.¹ Consequently the market structure and market concentration in the cereals sector has changed radically, both at a national level and particularly within regions. The increasing number of wholesalers on the demand side has led to a drop in market concentration and thus a rise in the number of options for farms when selling their cereals. There are more and more independent wholesaler units with turnovers of more than 10m. USD. Whereas in 2001 there were only twelve businesses with an annual turnover between 10m. and 100m. USD, this number rose elevenfold by 2010. In 2001 there was only one business unit in

¹ In this study, all wholesale businesses were considered, even those with a turnover lower than 50,000 USD and with fewer than 20 employees. For this reason the figures on the number of businesses and employees may differ slightly from the figures given in official statistics.

the cereals trade with an annual turnover of more than 100m. USD. Ten years later there are now more than ten.

Here we must emphasise that the number of businesses per turnover size class was calculated using individual business data. If, in the sector, there were only businesses with no independent business units, there would be no difference between the calculation of business concentration and market concentration. In the Ukrainian wholesale cereals trade, however, there are many businesses with a number of independent business units.

Especially large businesses, moreover, are active at all stages of the value chain for cereals. Figures from the state company "Khib Ukrainy" show that it is currently composed of 81 daughter businesses, distributed throughout all the regions of Ukraine. These daughter enterprises include a trading house, 25 granaries, two dock warehouses, 33 bread and bakery goods combines, one seed preparation business, agricultural cereals and feed businesses, as well as wholesalers. All these daughter firms operate in the cereals sector.

Table 4: Number of independent business units in the cereals trade by class of turnover size, 2001-10

Turnover	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	474	619	737	869	987	1131	1287	1499	1840	1569
of which:										
<50,000 USD	129	175	188	212	219	252	305	293	418	332
50-99,000 USD	43	57	67	75	77	86	73	79	129	105
100-999,000 USD	191	223	288	317	366	400	395	461	608	530
1-9 m. USD	98	144	165	226	271	319	416	517	544	459
10-49 m. USD	9	14	23	28	45	60	77	118	116	116
50-100 m. USD	3	2	3	7	2	4	10	16	10	16
>100 m. USD	1	4	3	4	7	10	11	15	15	11

Source: Own calculations based on individual business data from the news agency Interfax-CAN.

Looking at the business structure of the state company "Khlib Ukrainy", it is clear that various forms of business concentration exist in the cereals sector. On the one hand we can see horizontal business concentration between enterprises at the same stage of production (e.g. granaries or bread and bakery goods combines). On the other hand there is vertical business concentration at various stages of the value chain in the upstream and downstream sectors (granaries and bread and bakery goods combines).

In conclusion we can surmise that, as far as horizontal and vertical business concentration in the Ukrainian cereals sector is concerned, we can expect to see pricing on the buying and selling markets for cereals, seed and feed which does not accord with the conditions of complete competition. The emergence of various forms of business concentration in the cereals sector throws up some questions relating to the future structure of the cereals market, including the issue of competition between trading firms on national and international markets. One research question which remains open is the setting of prices when buying cereals from farms. Is it possible for the cereals traders to exercise market power on the buying markets for cereals? How do wholesalers and bread and bakery goods combines behave when purchasing bread, flour and bakery goods? Are the bread and bakery goods combines in a position to exercise oligopolistic market power towards consumers?

Previous analyses of competition on cereals markets have dealt exclusively with the pricing behaviour of cereals exporters on international wheat markets. Many of these empirical studies analysing the behaviour of wheat exporters are based on two approaches. The first, pricing to market (PTM), was developed

by KNETTER in 1989 and used in the early 1990s by PICK and PARK (1991) as well as PICK and CARTER (1994) to analyse US wheat exporters. The second approach, residual demand elasticity (RDE), was developed at the end of the 1990s by GOLDBERG and KNETTER (1999). This approach has been used by CARTER et al. (1999), CHO et al. (2002), and YANG and LEE (2005) to analyse US, Canadian and Australian export markets for wheat. The findings of these empirical studies indicate that US, Canadian, Australian and Russian wheat exporters have exercised market power in some import countries, and that they were able to set prices above marginal costs.

In view of the high degree of business concentration in Ukraine, we can assume that the wholesalers are in a position to exercise market power on the national or regional wheat markets. Moreover, it is possible that market power can be exercised on the buying market (demand market) just as it can on the selling market (supply market). Although this question has already been the subject of controversial debate amongst policymakers and the public, empirical research has not yet seriously addressed this topic; there are only a handful of empirical analyses on it. In particular there have been no econometric analyses on market structure and pricing on markets between various production stages.

The literature of the New Empirical Industrial Organization (NEIO) provides structural econometric approaches and methods for analysing market structure and pricing on oligopolistic and oligopsonistic markets. The basic idea of NEIO approaches is to identify the behaviour of market participants on the market using price volume data and as a consequence to make a direct statement about the exercising of market power. Given the structure



of the cereals industry as well as the parameters on the markets for cereals in Ukraine (state intervention, export quotas, export bans, price controls), the existence of market power cannot be ruled out. The findings of the descriptive analysis point to a variety of business sizes and variable numbers of suppliers and demanders on the national and regional markets. From the perspective of market demarcation, the regional buying and selling market for cereals is of greater importance than the national market. To permit definitive statements about the existence of market power on markets, therefore, future empirical analyses must collect disaggregated, individual business data to measure market power on individual cereals markets, both national and regional.

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Market hall in Dushanbe

Russian consumers' perception of organic foods

VIOLA BRUSCHI, RAMONA TEUBER, KSENIA SHERSHNEVA, IRINA DOLGOPOLOVA, MAURIZIO CANAVARI

Russia's rapid socioeconomic development is going hand in hand with the modernisation and industrialisation of agri-food production. Furthermore, interest is growing amongst foreign companies to establish trading partnerships and invest in Russia. Nevertheless, very little is known so far about the Russian market especially from the consumer side. At this stage a better understanding of consumers' food preferences, attitudes and perceptions towards food products could play an important role in understanding future market developments. Previous studies on Russian consumers' perception of food safety and their reasons for choosing particular foods show that an interest in safer and natural food is becoming a priority in the country. Consumers are concerned about food risks and they are paying increased attention to the lists of ingredients. In particular, food additives are strongly associated with being "artificial" and potentially "risky". (POPOVA et al., 2010). Consumers rate the most important factors governing food choices as how natural products are, how they taste, and their availability (HONKANEN et al., 2009). From these results we can infer that, overall, Russian consumers have a positive attitude towards organic food, which is generally considered to be more natural and healthier. However, there is no empirical evidence so far on what Russian consumers expect from organic food, i.e. which attributes are most important to them and whether they trust in any organic certification. The current study investigates these two aspects by providing

evidence from two empirically-based studies conducted in 2012 in St Petersburg. The first study employs a qualitative analysis of consumer opinions, whereas the second is based on a quantitative analysis. In the first part of our paper we give an outline of the current market and regulations for organic products and in Russia, while in the second part we present our empirical findings.

Legal regulations

In Russia, the regulation of organic farming has been on the policy agenda for over a decade, since the implementation of the government programme "Alternative Agriculture" in 1989. Even though further efforts have followed to create a legislative basis for organic agriculture and organic products in Russia, a clear and effective regulatory framework has not yet been set up. The current regulations governing organic products were introduced in 2008; their guidelines for organic farming are not substantially different from the European regulations. Nevertheless, uncertainty still surrounds the term "organic", the monitoring system and the whole question of certification. As a matter of fact, the word "organic" or prefix "eco" may still be used by any manufacturer, and they cannot be held to account for giving false information. Truly organic products, therefore, cannot be clearly distinguished from non-certified products using the same words on the label.

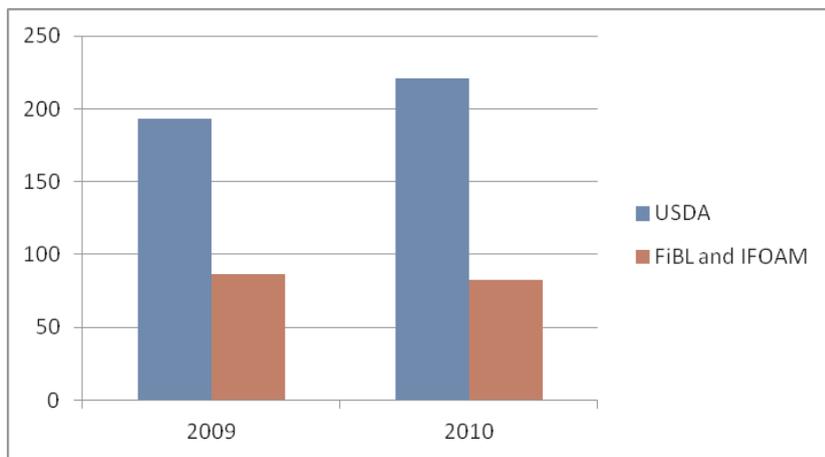
The organic market in Russia

According to data provided by the Research Institute of Organic Agriculture (FiBL) and the International Federation of Organic Agriculture Movements (IFOAM), sales of organic products in Russia came to 86.9 and 82.8 million dollars in 2009 and 2010 respectively, (Figure 1) which corresponds to a total turnover of 65 million euros in both years. The United States Department of Agriculture (USDA), on the other hand, reports that the size of the Russian organic market was twice as large in the same time period, and also showed a trend of strong growth. Differences in data might be explained by the vagueness of the term "organic" in Russia, which only acquired an official definition in 2008, and the significant level of uncertainty that surrounds organic labeling and certification processes. Consequently, data relating to the current size of the Russian organic food market and growth

rates of demand for organic products seems disputable, as do forecasts for future sales of organic products.

Data on the Russian organic food market shows that products are only available in major urban areas, such as Moscow and Saint Petersburg, and almost all are imported from foreign countries. As far as prices are concerned, organic products are significantly more expensive than conventional foodstuffs. According to a USDA report on the Russian organic market (2011), organic products are typically 20 % to 400 % more expensive than their conventional equivalents. They report an observed price increase of 942 % for ketchup and 825 % for exotic fruit juice. The drastic price differences are down to retail characteristics and the fact that the products were imported. For example, imported organic potatoes at a specialist shop are 263 % more expensive than domestic conventional potatoes at a moderately priced supermarket.

Figure 1: Data relating to organic product sales in Russia, 2009-10, in million US dollars



Exchange rates calculated according to Internal Revenue Service United States Department of the Treasury yearly average currency exchange rates.

Empirical study

In May 2012, as a part of the preliminary investigation, a series of four focus group interviews was conducted in Saint Petersburg. This qualitative study was carried out to explore the perception and opinions of a selected group of consumers with respect to food quality and food safety, focusing especially on organic products. Starting with a small group of participants, it was possible to select the main aspects which were investigated further in the quantitative study.

The quantitative study was carried out in Saint Petersburg, too. Data was collected through face-to-face interviews. The survey was performed with a random sampling of 160 consumers in three different grocery outlets (high-quality supermarket, hypermarket, traditional market). Respondents were questioned about their purchasing behaviour, knowledge and perception of organic food products. The questionnaire was developed according to the theory of planned behaviour. Opinions were expressed on a five point Likert scale.

Attitudes toward natural and organic foods

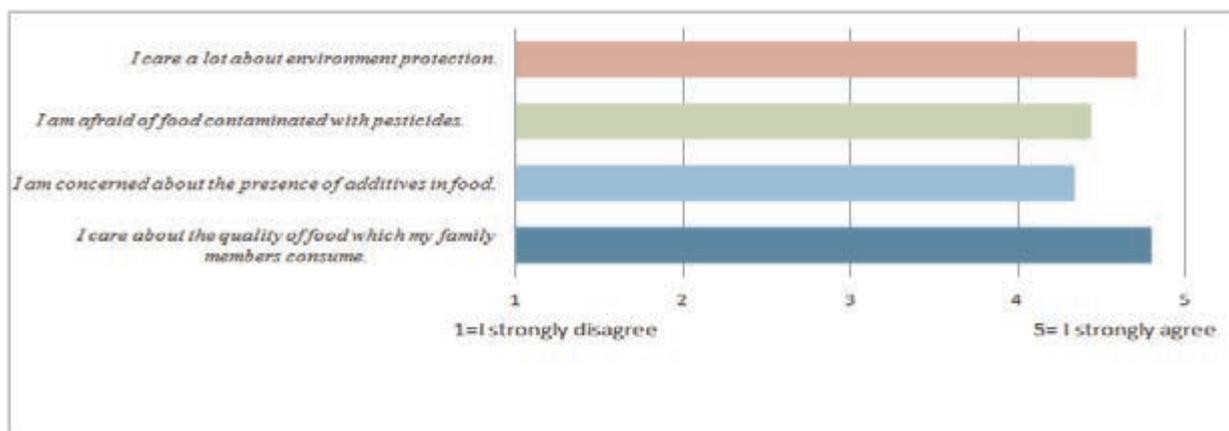
Our results confirm that Russian consumers prefer natural food and that they care about food quality:

"I choose products very carefully. Ingredients should be natural with no artificial additives."

The majority of the respondents in our quantitative research confirmed that they care about the quality of food consumed by their family members (Figure 2). They also show that they are concerned about the presence of additives or pesticides in food products and about environmental protection.

Figure 3 illustrates the characteristics which were associated over the course of the quantitative research with organic food products. Most respondents (60 %) consider organic products to be free from GMO and artificial additives; fewer people (47 %) associate organic products with the absence of pesticides. It is important to highlight that only 30 % of respondents mentioned the presence of a certification. Around 30 % associate organic

Figure 2: Consumer attitudes toward food and the environment

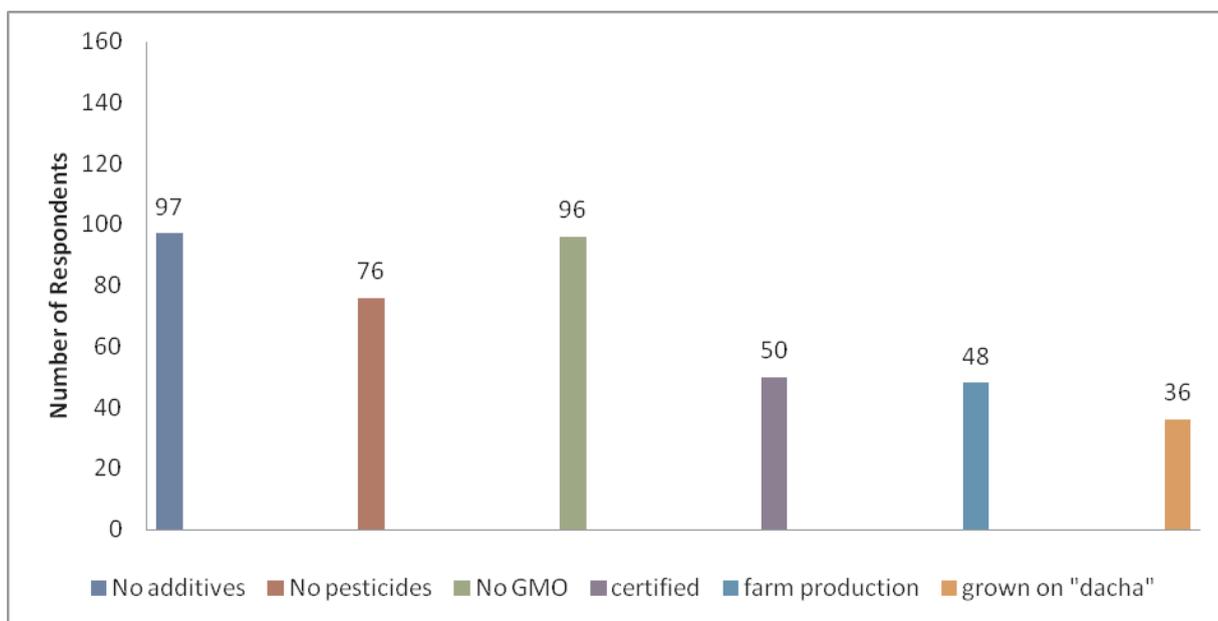


products with local farm production, and 22 % of them mentioned that they can grow organic products themselves in their gardens.

The focus group discussions revealed positive attitudes towards organic foods. The characteristics most associated with organic products were: *natural, healthy, fresh and clean*.

The same results emerge from the quantitative study (Figure 4). Most of the respondents consider organic products as healthy, safe, good for the environment, whereas the statements that organic food is tasty and cheap ranked lower. Strikingly, 70 % of the participants of the quantitative research consider organic food to be a better alternative to conventional food.

Figure 3: Characteristics of organic food products



About 63 % of respondents in the quantitative study had heard about organic products before. Figure 5 shows the most common sources of information on organic food.

Trust in information and certification

Although the organic logo and the labelling system makes it easier for consumers to recognise and choose organic products, the vagueness of current legislation in Russia leads to two negative consequences that we identified in our reasearch: misunderstanding and mistrust. First, consumers are not able to distinguish easily which products are really organic and which are not:

"At the moment, you can never be sure that products are really 'organic'."

"...everyone writes 'organic', everyone writes 'eco', but it's just part of the company's logo."

Second, we found a widespread mistrust in labelling and certification. This appears to affect not only organic products but the entire food sector in general. Domestic labels, in particular, are regarded as meaningless, as corruption allows everybody to purchase a label:

"They can write anything on the label here."

"What do you trust more: government or private certification?"

"No difference – Both are abused."

Since there is a lack of trust in official labelling, people rely on informal information such as recommendations from friends or personal contact with farmers:

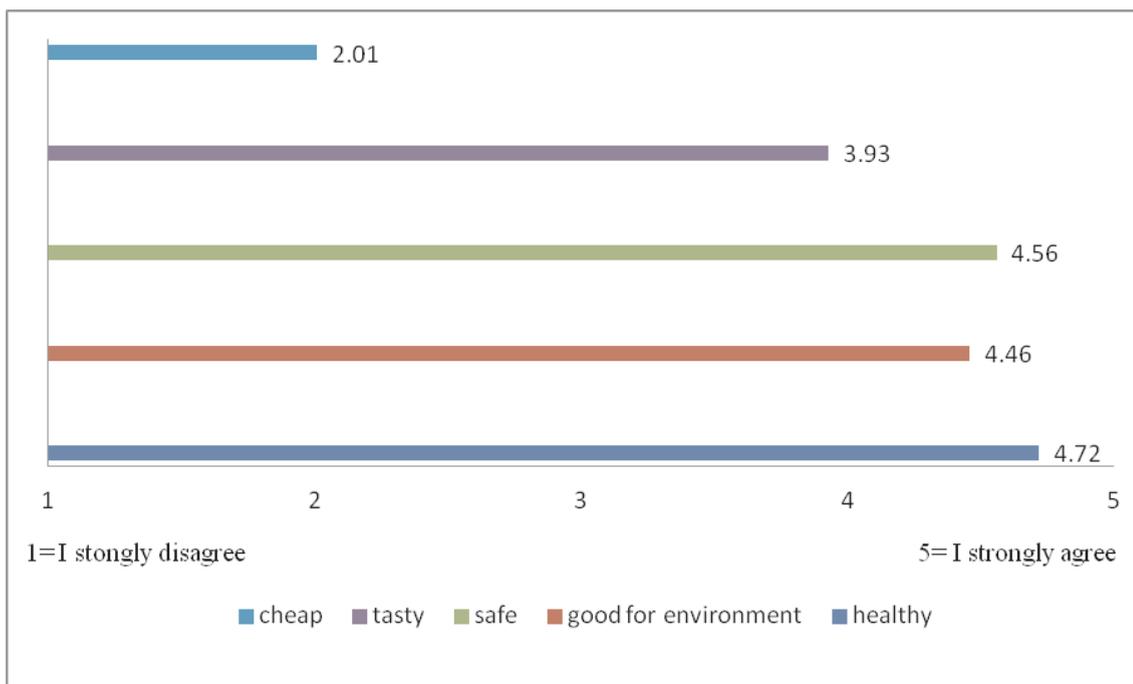
"I pay more attention to friend's recommendations than to certification."

"It's safer to buy farm products from people you know, or when you know a farmer personally."

Moreover, trust was expressed in foreign certification, such as that of the EU:

"I've got more trust in foreign certification."

Figure 4: Respondents' perception of the characteristics of organic products (mean values on five point Likert scale)



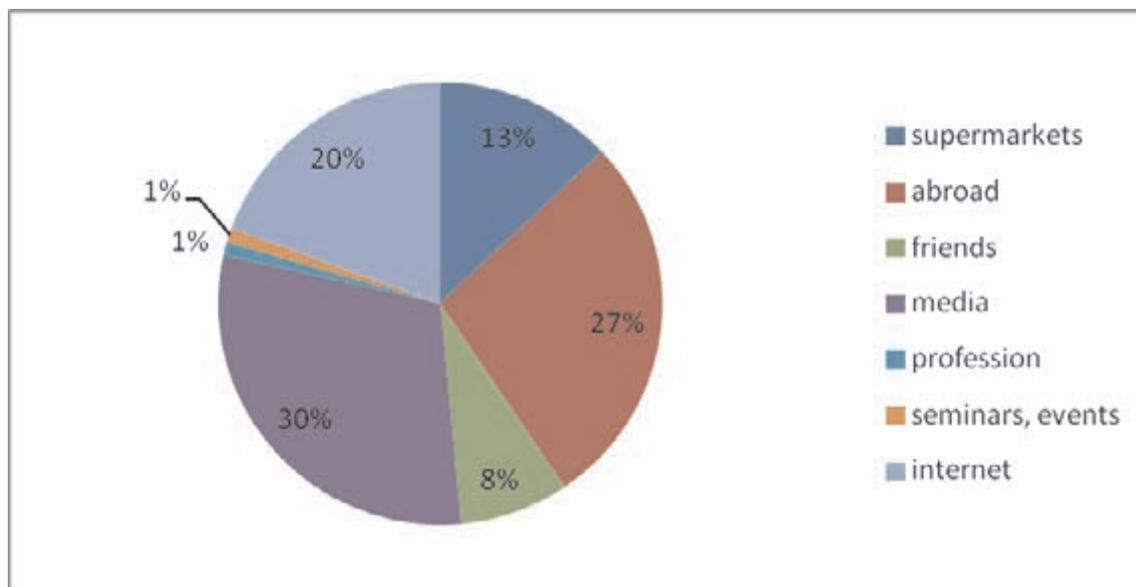
The focus group results were corroborated by the quantitative study. Among the 160 respondents, half (52 %) do not trust in the information on food labels, 30 % are not sure and only 18 % have more or complete trust in food labels. Figure 6 shows that European certification (with a Likert score of 3.75) seems to enjoy greater trust than Russian government or private certification.

Most of the respondents in the quantitative analysis agreed that mandatory regulations for organic products in Russia are needed and that the Government should support organic farming.

Prices, actual purchasing behaviour, and willingness to pay

Even if the trustworthiness of labels is secured, the prices of the products constitute an additional barrier to the growth in

Figure 5: Sources of information on organic products



organic food sales and purchasing organic food is considered to be for the higher, more affluent sectors of society:

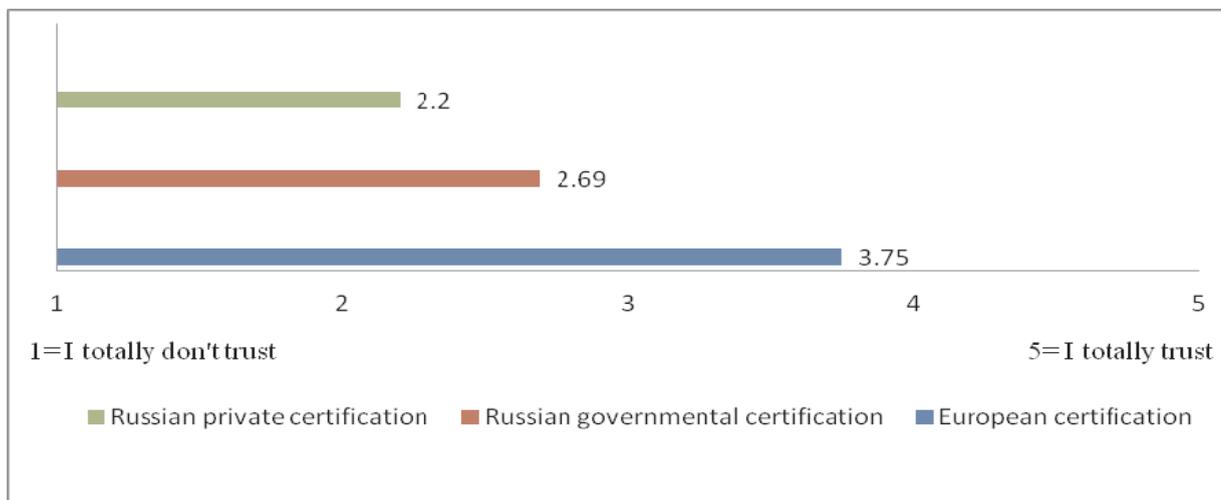
"Even if I see an organic label and the name of a European importer, price is still a barrier for me, because organic products cost 200-300 % more in Russia".

"Ecological products are for people with higher-than-average incomes."

For 50 % of respondents in the quantitative study, price was cited as a barrier to purchasing organic food.

Both the qualitative and quantitative analysis show that the overall consumption of organic food is still low among participants, but the willingness to purchase appeared to be quite high. During the quantitative research, respondents who have

Figure 6: Trust in certification



heard about organic products were asked about how frequently they purchased them. Only 24 % of the participants said that they buy organic products at least once a month, while 31 % never purchase these products. Almost the full sample (92 %) agreed that buying organic products is the right thing to do even if they cost more. More than half of them (69 %) agreed that they would be willing to buy organic food if it were available in the supermarkets, while 81 % confirmed that they would purchase organic products if they were sold at the same price as conventional ones.

Conclusions

From the studies we conducted, we have identified the following issues as the most interesting and most relevant for future research. Russian consumers have positive perceptions and attitudes toward organic food products. Further product-specific studies might examine different levels of acceptance and evaluate the willingness to pay for different food characteristics.

Moreover, high prices, misunderstanding and mistrust in food certifications and labels were identified as the most important barriers to buying organic food. Further investigations could assess the impact of the current Russian regulations on the demand for organic food. Strategies need to be developed to re-establish consumer confidence in organic food and to develop markets for domestic organic agriculture.

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Distribution station for irrigation water in Yavan District, Tajikistan

Conflicts over water and land: A comparison between Tajikistan and China

FREDERIKE GEHRIGK, EEFJE AARNOUDSE

1 The land-water nexus: An overview

"The tight interconnections between water, energy and land make clear that the management of each of them cannot be considered in isolation, but must be seen as part of an integrated system."

European Report on Development, 2012, p. 3.

Fuelled by the food crisis of 2008, business interest in natural resources is increasing across the globe. At IAMO we are investigating the resultant conflict of interest between land, water and energy use through our work group "Institutions and natural resources".

In 2009 alone, large-scale investors worldwide leased 56 million hectares of agricultural land for the production of food and biofuel (DEININGER and BYERLEE, 2011). The increase in large-scale leasing of farmland has given rise to intense local and international political debates. The term "land grabbing", which has a very negative connotation, indicates how explosive this topic is, both socially and politically. As the example of land acquisition in Ethiopia shows, investors are not just interested in the resource of land. A study by Bues and IAMO staff member THEESFELD (2012) is one of several which demonstrate that changes in land use rights exert an enormous pressure on the allocation of, and access to, water for local users. The effects of reallocating water can also impact lower riparians on water systems, fishermen or cattle breeders. Because of the frequent

incidence of negative effects on the previous users of the water system, the term "water grabbing" is also used.

A criticism levelled at investors in land and water is the disregard for local (informal) regulations on resource use. Between new and old users of resource systems there is often asymmetrical access to the resources, the relationship is marked by opportunistic behaviour, and abuse of power occurs with the ultimate water abstraction. The prevailing socio-economic situations ensure that the struggle for land rights increases the potential for conflicts over water.

Particularly in those regions where irrigation farming is important, access to water determines the economic utility of the farmland. Conversely, the configuration of rights of disposal over land can also have an impact on water use (Figure 1). Across the globe a variety of different allocation mechanisms are in place, which are embedded in a political and social-ecological system. Formal legislation about disposal and use rights often diverge greatly from the locally prevailing regimes of disposal rights. For example, formal authorisation to use land is often accompanied only indirectly by the authority to use surface or ground water (HODGSON, 2004).

2 Tajikistan – A case study

The complex interlinking of land and water rights can be illustrated by looking at the example of the Central Asian country of Tajikistan. Here, conflicts over land use have led to reduced



Salinisation in Southern Tajikistan

water availability, as in-depth interviews conducted with experts in 2012 reveal. These interviews were part of an explorative IAMO field study.

Land rights in Tajikistan

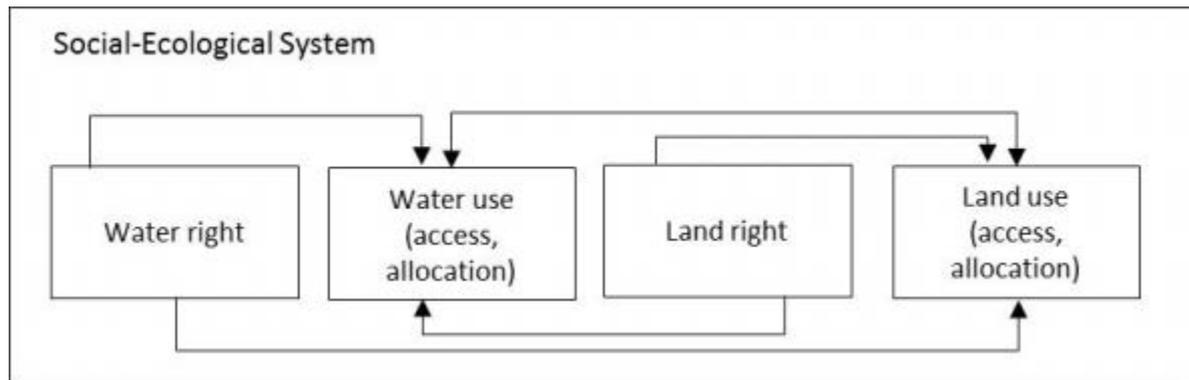
After the collapse of the Soviet Union Tajikistan had to reallocate land rights in order to reorganise the Soviet agricultural system, which was based on kolkhozes and sovkhozes. Formally the land today is owned by the state and land users can obtain rights of unlimited land use or for up to 99 years. Given that arable land makes up only 7 % of total land, the competitive pressure for arable land is very strong. The commercial reorganisation of agriculture and the allocation of use rights by means of certificates is an ongoing process which represents a comprehensive and costly transaction for private farmers in particular. The allocation of certificates guides both informal regulations as well as formal regulations by state authorities. If we examine the progress and implementation of land reform in

Tajikistan, we can clearly see discrepancies between regions. The differences are highlighted by comparing the proportion of farmers with official land certificates in the different regions of Tajikistan. In northern Tajikistan (Sugdh province) only a third of farmers have a land certificate, whereas in central Tajikistan (RRP) the proportion is two thirds. A lack of knowledge amongst stakeholders of the land about land use rights and claim rights are factors which impede the development of the land market (LERMAN and SEDIK, 2008).

Water rights in Tajikistan

Compared to agricultural land at 0.11 ha. per person, the annual water output is more than 2,500m³ per person. In other words, there is a substantial physical presence of water. Tajikistan is one of the most water-rich countries of the region (WORLD BANK, 2012). In agriculture, however, access to water as well as its efficient use are a significant problem. The physical resource of water as well as water systems (channels) are state property.

Figure 1: Land-water nexus



Source: Own depiction.



Greenhouse in Sharituz, Southern Tajikistan

Maintaining the channels, however, is the responsibility of the districts, or the water user organisations (WUA). Theoretically, the allocation volumes of water are determined transparently according to formally prescribed rules. The calculation of volumes of water available is supposed to be made on the basis of how much productive land and land under crop cultivation there is. Fees are then paid to the local authorities or WUA to cover these volumes of water. The reality of water volume allocation is often very different, however. Two factors are of key significance here: 1) the ability of those concerned to pay, and 2) the amount of negotiating power the potential water user has, or their relations with other farmers and – very important – to local decision makers. Thus corruption in the form of bribing the local elites is a decisive factor in water allocation.

Land-water nexus

The processes of land acquisition by foreign investors described above are also occurring in Tajikistan, and are accompanied by a transformation in land use which involves an intense use of water. Not only large-scale leasing of land, but local, small-scale land acquisition is exacerbating the shortage of resources. The multi-ethnic, densely populated and fertile Fergana Valley, which stretches across three countries in Central Asia, also crosses northern Tajikistan. Once upon a time, as part of the Silk Road, it was the economic centre of Tajikistan. Now, as part of the Tajik-Kyrgyz border region, it is chiefly characterised by territorial and resource-related conflicts. Conflicts over land, in particular, are on the rise. The reasons for this are demographic pressure, existing territorial conflicts and the growing individual demand for land use rights as a result of the restructuring or dissolution of former kolkhozes. Over the last few years the

increased competition for land ownership titles has led to the emergence of an illegal land market, while more and more small farmers have settled by the watercourses in the Fergana Valley. The land conflicts have two main effects on water availability. First, territorial conflicts exacerbate the problem of inefficient water systems along the state borders, as dams or irrigation channels are intentionally destroyed or the issue of maintenance is unresolved. Second, the demand for land titles means that former, informal land users who do not have any land titles can no longer assert any claim to the land and thus water. For the right to land indirectly contains a right to water access, too. Without land titles, water access rights also disappear.

Land conflicts in the Fergana Valley present new challenges to the institutional (formal as well as informal) regulations of water management. In the case described we could also talk of small-scale, localised water grabbing, which in the border region might lead to cross-border water use conflicts on a military scale.

3 China – A case study

Unlike Tajikistan, where land rights impact water rights, the example of China shows how changes in water rights have an effect on access to land. The information comes from interviews in 2010 with water authorities and water users.

Water rights in China

Water is a scarce resource in North China. Here the water availability is 550m³ per head, which is considerably below the world average (MA et al., 2006). Most water consumption is used for irrigation. In 1999, China's water-short northern region produced 53 % of domestic cereals and 57 % of vegetables (MA et al., 2006). Over the past decades, groundwater has become an

Figure 2: *Irrigation channel in Tajikistan*



increasingly important resource for the ever more intensive agriculture of North China. A lack of public investment in surface water systems and unreliable water availability have made farmers invest more in groundwater wells over the last few years.

The increasing water shortage led the Chinese government to pass the "New Water Law" in 2002. By formulating water rights explicitly, the aim of this legislation is to make people save water and to arrive at a more efficient reallocation between competing water users (CALOW et al., 2009). The revision of the legislation applies to surface water as well as groundwater. To facilitate implementation of the new law, regional plans for water allocation have been formulated. Based on these plans, water certificates are issued to water user organisations. In some areas, water abstraction rights are issued directly to individual households. Where this is the case, the water users' associations are responsible for calculating water volumes per household depending on the household size.

Land rights in China

As part of the agricultural reforms in China, which began in 1978, land use rights were first allocated to individual households as part of the household responsibility system, introduced in 1984. These rights, which were periodically reallocated, were based on household size and the amount of farmland in a community. To take into account demographic change within villages, land use rights were originally reallocated after relatively short periods of time, generally every three years (WANG et al., 2011). Increasingly, the central government is trying to restrict land redistribution in favour of more secure rights of land ownership. In 2002, therefore, the "Law on Land Contract in Rural Areas" was introduced. This law stipulates that contracts relating to land use

must remain valid for at least 30 years. In 2008 the Chinese government extended the length of these contracts to an undefined "long-term" period of time. This may well be seen as another way of saying "permanent" (WANG et al., 2011).

Imbalance between land and water rights presents a problem

The new water certificates are partly in conflict with the existing land use rights. On the one hand the number of land reallocations is decreasing (WANG et al., 2011) and with it land allocation by household size. On the other hand, since the "New Water Law" there are water certificates which allocate water rights on the basis of household size. Especially in dry regions, where land without water rights has no value, conflicts then arise.

Limited water rights lead to restricted land use rights

The land-water dilemma is particularly acute in Minqin, an area in North West China with annual rainfall of only 100-200mm. Without irrigation from ground and surface water, farming is barely possible here. With the introduction of a regional plan for water allocation in 2007 the authorities have been trying to limit the abstraction of groundwater. Thus water certificates for every household are issued annually to all the water users' associations or villages (see Figure 3). The water volume on the certificate is based on a fixed size of irrigated land per capita and the volume of water needed for this. The proportion of groundwater allocated depends on the surface water available in a particular year.

Compared to what farmers used to have at their disposal, the new ground water rights are leading to a substantial reduction in the volume of water available. To enforce this decrease in

Figure 3: A water certificate from 2008, calculated for a household of four people

2008 年度配水表

用水类型		人口 (人)	配水 定额 (m ³) L/人·天 L/头·天	配水 面积 (亩)	分配 水量 (m ³)	分配 电量 (度)
农田 灌溉	地表水	4	612	15	2020	
	地下水				5920	
基本 生态	地表水					
	地下水		160		160	
退耕 还林 (草)	地表水					
	地下水		300		1500	
生活			50		91	
畜禽			100		183	
其他					11314	2691
用水小组负责人签字						
备注						

水管单位负责人签字:  水管单位盖章:

water availability, one of the measures undertaken by the water authorities has been to cut off a large number of pumps. The result is that today large swathes of land are lying fallow. Although part of this currently fallow land falls under the land use contracts, the authorities are adopting the formal legal position that land use rights remain unaffected by their actions. In practice, however, the farmers cannot continue to farm their land without water and so it becomes worthless.

4 Conclusion

The examples of Tajikistan and China have illustrated the complexity of the cause-effect nexus of land and water rights, focusing on small-scale, regional land and water use problems. The topical issue of large-scale leasing of farmland, and consequently the reallocation of disposal rights of land and water, are an indication that the two resources are not only interlinked physically, but institutionally as well. The interrelationship outlined above reveals weaknesses in the institutional regulation of land and water rights: a lack of governance in conjunction with problems at the administrative level impedes the efficient use of resources. New land or water reforms are often introduced with the aim of protecting or controlling scarce resources. But what is often ignored is that these land or water reforms can impact the other resource, too. Our examples have shown that focusing on either resource in isolation cannot take into account feedback effects. This means that an integrated approach is necessary, both in practice as well as in the related research.

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Irrigation channel in Yavan District, Tajikistan

"Land Use in Transition: Potentials and Solutions between Abandonment and Land Grabbing"

IAMO Forum 2012

DANIELA SCHIMMING, DANIEL MÜLLER

The IAMO Forum 2012 took place from 20-22 June 2012 in Halle (Saale). One hundred and eighty participants from 20 countries attended the three-day conference on the topic: "Land Use in Transition: Potentials and Solutions between Abandonment and Land Grabbing". The event was organised jointly by IAMO with the Geomatics Lab of the Humboldt University in Berlin and the SILVIS Lab of the University of Wisconsin-Madison. Funding was provided by the German Research Foundation (DFG) and the Ministry of Sciences and Economic Affairs of the Land of Saxony-Anhalt.

Conference focus: Eastern European agriculture between abandoning arable land and land grabbing

At the heart of the discussions were current research findings relating to the influences on, and trends as well as future prospects of, land use in the transition economies of Eastern Europe, the former Soviet Union and Eastern Asia. The starting point was developments since the start of the transition processes. In Russia, for example, more than 25 million hectares of former farmland have become fallow over the past 20 years as a result of economic policy reforms and restructuring processes. At the same time, huge agricultural enterprises are now farming a substantial proportion of fertile land in Russia, Kazakhstan and Ukraine. Both of these developments are affecting the wellbeing of the

people and the environment in a number of different ways. The various analyses and strategies relating to the long-term safeguarding of food production and rural development were presented in the three plenary sessions, 19 parallel sessions and mini symposiums, as well as in the concluding podium discussion. A key objective was to minimise the negative impact of the intensification of agriculture on biodiversity and climate.

Plenary session: Need for research in agriculture

IAMO Director Professor Alfons Balmann opened the IAMO Forum 2012 on 20 June with an introduction to the conference topic. This was followed by the first two sessions which looked at the extent and direct causes of changes in land use. Professor Peter Verburg, head of the department "Spatial Analysis and Decision Support" at the Institute for Environmental Studies at Amsterdam University, pointed out that not only the radical changes in land use, but also the more subtle and gradual ones, are having a decisive influence on food production and global environmental changes. Verburg criticised the fact that research and policymaking focus almost exclusively on the wider picture and draw generalised conclusions on the basis of global analyses, which fail to take into account the local context, or barely do this. It is important, he said, that decisions are made and policy measures drafted in relation to the local land users, natural



Plenary session, IAMO Forum 2012

conditions and the socio-economic milieu. In Verburg's view, agricultural development needs interdisciplinary cooperation between a variety of academic subjects as well as a restructuring of how science and funding initiatives are organised.

Professor Helmut Haberl from the Institute of Social Ecology at Alpen Adria University in Klagenfurt discussed the essential factors which need to be considered for the sustainable use of bioenergy. He emphasised that climate protection and the finite availability of fossil-fuel based energy resources, especially crude oil, make the transition to a more sustainable and climate-friendly unavoidable. Although there was considerable potential for increasing the use of biomass to generate energy, he said, this would also result in a significant expansion of land use and large-scale changes to the cultivated landscape. In Haberl's view, biomass could help us switch over from the current dominance of a fossil-fuel based energy system to a more sustainable one, but its potential is far lower and it is in some ways more problematic for the environment than previously thought. In order to achieve the highest possible efficiency of biomass use, in the form of cascaded use, and to prevent negative effects on the environment, spatially explicit analyses are required, as is a better understanding of the interplay between the production of foodstuffs and bioenergy. According to Haberl, EU subsidies for bioenergy should be organised so that bioenergy use does actually reduce greenhouse gas emissions.

Plenary event: Political clarity for stability in agriculture

On the second day the IAMO Forum concentrated on processes of land use change. Johann Swinnen, Director of LICOS and Professor of Development Economics at the Catholic University

in Leuven, discussed differences and problems in European land use which have emerged over the last few years as a result of restructuring in agriculture. The new Member States of the European Union, in particular, exhibit wide differences as far as land reforms and land value are concerned. After the accession of the new EU countries, the acquisition of land in these countries was drastically restricted for foreign investors. Even though the rules of the EU's internal market ought to have allowed people and businesses from other EU countries to acquire land, transitional rules were in place. These will soon expire, however, apart from in Poland. As far as land use and leasing land are concerned, on the other hand, there are only few restrictions for foreign investors at the moment. The proportion of leased land is highly variable and depends on the existing farm structures of a particular country; it is positively correlated with the farm size structure. In both Slovakia and the Czech Republic, the proportion is over 90 %; in Poland, where small farms dominate, the figure is only about 30 %. According to Swinnen, restrictions on the land market negatively impact a country's development. Land law affects both farm efficiency and ownership structure. For the countries concerned, an increase in foreign direct investment generally has positive consequences due to the influx of capital and technology. Swinnen advocates, therefore, a complete liberalisation of the land markets in the new EU Member States.

Next, Grigory Ioffe, Professor of Geography at Radford University, outlined the reasons why land has become fallow in the Russian agricultural sector. For many decades the Russian state accelerated the expansion of agricultural land. Thus land use in Russia grew from 52 million ha. in 1922 to 126 million

ha. in 1976. This also occurred in areas where the local conditions for farming were unfavourable. After 1990 when the state gave up its monopoly of control, agricultural output and livestock numbers plummeted. Since 2000 at least 20 million ha. of farmland in Russia has become fallow. Even by 2009, Russia's agricultural output was still below the 1990 level. The key determinants of taking land out of production and of a fall in output are very low population density, poor soil quality and poor

access to urban centres. Russia's rural areas are fragmented into those with functioning farms and others with so-called "dying villages". Ioffe said that in the north of Russia, beyond the surrounding areas of large towns, agriculture is being abandoned on a large-scale. Because of favourable conditions, farming will continue in the south of Russia. According to Ioffe, subsidies to maintain and expand farmland are worthwhile.



*Keynote Speaker Johann Swinnen, (University of Leuven),
IAMO Forum 2012*

Plenary session: Profitable investment and social responsibility

On the last day of the conference Max Spoor, Professor of Development Research at the International Institute of Social Studies in The Hague, gave a critical analysis of the question whether agroholdings in Russia could solve the global food crisis. He confirmed that Russia ranked number one in terms of numbers of agroholdings as well as their share of agricultural land. Although the past few years have seen an upsurge in family farms, around 80 per cent of agricultural land is farmed by large enterprises. And yet yields in the Russian cereals sector are very low, especially compared to the USA and Canada. In some areas of farming, for example maize cultivation, family farms are achieving the same yield as, or even higher than, the large enterprises. Agroholdings in Russia have high monitoring costs, are not particularly efficient, and often exhibit "post-Soviet" management.

By recultivating available fertile land, as well as investing in large agricultural enterprises, it is hoped that wheat output will be increased in the future. Russia, Ukraine and Kazakhstan, which have hitherto been gigantic but insufficiently developed granaries, have the potential to make a substantial contribution to raising global food output. In Spoor's view, however, the poor efficiency of large Russian farms, combined with regular bad harvests due to water shortages and intensifying climate change, may prevent Russian holdings from automatically helping solve global food problems.

In his observations the World Bank economist, Dr Klaus Deininger, pointed out that there are many examples of the so-called "resource curse". This states that in the long term a wealth of

raw materials inhibits a country's industrial modernisation and economic growth, as in the short term the extraction of raw materials in itself promises big profits to all market actors. For foreign investments to have a positive impact on employment, combating poverty and food security in a country, responsible and appropriate policies are necessary. The decisive factor in relation to "land grabbing" is responsible behaviour by government and businesses in dealing with the needs of the population. Existing land rights must be recognised and regulated, state agricultural policy improved, and information for the population made more transparent. According to Deininger it is particularly important to encourage a competitive medium-sized farming sector. With its research focus and skills, IAMO can make important contributions towards such a positive development.

Parallel sessions and mini symposiums: Reasons for, and extent and impact of, land use changes

Besides the plenary sessions there were 15 parallel sessions at the IAMO Forum with a total of 54 lectures, as well as four mini symposiums involving 17 presentations. The various papers at these sessions looked at the changes in land use in a broad theoretical, methodological and empirical spectrum. Highlights included sessions on the current developments, determinants and effects of intensification in land use. Using global and regional data sets, e.g. for the EU or Russian Europe, leading academics presented their approaches, models, data and findings. This gave the audience an overview of the current state of research. Another high point of the parallel sessions was the mini symposium on the relationships between increases in agricultural output, climate change and global changes in land use, and greenhouse gas emissions, organised by Tom Hertel,



Parallel session with speaker Alex Lissitsa (Ukrainian Agribusiness Club), IAMO Forum 2012

Professor at Purdue University and at the time visiting researcher at Stanford University. Speakers in this mini symposium discussed the interplay between these important factors from an economic and environmental perspective. The parallel sessions and mini symposiums also dealt with the set-aside and fragmentation of farmland, factors determining the recultivation of abandoned farmland, changes in farm size including the emergence of very large production units, processes of extensification and intensification in agriculture, as well as changes in forest stand and quality.

Podium discussion: Land grabbing – A blessing or a curse for agriculture

The podium discussion entitled "Large-scale Farmland Investments and Land Grabbing" was a particular high point of the conference. Professor Max Spoor and Dr Klaus Deininger, together with the President of the Ukrainian Agribusiness Club, Dr Alex Lissitsa, Dr Christian Ebmeyer from the Russian agricultural enterprise Ekoniva, and Maren Kneller, head of department for Rural Development and Global Food Security at the German Ministry of Economic Cooperation and Development (BMZ), discussed the challenges of, and correct approach to, large-scale land purchases and leases by foreign investors. The controversial views of the podium guests highlighted some very different strategies. At the heart of the debate was whether domestic family farms or large agricultural enterprises better contribute to solving the global food crisis. There was agreement, however, that "land grabbing" will be a broad research topic in the future, and that the aim should be to better appraise opportunities and risks in agriculture as well as safeguarding

the responsible treatment of people, the environment and the climate. In conclusion, Professor Alfons Balmann said, "The increasing knowledge intensity of modern agriculture, with both an enormous need for investment and an accompanying high level of qualifications required of its workforce, is occupying a key position in agricultural development, particularly in Russia, Ukraine and Kazakhstan, and will continue to do so in the future. The emergence of agroholdings reflects past deficits in relation to these requirements. Whether this trend can be successful in the long term depends on the extent to which it complies with business efficiency, the requirements of the value chain, local conditions and the effects on the environment."

Besides these daytime sessions, the evening events – dinner on 20 June in the restaurant "Krug zum Grünen Kranze" and a barbecue at IAMO on 21 June – offered the large number of international guests much scope to continue their topical exchanges.

More details on the IAMO Forum 2012 and downloads of the individual lectures can be found at IAMO's website: <http://forum2012.iamo>.



Evening event at the Krug zum Grünen Kranze, IAMO Forum 2012

The impact of land use on soil fertility and yields

CHRISTOPH SAHRBACHER, MARK BRADY, CHANGXING DONG, MORTEN PERSSON, AMANDA SAHRBACHER

Introduction

Land is a non-expandable resource and one which is difficult to regenerate. At the same time it is a critical element in vital processes, including the production of food and other biomasses as well as the storage, filtration and transformation of many substances, e.g. water and carbon. The use of the land by man, however, poses a potential hazard to the soil. Anthropogenic influences cause erosion, the loss of organic matter, compaction, salinisation, landslides, contamination and surface-sealing (DIRECTORATE-GENERAL FOR THE ENVIRONMENT, 2012). The latter is a particular problem; it is prevalent in agriculture and is currently a topic of discussion in Germany (BMELV, 2012). Less attention is given, however, to the decline in organic matter due to agricultural land use.

Long-term experiments have shown that the percentage of organic matter is of key significance to soil productivity. This correlation was analysed by soil ecologists as part of the Soil-service project that was funded under the 7th EU Framework Programme (SOILSERVICE, 2012). The economic consequences identified by the study were quantified by Mark Brady of The AgriFood Economics Centre in Lund (Sweden) together with colleagues using estimations of production functions for the research regions Scania (southern Sweden) and South-East England (BRADY et al., 2012). The production functions were then processed by IAMO's agent-based model AgriPoliS.

Including soil ecological correlations in an agent-based agro-economic model makes sense, as the content of organic matter in soil depends on the type of land use by individual farmers. This means that the content of organic matter and thus soil fertility may fluctuate substantially from farm to farm, which in turn has an influence on the incomes of individual farms.

Measures aimed at retaining or increasing the organic matter in the soil, however, must be permanent. We must also take into account that such actions are slow to take effect, i.e. yield increases are only detected over time. In the short term, such measures represent initial extra costs for farmers. For this reason, the commercial incentive to undertake such measures is low. This raises the question of which policy incentives could be implemented to ensure the retention of organic matter in the soil and thus maintain soil fertility. One feasible approach could be the proposal by the EU Commission for farmers to set aside 7 % of their arable land as ecological focus areas under the Common Agricultural Policy after 2013. This would mean taking such land out of agricultural production or at least managing it more extensively to have a positive effect on the content of organic matter in the soil. What follows is a description of simulation experiments conducted using AgriPoliS (Agricultural Policy Simulator) for the regions of Scania (Sweden) and South East England in order to quantify the impact of creating ecological focus areas (referred to below as "set-aside"). We are assuming that "set-aside" is integrated into crop rotation and that there is

no permanent set-aside of individual areas, which would only improve soil fertility in the land that is not used.

Model and scenarios

The agent-based model AgriPoliS (HAPPE et al., 2006; SAHRBACHER et al., 2012) allows regional agricultural structures and their development to be mapped. AgriPoliS uses a projection approach to select and weight 10 to 30 farms that are typical for a given region, so that the sum of individual features of the selected farms (arable land, grassland, livestock, legal form, etc.) corresponds to how prevalent these features are at regional level. Then, the individual farms are "cloned" in AgriPoliS according to their weighting and individualized with regard to farm manager age, age of machinery and buildings, their geographical location and the management skills of the farm manager. The production and investment decisions of these farms are aimed at profit maximisation and are made using a mixed-integer programming model. At the end of a production period (a year), the farms compare their anticipated income for the next year with the potential income that could be generated after quitting agriculture through non-agricultural work, leasing of own land and interest income from their liquid equity. Where the potential non-agricultural income of a farm is higher than the anticipated agricultural income, the farm quits agriculture, as do farms that become insolvent. Land that becomes vacant following farms quitting agriculture and expiring lease contracts is rented to new lessees.

To model the development of the amount of organic matter in the soil, we have to start by initialising the distribution of organic matter content for the individual land holdings. The carbon content of the soil is used as yardstick for the content of organic

matter in the soil. To this end, average carbon contents are assigned to farms modelled in AgriPoliS. This allocation is based on yields shown in the farms' accounts and their production functions estimated from long-term experiments. In addition, a standard deviation is assigned to each farm; within this, the carbon content of individual land holdings fluctuates, normally distributed around the average value.

After this a general quadratic production function is processed by AgriPoliS. The parameters of the production function are crop type-specific and are loaded into AgriPoliS. The main determinants of the production function are nitrogen input and the average carbon content in the land of a given farm. Optimal nitrogen input depends on the sales price of individual crop types and the purchase price of nitrogen. Production optimisation based on the production function requires an extension of the mixed-integer programming model. This means that previously aggregated production activities, such as the production of one hectare of wheat or sugar beet, have to be disaggregated, i.e. the use of individual production factors, such as nitrogen, phosphorus, potassium, pesticides and energy as well as sales of wheat or sugar beets, have to be modelled as individual production activities. The underlying assumption is that the use of phosphorus, potassium and pesticides is proportionate to the nitrogen input and that the energy requirement depends on the yield of individual crop types. Changes in the sales price of individual crop types or in the purchase price of nitrogen thus cause changes in yields and the use of production tools.

Changes in the carbon content of the soil arise as a result of production decisions made by farms. The underlying assumption is that all farms are managed conventionally and do not

implement any special measures to retain organic matter in the soil. Organic matter is thus reduced annually by 0.5 % related to the previous year's carbon content. A 1 % accumulation of organic matter can be achieved through a one-year green set-aside.

Quantifying the effects of a "set-aside" on soil fertility and agricultural income initially requires the calculation of a reference scenario (0 %) without "set-aside". Modelled on the proposal by the EU Commission, a second scenario includes a "set-aside" of 7 %. Further calculations are made to establish the impact of a "set-aside" doubling to 15 % and that of a "set-aside" increase to 25 %. The last figure corresponds to the requirement for green fertilisation in zero-livestock organic farming. Set-aside percentages in all scenarios are integrated into crop rotation and there is no permanent set-aside of individual areas. The impact of technological progress is ignored in order to better illustrate how the loss of organic matter influences soil fertility and yields. The reason for this is that technological progress has a much stronger effect on yields than reductions in yields caused by the loss of organic matter.

Findings

In the reference scenario without "set-aside" (0 %), the content of organic matter in Scania is reduced by 10 % (Table 1) over a period of 20 years. The decline in South East England is somewhat lower at 8 % because ca. 5 % land was voluntarily set-aside or used as one-year grassland for fodder production. Losses of organic matter are reduced with an increasing share of "set-aside" in crop rotation. With 25 % "set-aside", therefore, losses are brought down by one third to 3 % over 20 years. What is clear is that the obligation to "set-aside" 7 % arable land would hardly make an impact in South East England because farms are already using parts of their land extensively without this requirement. The effect of such action always depends on the production structure of the starting situation.

Yield losses caused by loss of organic matter are lower because losses in organic matter can partly be compensated for by increased nitrogen fertilisation (Table 2). For instance, wheat in Scania requires ca. 6 % (9 kg/ha.) and in South East England some 2 % (5 kg/ha.) more nitrogen. Yield losses are also crop type-specific. Yield losses for wheat in Sweden without measures

Table 1: Relative change of carbon content in the soil between 2012 and 2032

Region	Ø Carbon content in 2012 in %	Scenario			
		0 %	7 %	15 %	25 %
Scania	2.42	-10 %	-8 %	-5 %	-3 %
South East England	2.50	-8 %	-8 %	-6 %	-3 %

Source: Own calculations.

to retain organic matter are 3 %, while losses for rapeseed are 6 % and for sugar beet as high as 9 %. "Setting-aside" 25 % arable land reduced yield losses for wheat in Scania to 1 % and in South East England to almost zero. What is more, only one-third additional nitrogen is needed to compensate for losses in organic matter.

A comparison of the development of gross margins (GMs) and yield developments shows that gross margin losses are higher than yield declines (Table 2 and 3). This is due, on the one hand, to the revenue-cost relation and, on the other, to increased fertiliser costs for wheat and sugar beet.

The development of gross margins, however, relates only to certain crop types. Additionally, income losses at farm level caused by "set-aside" have to be factored in. Thus, gross margin losses at a "set-aside" of 25 % of arable land are maximum 6 % after 20 years, while short-term slumps in gross margins per hectare are markedly higher in all scenarios (Figure 1). This income gap, however, is gradually closed over time in each scenario, due more or less to a decelerated decline of organic matter in the soil. In the scenario with 25 % "set-aside", the short-term income loss shows the highest reduction over time, but the income gap caused by "set-aside" cannot be fully closed, at least not over a period of 20 years. In contrast, the income gap is reduced to zero after 20 years in the scenario with 7 % "set-aside", and there are indications that profits after that period will be even higher than profits in the reference scenario.

Conclusions

The simulation experiments carried out with AgriPoliS for the regions of Scania (Sweden) and South East England illustrate

the importance of maintaining soil fertility. It was found that an annual yield increase through technological progress of 1 dt. per hectare for wheat (ORDON, 2011) is contrasted against a yield loss due to loss of organic matter of 0.1 dt. per hectare. The low loss rate, however, is owing to the fact that losses in organic matter can be partially compensated for by higher nitrogen quantities – at higher expenditure. Thus, the loss of organic matter has a much greater impact on revenue than on the physical per-hectare yield. In view of rising fertiliser costs, therefore, retaining soil fertility is increasingly gaining significance from a commercial perspective.

Introduction of a rotational "set-aside" scheme of 7 % arable land would only slow down, not stop loss of organic matter – this would require the setting aside of 25 % of arable land. Yet such an approach would cause a severe loss in income, which could not be compensated for within 20 years even through the retention of organic matter. By contrast, the income level after 20 years for a "set-aside" rate of 7 % would be the same as without a set-aside scheme, and we can even observe a tendency towards further increases in income. Experiments have also shown that a high percentage of organic matter in soil helps crops survive dry periods, which is especially significant in view of climate change. Other options for retaining organic matter would be leaving straw in fields, cultivation of intermediate crops or fertilisation with manure. Such actions, however, have a weaker effect on the retention of organic matter. In contrast, the use of the "set-aside" option for the production of biomass, e.g. by cultivation of miscanthus (Chinese grass) increases the biomass content not only by 0.5 % per year, as in a simple "set-aside" scheme, but by up to 1.5 % (BRADY et al., 2012).

Table 2: Relative change of carbon content in soil between 2012 and 2032

Field crop	Region	Ø Yield 2012 dt./ha.	Scenario			
			0 %	7 %	15 %	25 %
			Relative yield decline by 2032			
			[%]	[%]	[%]	[%]
Wheat	Scania	79	-3%	-2%	-2%	-1%
	South East England	85	-1%	-1%	-1%	0%
Rapeseed	Scania	37	-6%	-5%	-4%	-2%
	South East England	33	-6%	-6%	-4%	-2%
Sugar beets	Scania	325	-9%	-6%	-4%	-2%

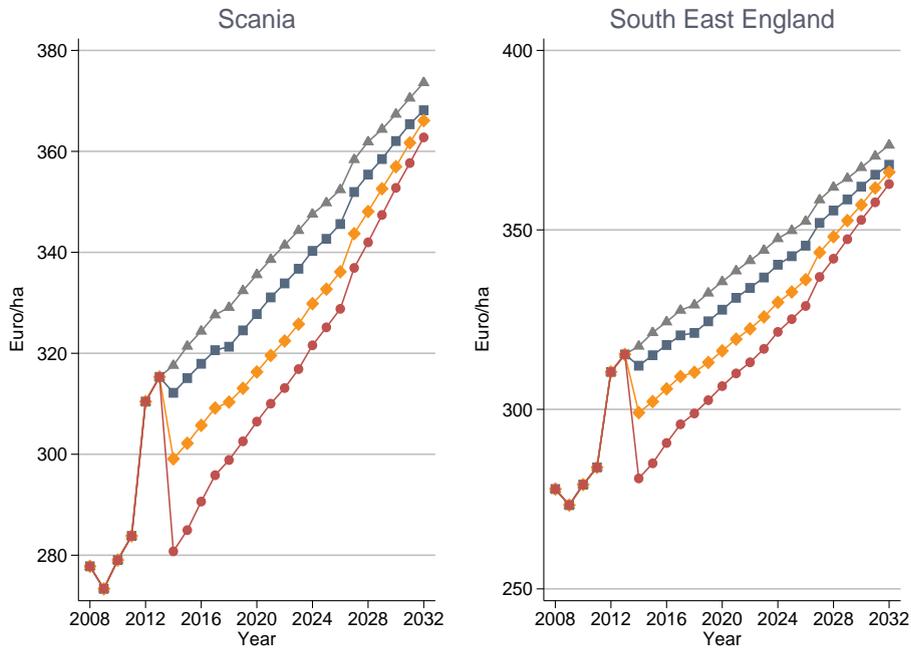
Source: Own calculations.

Table 3: Relative gross margin losses between 2012 and 2032 due to the "set-aside obligation"

Field crop	Region	Ø GM 2012 €/ha.	Scenario			
			0 %	7 %	15 %	25 %
			Relative GM decline by 2032			
			[%]	[%]	[%]	[%]
Wheat	Scania	687	-8%	-6%	-4%	-2%
	South East England	535	-3%	-3%	-2%	-1%
Rapeseed	Scania	589	-14%	-11%	-8%	-4%
	South East England	429	-12%	-11%	-8%	-3%
Sugar beets	Scania	1194	-23%	-17%	-12%	-6%

Source: Own calculations.

Figure 1: Development of per-hectare profit in Scania and South East England



Source: Own calculations.

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Decoupling policies and the internal European calf trade

SÖREN PREHN, BERNHARD BRÜMMER, STANLEY R. THOMPSON

As part of the 2003 Fischler reform, the previous model of coupled direct payments was replaced by a model of decoupled direct payments (the so-called Single Farm Payment model). Even after the reform, a complete decoupling of all direct payments was not mandatory, however; individual Member States were allowed to choose between partial and complete decoupling. This freedom of choice distorts production incentives, however, as coupled direct payments continue to be included in the gross margin, whereas this is no longer possible for decoupled direct payments. It is to be expected that this distortion in the incentive structure has also influenced trade with agricultural production factors, such as calves, with a negative effect on prosperity. We can assume growing trade flows from decoupled to partially decoupled Member States. To check this assumption we have used a generic study of the internal European calf trade. The findings of the study show clearly that the concession making only partial decoupling obligatory has led to policy-induced trade distortions within the European Union.

The MacSharry reform of 1992 heralded a paradigm shift in the Common Agricultural Policy (CAP) of the European Union (EU). The previous system of market price support was abandoned in favour of greater market orientation. Overall there was a fundamental reform of the EU system of intervention in agricultural markets, with a significant reduction of EU intervention prices. To compensate for this direct payments have been in place since, which represent the principal new instrument of the CAP.

After 1992 the direct payments were no longer linked to the level of output but only to production itself. Especially in crop farming, the differentiation of agricultural subsidies according to what was being farmed disappeared. It was a disadvantage, however, that direct payments were still linked to the cultivation of a piece of land or keeping livestock, which is why it was feared that in the next round trade talks of the WTO they might be put into the red box rather than staying in the blue one.

In accordance with the Blair House Agreement of 1992 between the USA and the EU, various "boxes" were created to make interventions in the agricultural market less distorting of competition on an international level. The "blue box" includes all those measures which continue to be permitted without any limitation, such as direct payments to farmers, if these are coupled to "programmes which restrict production". All proscribed measures, on the other hand, which directly distort the market, are in the "red box". These include, for example, non-tariff trade obstacles. The aim of the Blair House Agreement was to get the WTO negotiations on agriculture going again, having reached deadlock. Now, around the turn of the millennium, the EU risked once more falling behind in the upcoming WTO negotiations and losing their bargaining power.

Because of this external pressure and the forthcoming EU Eastern enlargement, the EU Member States finally came to an agreement to reform the CAP again and replace the previous

model of coupled direct payments with a model of decoupled direct payments (Single Farm Payment model). From then on future payments were to be based solely on historic payments, which were to be reallocated to the formerly farmed areas according to a certain ratio. This also affected animal premiums, too, which likewise were to be reallocated to the formerly farmed areas. The hope of this "reform of the reform" was to create greater scope for negotiation at both European and international level.

Although the original suggestion of the EU Commission was to decouple all direct payments completely, it emerged in the negotiation process, however, that this suggestion did not have majority appeal. The Southern European Member States, in particular, vehemently opposed a complete decoupling of all direct payments. In the end an agreement was reached whereby the introduction of the Single Farm Payment model would not be mandatory, but rather the Member States would be given the freedom to choose to leave at least some of the direct payments coupled. Especially in the beef sector, wide-ranging concessions had to be given to individual countries. Ultimately, a Member State was able to choose between the Single Farm Payment model, which provided for a complete decoupling of all direct payments, and three further options, which allowed at least partial coupling of the direct payments. The three options were tailored to the specific needs of certain Member States. Option I contained a special suckler cow premium, Option II a special premium for animals for slaughter, and Option III a special premium for fattening bulls. All three options also contained a specific premium for calves for slaughter. In addition, Member States were free to choose how they implemented the reforms.

Thus they could carry out the reforms either in 2005, or they could wait until 2006. More details can be seen in Table 1.

Table 1 also highlights that the individual Member States opted for different decoupling models. The Iberian Member States, as well as France, Belgium and Austria, selected Option I, the three Scandinavian countries chose Option III; and only the Netherlands went for Option II. The completely decoupled Single Farm Payment model, on the other hand, was mostly used in the western Member States, but also in Italy and Greece. These differences in the implementation of the agreed reform are significant; not only did they lead to different production incentives in the individual Member States, but they may have changed the demand for agricultural production factors, too, such as calves, thus also affecting the trade flows. The exact effect mechanism is depicted in Figure 1.

Figure 1 shows two market diagrams, one for a decoupled Member State (left) and one for a non-decoupled Member State (right). The demand curves represent the aggregated demand for calves from fattening farms, and the supply curves the aggregated supply of calves from dairy farms. The exponents of the demand curves define the policy system in each case. To allow us to focus purely on the policy effect, we assume that the two different Member States are only deciding on how to implement the decoupling policy. The starting situation is a completely liberalised market, represented by the aggregated demand curve $D_c D_c$ and the aggregated supply curve $S_c S_c$. As the equilibrium price in this market situation corresponds to the two autarky prices in the Member States, we cannot observe any trade. If direct payments are introduced, this changes the fattening farms' willingness to pay. The margins of willingness

Table 1: Overview of the final regulation on the common organisation of the market in beef

		Mid Term Review			
		Option I	Option II	Option III	Fully Decoupling
Agenda 2000					
Direct payments [per head]					
Slaughter premium calves	50 €	50 € [100%]	50 € [100%]	50 € [100%]	-
Suckler-Cow premium	200 €	200 € [100%]	-	-	-
Slaughter-premium adult cattle	80 €	32 € [40%]	80 € [100%]	-	-
Special premium for male cattle	210 € (2 x 150 €)	-	-	157.50 € (2 x 112.50 €) [75%]	-
Implementation					
2005		Austria, Belgium, Portugal		Denmark, Sweden	Germany, Ireland, Italy, Luxembourg, United Kingdom
2006		France, Spain	The Netherlands	Finland	Greece

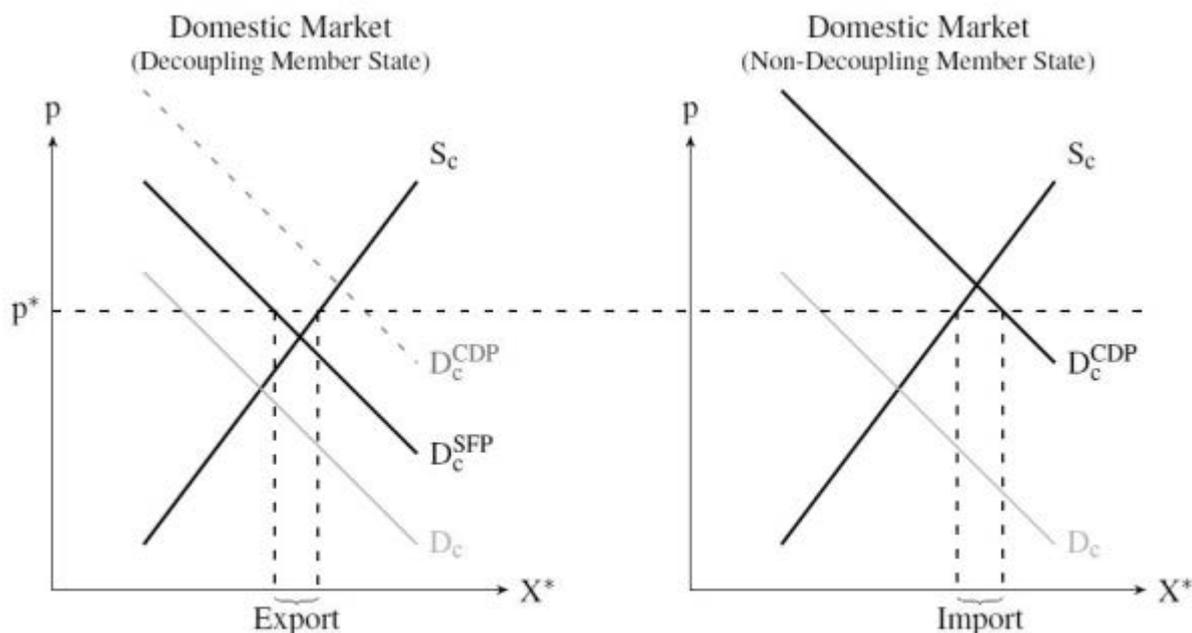
Source: http://europa.eu/legislation_summaries/agriculture/agricultural_products_markets/160009_en.htm

Notes: For the new member states, a simplified area payment scheme (SAPS) was generally used.

to pay rise, which ultimately shifts the demand curves right from D_c to D_c^{CDP} . If a Member State decides to couple direct payments again, this in turn leads to a fall in their willingness to pay, and so the demand curve shifts to the left, from D_c^{CDP} to D_c^{SFP} (see diagram on left). It is clear that in this market situation the autarky prices are no longer identical in both Member States; the autarky price is lower in the decoupled Member State than in the non-decoupled one. This price divergence leads to trade from the decoupled Member State to the non-decoupled one. The new equilibrium price is equal to the market price at which exports correspond to imports.

Figure 1 substantiates theoretically the hypothesis that the concessions which had to be made during negotiations over the 2003 Fischler Reform – chiefly to southern European Member States – have led to trade distortions within the EU. It seems clear that because of the distortion of the incentive structure in production, additional trade flows have taken place from decoupled to partially coupled Member States. In practice this could mean that German dairy farms, for example, export more calves to France, but that the purchase price for German fattening bulls increases and thus the fattening bull sector shifts to countries which are only partially decoupled, such as France.

Figure 1: The impact of different decoupling policies on trade



Notes. D_c denotes an aggregated demand for calves under free trade, D_c^{CDP} under a direct payment system, and D_c^{SFP} under a single farm payment system. S_c denotes an aggregated supply for calves.

In order to verify this assumption we investigated the internal European calf trade using an econometric trade model, a so-called gravity model. Our aim was to analyse the effects of the uneven European decoupling policies on trade flows, from the perspective of both the exporters and importers. The degree of decoupling in each Member State was explicitly taken into account in the econometric analysis. The time period covered by the study was 2003-07. Overall we can state that the policy had a significant statistic as well as economic impact, at least as far as importers were concerned. The imports of Member States where only partial decoupling took place rose relative to those where complete decoupling was carried out. This confirms our hypotheses. As far as exporters are concerned, on the other hand, we could not identify any significant influence of the policy on calf production. This finding is not wholly unexpected, however, as calf production is only a by-product of dairy production, and dairy farms do not change their production decisions merely on the basis of lower calf prices. As was fully expected, the policy change had a greater impact on fattening farms than dairy farms.

In conclusion, we can state that the 2003 Fischler Reform was definitely a further significant step towards a liberalised European agricultural market. The decoupling of direct payments may have helped reduce the faulty allocation of agricultural production factors within European agriculture and made farmers' production decisions more independent from state intervention. The implementation of the resolutions of the 2003 Fischler Reform has certainly improved the international competitiveness of the European agricultural sector. Such progress has been bought at the cost of one of the fundamental principles of the European Union's Common Agricultural Policy: the fundamental principle of the Common Market. As this paper has shown, the concession making only partial decoupling mandatory has led to distortions of production incentives as well as trade distortions within the European Union. The manner in which the 2003 Fischler Reform was implemented has brought disadvantages for Member States which have fully decoupled. With its so-called "Health Check Reform" of 2008, the European Union was right in its decision to make the complete decoupling of all direct payments mandatory by 2012.



IAMO – A brief portrait

Aims and tasks

The Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO) focuses on the far-reaching economic, social and political processes of change in the agricultural and food sector, and in rural areas. Its geographical area of research extends across Central, Eastern and South-Eastern Europe, including Turkey. The transition countries of Central and Eastern Asia have been added to this remit, although here the main focus is on China. In spite of great efforts and much success, the development of the agricultural and food sector in many of these regions is still far behind that of Western industrial nations, and some of them are following their own, very specific development paths. Furthermore, a huge gap is emerging between successful and stagnating regions within individual countries, as well as between countries themselves. In addition, large emerging nations such as Russia and China have risen to become "global players" on world agricultural markets. Given the ongoing global food crisis, we need to determine what needs to happen in these countries to promote sustainable growth and ensure global food security in spite of the growing demands being placed on agricultural resources. Adapting agriculture and land use to climate change in our target countries also represents a major challenge. Because of this, IAMO faces a very broad challenge for research, both thematically and regionally.

With its thematic and geographical focus, IAMO is a unique global research institution. Since its establishment in 1994 it has

been a member of the Leibniz Association as a non-university research centre. The Leibniz Association includes research institutes which are scientifically, legally and commercially independent, together with service institutions. Both these are jointly funded by the federal administration and the *Länder* to address current problems of national interest (www.leibniz-gemeinschaft.de).

The aim of IAMO's work is not just to help understand, but also manage the far-reaching processes of change to reduce ongoing development deficits in the agricultural and food sector, as well as in the rural areas of the Institute's geographical area of research. This goal gives rise to the three core tasks of the Institute:

- Internationally oriented research into agricultural and food economics including the development of rural areas.
- Exchange of ideas between the academic, business and political communities.
- Support for young academic scholars.

The Institute sees itself as a driving force of international research into agricultural economics. Outstanding research is the engine of the Institute's development, and it creates the conditions in which the other two core tasks can be performed. For instance, IAMO acts as a forum for exchange, and in this way it supports the cross-linking of research and dialogue between decision makers from the academic, political and business communities. In view of the unprecedented major challenges,



IAMO Building

delivering scientifically based policy advice is increasingly becoming an important part of IAMO's work. The Institute also uses its expertise and capacities to help academic scholars become fully qualified. Here there is a particular focus on supporting young academics from partner countries. Through its international orientation and cooperation with other teaching and research institutes, IAMO is helping to strengthen Halle's profile as a centre of science and research in Central Germany. Our close cooperation with Martin Luther University Halle-Wittenberg (MLU) – especially with the Institute of Agricultural and Food Sciences at the Faculty of Natural Sciences III, and the Economic Sciences Department at the Faculty of Law and Economic Sciences – is an important factor here.

Academic departments, research fields and key topic areas

IAMO's threefold research structure with the departments *Agricultural policy*, *Agricultural markets* and *Structural development* (these are short descriptions) is derived from the orientation of its research. The basic conditions of agricultural policy and opportunities for shaping policy, markets in the agricultural and food sector, and the development of farms and structures in rural areas are all analysed by the Institute. Developments at the individual farm level and in rural areas, the creation of functioning agricultural markets, and the shaping of agricultural policy are all closely interlinked. Decisions relating to farm development and agricultural policy, as well as market processes also have an impact on human-environment interaction in rural areas. In addition they have an effect on the two key issues of the future: food security and food safety. IAMO's academic work is organised interdepartmentally into four key research areas

which focus on major problem areas of agricultural development in Eurasian transition countries and emerging nations. The more intensive level of communication in key research groups counteracts any possible fragmentation of research. Besides positive bundling effects, greater individual responsibility of the key research groups allows efficient, result-oriented research management.

The idea behind the current medium-term agenda, which came into force in 2008, is to adapt the key research areas to the changing problems in those regions of the world studied by IAMO. Increasingly, it is general questions of agricultural development in the context of globalisation and increasing divergence – between countries and also between structurally weak and dynamic regions – that are coming to the fore. But even if, to take Central Europe as an example, transition-specific questions themselves are no longer of much significance, the socialist past still influences the development of the agricultural and food sector of that region. Here we could point to the unique dual farm structure of many EU accession states in Central and Eastern Europe as well as the high degree of vertical integration of food chains in many CIS-countries. The current medium-term agenda contains the following four key research areas:

- I. Policy reforms and institutional change
- II. Structural change and business growth
- III. Employment and livelihoods
- IV. Competitive strategies and market requirements

Institutional structure

IAMO is a public foundation. Its bodies are the board of trustees, the directorate and the scientific advisory board. The Institute is divided into three academic departments:

- External Environment for Agriculture and Policy Analysis; head of department is Prof. Dr Thomas Herzfeld
- Agricultural Markets, Marketing and World Agricultural Trade; head of department is Prof. Dr Thomas Glauben
- Structural Development of Farms and Rural Areas; head of department is Prof. Dr Alfons Balmann

The heads of the academic departments, together with the head of

- Administration and Central Services, Hannelore Zerjeski,

form the directorate of the Institute. Since 1 January 2012, IAMO's Executive Director has been Prof. Dr Thomas Herzfeld.

In coordination with the board of trustees, this collegiate body manages the Institute's business and directs the long-term research and development planning at IAMO. The scientific advisory board advises the directorate and the board of trustees on academic matters and carries out a regular evaluation of the Institute's work.

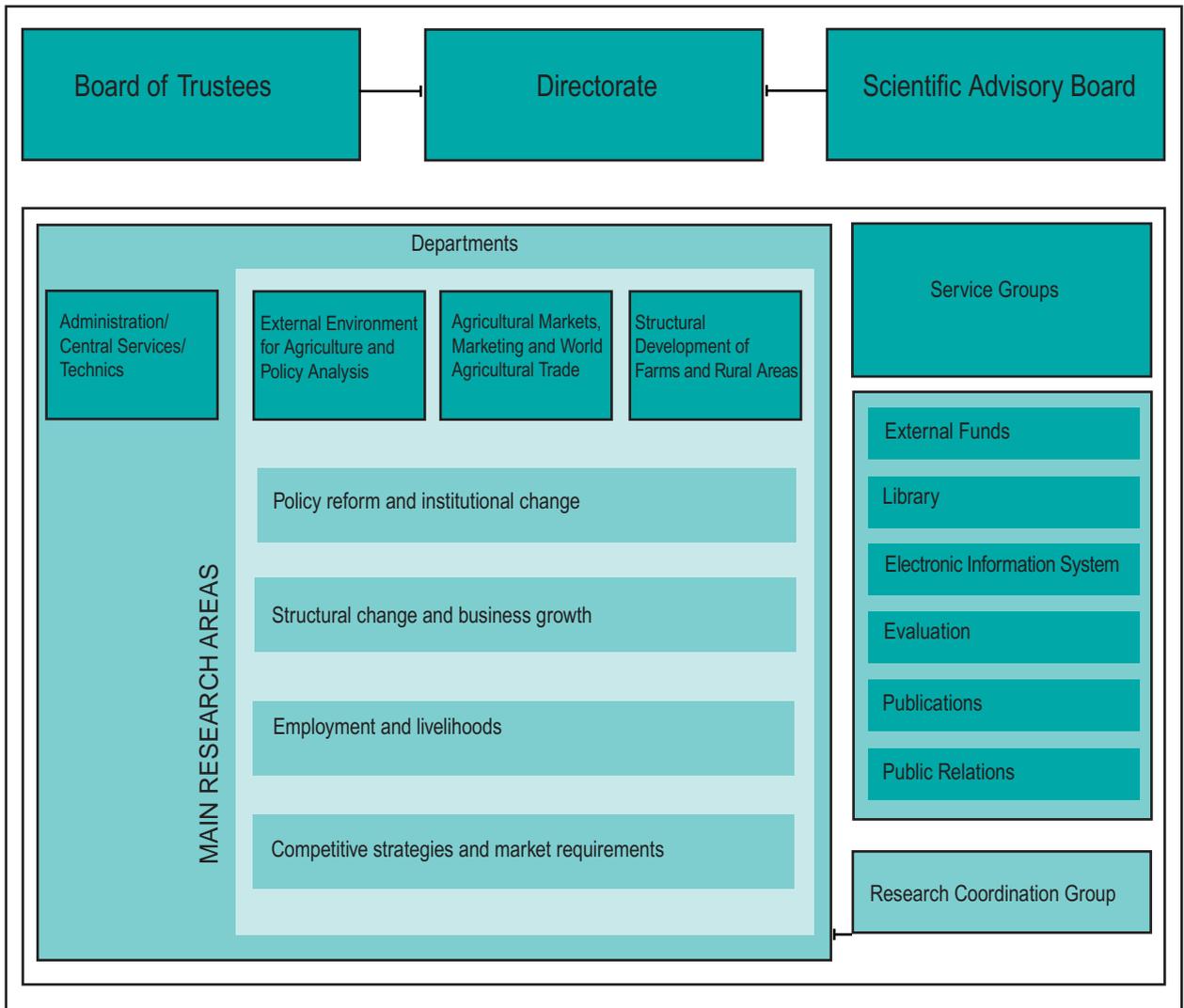
As of 1/1/2013 the following were members of the board of trustees: Minister Dr Rudolf Wendt (Chairman; German Ministry of Food, Agriculture and Consumer Protection), Minister Thomas Reitmann (Deputy Chairman; Ministry of Science and Economic Affairs of Saxony-Anhalt), Minister Jobst Jungehülsing (German Ministry of Food, Agriculture and Consumer Protection),

Under-Secretary Anne-Marie Keding (Ministry of Agriculture and the Environment of Saxony-Anhalt), Prof. Dr Dr h.c. Dieter Kirschke (Humboldt University, Berlin), Prof. Dr Bernhard Brümmer (Georg August University, Göttingen), Prof. Dr Gesine Foljanty-Jost (Martin Luther University, Halle-Wittenberg), and Dr Reinhard Grandke (CEO of Deutsche Landwirtschafts-Gesellschaft DLG e.V.).

As of 1/1/2013, the following were members of the scientific advisory board: Prof. Dr Dr h.c. Dieter Kirschke (Chairman; Humboldt University, Berlin), Prof. Dr Bernhard Brümmer (Deputy Chairman; Georg August University, Göttingen), Prof. Dr Martina Brockmeier (Hohenheim University), Prof. Dr Joachim von Braun (Center for Development Research, ZEF), Prof. Dr Emil Erjavec (University of Ljubljana) Prof. Dr Michael Grings (Martin Luther University, Halle-Wittenberg), Dr Heike Harmgart, (European Bank of Construction and Development, EBRD) Prof. Dr Dr h.c. Ulrich Koester (Christian Albrecht University, Kiel), Prof. Ph. P. Johan Swinnen (Catholic University, Leuven, Belgium), Prof. Dr Stefan Tangermann (Georg August University, Göttingen), and Prof. Ada Wossink (University of Manchester).

Cooperation with university institutions

IAMO's work is closely linked with the Institute of Agricultural and Food Sciences, which is part of the Faculty of Natural Sciences III at MLU, and the Economic Sciences Department at the Faculty of Law and Economic Sciences. The heads of IAMO's academic departments take part in MLU's teaching and committee work. Many academic members of staff from IAMO with post-doctoral and doctoral qualifications are also involved in university teaching, and in the running of a nationwide PhD



Organigram of the Leibniz Institute of Agricultural Development in Central and Eastern Europe

student programme. Staff links between MLU and IAMO are also strengthened by the fact that MLU's Prorector of Research and Student Education, Prof. Dr Gesine Foljanty-Jost, sits on IAMO's board of trustees. Cooperation between MLU and IAMO took on a new dimension when the Science Campus was opened in Halle in June 2012. The Science Campus aims to strengthen the interdisciplinary collaboration between the Halle-based Leibniz Institutes and the corresponding academic departments at Martin Luther University Halle-Wittenberg in the sphere of plant-based bioeconomy. It will also advance higher education in the Halle (Saale) region, as well as supporting knowledge and technology transfer in politics, business and public life.

IAMO also works in close conjunction with many other universities, chiefly with faculties of agriculture and economics. Depending on the requirements of interdisciplinary research, other social science and humanities subjects may be brought in, e.g. human geography and history. As far as our partners in Germany are concerned, we have strong links with Berlin, Bonn, Göttingen, Hohenheim, Kiel, Munich and Münster. There are close relationships, too, with chairs of agricultural economics and institutes at agricultural and economics colleges and universities in our partner countries.

Amongst our partner universities abroad we should give special mention to the Higher School of Economics in Moscow, Lomonosov Moscow State University; National University of Life and Environmental Sciences of Ukraine (NUBiP) and the National University "Kyiv Mohyla Academy", both in Kiev; Warsaw University of Life Sciences (SGGW); the Czech University of Agriculture in Prague; Corvinus University, Budapest and Gödöllő University of Agricultural Sciences, both in Hungary;

the Agricultural University of Tirana (UBT); Zagreb University in Croatia, Belgrade University in Serbia, and the University of National and World Economy in Sofia, Bulgaria. We should also mention the Center for Agricultural and Rural Development (CARD) at Zhejiang University in China. In addition, IAMO maintains a wide range of scientific exchange with the Institute for Agro-Economics and the Centre for Transition Economics at the Catholic University of Leuven, Belgium; Wageningen University in the Netherlands; the Swedish University of Agricultural Sciences (SLU) in Uppsala; the Swiss Federal Institute of Technology in Zürich (ETH); and the University of Kent in Canterbury. In the USA we have close contacts with Stanford University, Ohio State University, Pennsylvania State University, Georgia State University, the University of Wisconsin in Madison, and with the "Workshop in Theory and Policy Analysis" at Indiana University.

Cooperation with non-university institutions

The numerous contacts with non-university institutions are also very important for IAMO's work. We collaborate with the Johann Heinrich von Thünen Institutes of Farm Economics, Rural Studies, and Market Analysis and Agricultural Trade Policy in Brunswick-Völkenrode (vTI), the Leibniz Centre for Agricultural Landscape Research (ZALF) in Müncheberg, the Kiel Institute for the World Economy (IfW), the Halle Institute for Economic Research (IWH) and the Potsdam Institute for Climate Impact Research (PIK). There are close relations with many non-university research institutions in Central and Eastern Europe and other transition countries. Of note here are: in the Czech Republic, the Institute of Agricultural Economics and Information in Prague (ÚZEI); in Hungary, the Research and Information Institute for Agricultural

Economics (AKI) in Budapest; in Russia, the Russian Scientific Institute for Agricultural Economics (VNIIESH) and the All-Russian Institute for Agrarian Problems and Information Theory, both in Moscow; in Ukraine, the Institute for Economics and Forecasting at the National Academy of Sciences in Kiev; in Kazakhstan, the Analytical Center of Economic Policy in the Agricultural Sector (ACEPAS); in China, the Center for Chinese Agricultural Policy (CCAP) in Beijing, and the Institute of Botany in Kunming, both at the Chinese Academy of Sciences. Our most important partners amongst international organisations are the World Bank, the International Food Policy Research Institute (IFPRI) and various institutions of the European Commission, such as the Joint Research Centre in Seville. IAMO's close partners in Western and Northern Europe are: in the Netherlands, the independent research institute LEI at Wageningen University and Research Centre; in Belgium, CEPS, the Centre for European Policy Studies in Brussels; and in France, the Institute for Agricultural and Environmental Engineering Research (Cemagref), Paris, the National Institute for Agricultural Research (INRA) in Rennes, and the National Engineering College for Agricultural Sciences in Paris-Grignon (INA-PG).

Supporting young academics

One of IAMO's three core tasks is to help develop the next generation of researchers. In particular, therefore, the Institute supports the study for doctoral and post-doctoral degrees. A large number of dissertation topics are also assigned for master's, diploma and bachelor's degrees. At the start of 2013, 40 theses were being supervised at IAMO and 1 staff member was working to complete their post-doctoral degree.

Over the past year seven long-standing IAMO staff members submitted their theses to Martin Luther University and successfully defended them:

- "Ausprägung interregionaler Disparitäten und Ansätze zur Entwicklung ländlicher Räume in Mittel- und Osteuropa" (The manifestation of interregional disparities and approaches to the development of rural areas in Central and Eastern Europe) (Sabine Baum)
- "Effizienz russischer Geflügelfleischproduzenten: Entwicklung und Determinanten" (The efficiency of Russian poultry producers: Development and determinants) (Elena Epelstejn)
- "Influence Strategies in Supply Chains and Networks – A Study of Russian Agri-Food Business" (Vera Belaya)
- "Motives for remitting from Germany to Kosovo" (Wiebke Meyer)
- "Sozio-ökonomische Determinanten des Agrarstrukturwandels – Analysen mit einem agentbasierten Simulationsmodell in der Slowakei, Ungarn und Polen" (Socioeconomic determinants of structural change in agriculture – Analyses with an agent-based simulation model in Slovakia, Hungary and Poland) (Hauke Schnicke)
- "Determinants of non-farm entrepreneurial intentions in transitional context: Evidence from rural Bulgaria" (Diana Traikova)
- "Econometric impact assessment of the Common Agricultural Policy in East German Agriculture" (Patrick Zier)

Training for doctoral students: Seminars and PhD programme

As part of its educational provision for doctoral students, IAMO runs a PhD student seminar together with the professors of agricultural economics for agricultural business theory, agricultural market theory and agricultural business management from MLU's Institute of Agricultural and Food Sciences. The seminar is a forum for swapping ideas about research questions, methodological approaches and findings.

The Doctoral Certificate Programme in Agricultural Economics (www.agraroeconomik.de), designed and run by institutes of agricultural economics from several German universities, the Johann Heinrich von Thünen Institute (vTI) and IAMO, has been in existence since 2005. The "Doctoral Certificate Programme" offers the first structured training in Germany for doctoral students in the areas of agricultural and food economics and rural development. The systematic teaching of essential theory and method aims to increase the quality of students' education and improve their efficiency when working on dissertation topics. Doctoral study is the third stage of a consecutive study programme, following bachelor's and master's degrees in agriculture, food and the environment. The PhD study course is jointly run by the Agricultural and Food Economics Faculty at Christian Albrecht University in Kiel, the Faculty of Agriculture at the Rhine Friedrich Wilhelm University of Bonn, the Faculty of Agriculture and Horticulture at the Humboldt University in Berlin, the departments of Agricultural Sciences, Ecotrophology and Environmental Management at Justus Liebig University Giessen, IAMO, the Faculty of Agricultural Sciences at Hohenheim University, the Institute of Agricultural and Food Sciences at MLU,

the department of Ecological Agricultural Sciences at Kassel University, the Faculty of Agricultural Sciences at Georg August University in Göttingen, the Faculty of Economic Sciences and Center of Life and Food Sciences Weihenstephan, Munich Technical University, and vTI, Brunswick. The PhD course is based on a modular system. In 2012, IAMO professors and staff helped organise academic events relating to the following modules:

- "Empirical Research Methods in Agribusiness"
- "Advanced Applied Economics"
- "Agent-based Modelling in Agricultural and Resource Economics" 1 and 2
- "Introduction to Geographic Information Systems and Spatial Data Analysis"
- "Foundations of Agricultural Economics: Selected Topics"
- "Efficiency and Productivity Analysis I – Deterministic Approaches"

Guests and fellowships at IAMO

The further training and education of academic scholars is one of IAMO's core tasks. As mentioned above, IAMO focuses chiefly on supporting young academics from its partner countries. Of great importance in this regard are study visits by researchers, which can range from a few weeks to two years. Besides being involved in joint publications, those engaged in long-term visits also concentrate on their doctoral studies, financed by external and IAMO grants, and third-party funded projects. From October 2011 to September 2012, 18 fellows worked at IAMO, chiefly on their theses. At the same time 31 predominantly

Images from Vietnam and China



Collecting firewood in Yunnan, China



Rice fields in Nghe An, Vietnam



young visiting academics carried out research here. The fellows and visiting academics came from a total of 16 countries. By working together closely on international, third-party funded research projects, young researchers from partner countries integrate themselves into the international academic community. Former IAMO staff, both from Germany and partner countries, are now working in international organisations such as the EU and World Bank, or they have acquired management positions in their respective national agricultural administrations. An even larger number of them are continuing their academic careers back in their home countries.

"Pact for Research and Innovation" I: IAMO Graduate School

Under the "Pact for Research and Innovation", which is the equivalent of the Excellence Initiative of the federal administration and the *Länder* to promote science and research at German universities, IAMO set up a Graduate School in 2007 looking at the "Prospects of small-scale farm structures in the new Member States of the European Union". When Pact funding came to an end in 2010 the Graduate School continued because its work had been of such a high standard. It is now funded from the core budget and its area of focus is being developed further. The IAMO Graduate School has now been opened up to all PhD students at the Institute. The content of research topics is no longer restricted to the IAMO research programme.

Besides its research activity, the IAMO Graduate School provides systematic support for young academics. This takes the form of structured training of doctoral students via participation in the Doctoral Certificate Programme in Agricultural Economics (see above), and the involvement of IAMO researchers who

have successfully completed their PhDs. The latter will be given the opportunity to develop their research ideas further, and to acquire experience in research management. Since March 2012 the IAMO Graduate School has been a full member of the International Graduate Academy (InGrA) at Martin Luther University Halle-Wittenberg. InGrA supports the establishment of all forms of structured doctoral programmes, coordinates the existing programmes and helps create a productive research environment while respecting the university's strategies of internationalisation and equality (<http://www.ingra.uni-halle.de/>).

"Pact for Research and Innovation" II: International China research group at IAMO

In 2008 the IAMO China Centre was set up as a fixed-term IAMO research group to investigate the topic of "Economic Growth and Social Equilibrium in Rural China". To begin with the group consisted only of IAMO staff. In 2011, these were joined by academic colleagues from Göttingen, Wageningen and Beijing, and the Centre's future was secured when it received permanent funding from the budget. The range of topics covered by the 18 projects which had either concluded or were still ongoing in December 2012 include environmental and legal aspects of land and water use, the impact of Chinese environmental programmes on rural living conditions, questions of agricultural business and productivity development, socioeconomic questions, such as the integration of ethnic minorities, the development of rural education, non-agricultural labour markets, and the effects on welfare of agricultural foreign trade policy.

The individual projects are helping to find approaches for addressing the sharp increase in social and ecological problems in rural China. The main issues here are targeted policy measures

and the shaping of a growth-inducing economic environment. After the first theses were finished in 2011, in 2012 three new doctoral students started their research within the China Centre.

Since 2009 IAMO has been part of the "Rural Education Action Project" consortium (REAP), a collaboration between the Chinese Academy of Sciences and renowned institutes in China and the USA, including Stanford University. REAP is not only investigating the quality of education in rural China, but is also involved in assessing and precisely targeting funding measures for schools, grant programmes, and food and health programmes. Up till now IAMO staff have been (or still are) involved in sub-projects looking at the subsidisation of school fees and links between nutrition, anaemia and success at school.

More details can be found on the web page: <http://www.iamo.de/china-group.home.html>.

Development of third-party funding

Projects with third-party funding

(October 2011-September 2012)

I. Newly approved projects with third-party funding

- Project title: Fortfolgeantrag: Agroholdings im Agrar- und Ernährungssektor in GUS-Ländern: Entstehungsgründe, Funktionsweise und Entwicklungsperspektiven (Agroholdings II)
- Funding source: DFG Sachbeihilfe
- Project title: The Global Food Crisis – Impact on Wheat Markets and Trade in the Caucasus and Central Asia and the Role of Kazakhstan, Russia and Ukraine (VW MAT-RACC)
- Funding source: Volkswagen Stiftung

- Project title: International comparisons of product supply chains in the agri-food Sectors: Determinants of their competitiveness and performance on EU and international markets (COMPETE)
- Funding source: 7. Forschungsrahmenprogramm der EU (IAMO ist Koordinator)
- Project title: Economic and natural potentials of agricultural production and carbon trade-offs in Kazakhstan, Ukraine, and Russia (EPIKUR)
- Funding source: WGL
- Project title: Leibniz-Forschungsverbund "Krisen einer globalisierten Welt"
- Funding source: WGL
- Project title: Globale Ernährungssicherung und die Getreidemärkte Russlands, der Ukraine und Kasachstans (GERUKA)
- Funding source: Bundesanstalt für Landwirtschaft und Ernährung
- Project title: Analyse der Auswirkungen staatlicher Maßnahmen in der Landwirtschaft auf die Preise für landwirtschaftliche Erzeugnisse und Nahrungsmittel in Serbien (PPP Serbien)
- Funding source: Bundesministerium für Bildung und Forschung (BMBF) via DAAD

II. Ongoing projects with third-party funding

- Project title: Third sector organisations in rural development: A theoretical and empirical analysis (VW Schumpeter)
- Funding source: VW Stiftung Schumpeter Fellowship

- Project title: Financial Deepening and Efficiency of Rural Financial Intermediation (Intermediation)
- Funding source: DFG Sachbeihilfe
- Project title: Institutional Analysis of Decentralization and Options of Stakeholders for Participation in Agrural Policy Design (Decentralization I+II)
- Funding source: DFG Sachbeihilfe
- Project title: Between Path Dependence and Path Creation: The Impact of Farmers' Behavior and Policies on Structural Change in Agriculture (StruWaMi)
- Funding source: DFG Sachbeihilfe
- Project title: Econometric evaluation of CAP impacts in Germany (CAP Impacts)
- Funding source: DFG Sachbeihilfe
- Project title: Market Structure and Organization in Agri-Food Value Chains: An Application to the German Dairy Sector (Dairy Struc)
- Funding source: DFG Sachbeihilfe
- Projekttitel: Comparative Analysis of Factor Markets for Agriculture across the Member States (Factor Markets)
- Funding source: 7. Forschungsrahmenprogramm der EU
- Project title: Implications and Policies for South East Asia of Reducing Emissions from Deforestation and Forest Degradation (I-REDD+)
- Funding source: 7. Forschungsrahmenprogramm der EU
- Project title: Verbundvorhaben KULUNDA: Wie verhindert man die nächste "Global Dust Bowl"? – Ökologische und Ökonomische Strategien zur nachhaltigen Landnutzung in Russischen Steppen (KULUNDA)
- Funding source: Bundesministerium für Bildung und Forschung (BMBF)

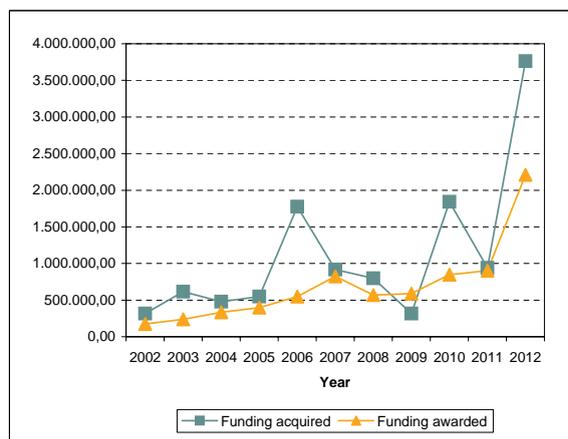
- Project title: Wissenschaftscampus Halle
- Teilprojekt: Sekundäre Inhaltsstoffe in Getreidekaryopsen als Qualitätsmerkmal: Analyse potenzieller gesundheitsfördernder Effekte sowie Verbraucherakzeptanz und Zahlungsbereitschaft (WiCa Anthocyanin)
- Funding source: Land Sachsen-Anhalt
- Project title: Wissenschaftscampus Halle
- Teilprojekt: Pflanzenbasierte Innovationen und Klimawandel – Einschätzung und Bewertung risikobedingter unternehmerischer Anpassungsprozesse sowie ihre Wirkungen auf den Märkten (WiCa Innovationen)
- Funding source: Land Sachsen-Anhalt
- Project title: Sozioökonomische Effekte des demographischen Wandels in ländlichen Räumen Sachsens-Anhalts (Demographie)
- Funding source: LSA Kultusministerium

III. Projects with third-party funding that finished in 2012

- Project title: Agroholdings im Agrar- und Ernährungssektor in Russland: Entstehungsgründe, Funktionsweise und Entwicklungsperspektiven (Agroholdings)
- Funding source: DFG Sachbeihilfe
- Project title: Ökonometrische Wirkungsanalysen von Fördermaßnahmen für die ländliche Entwicklung (Wirkungsanalysen)
- Funding source: DFG Sachbeihilfe
- Project title: Modelle betrieblichen Strukturwandels (Strukturwandel)
- Funding source: DFG Sachbeihilfe

- Project title: Das Wachstum der sächsischen Landwirtschaft 1750-1880 (Sachsen 1750-1880)
- Funding source: DFG Sachbeihilfe
- Project title: Fortfolgeantrag: Preisbildung und Einkaufsverhalten im Lebensmittel-Einzelhandel: Eine Analyse unter Berücksichtigung dynamischer Prozesse (Einkaufsverhalten II)
- Funding source: DFG Sachbeihilfe
- Project title: Deutsch-asiatische Forschungsanbahnung: Modeling Adoption Pathways of Improved Energy Systems to Support Rural Livelihoods, Mitigate Greenhouse Gas Emissions, and Reduce Pressure on Forest Resources in Sichuan Province (Bosch Sichuan)
- Funding source: Robert Bosch Stiftung
- Project title: Trade, Agricultural Policies and Structural Changes in India's Agrifood System (TAPSIM)
- Funding source: 7. Forschungsrahmenprogramm der EU
- Project title: Prototypical Policy Impacts on Multifunctional Activities in rural municipalities (PRIMA)
- Funding source: 7. Forschungsrahmenprogramm der EU
- Project title: Biomethanstrategie (Biomethanstrategie)
- Funding source: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
- Project title: Ausländische Arbeitskräfte in der Sächsischen Landwirtschaft (Sachsen 2011)
- Funding source: Freistaat Sachsen
- Project title: Biomasse als Energierohstoff in regionalen Wirtschaftskreisläufen der Region Burgenlandkreis (Biomasse Burgenland)
- Funding source: Burgenlandkreis

Development of third-party funding



Source: Institute's own statistics.

Selected third-party funded projects

Below are details of the most important new third-party funded projects. They show that IAMO's expertise in basic research and scientifically based policy advice is highly respected, and that IAMO is opening up new avenues of research collaboration which will help consolidate Halle's position as a leading scientific centre.

"Global Food Crisis" (VW MATRACC) and "Global Food Security" (GERUKA)

As part of their initiative "Between Europe and the Orient – Central Asia/the Caucasus in the Focus of Science" the Volkswagen Foundation has approved almost 570,000 euros for the international project submitted by IAMO, entitled "The Global Food Crisis – Impact on Wheat Markets and Trade in the Caucasus and Central Asia and the Role of Kazakhstan, Russia and Ukraine". The project will run for three years.

For several years the problem of global food shortages has featured ever more prominently in the public consciousness. Until now the focus has been chiefly on the countries of Africa and Eastern Asia. What is far less known is that the states of the Caucasus region and Central Asia have also been hit by the crisis and are suffering from structural supply problems. With the exception of Kazakhstan, which is one of the largest wheat exporters, the food supply in all other countries of the region has been classified by the Food and Agriculture Organization of the United Nations (FAO) as deficient. Four countries in the region are currently reliant on help from the United Nation's global food programme.

Wheat is the most important basic foodstuff in the region. The Caucasus area and Central Asia need substantial wheat imports to attain food security. Accordingly the project focus will be on analysing how the wheat markets function in this region. The aim of the research is to find out who the main actors are in these markets, how the wheat trade functions, and what determines pricing in the region. To answer these questions, issues of price transmission, price volatility, market structure, pricing and foreign trade need to be examined. Another key objective of the project is capacity building in the study region. This will involve young academics from the region receiving international-standard doctoral training at IAMO, which will enable them to use their newly acquired know-how back in their home countries at research institutions, in the state service and in business. Workshops will actively promote the circulation of the project findings in the region.

The project, led by Dr Ramona Teuber and Prof. Dr Thomas Glauben, will be undertaken in cooperation with academics

from countries in the region, from the World Bank, and from nine research institutions and universities in the USA, Australia, Germany, the Netherlands and Switzerland.

In a similar vein is the project "Global food security and the cereals markets of Russia, Ukraine and Kazakhstan", which IAMO has been commissioned to carry out by the German Ministry of Food, Agriculture and Consumer Protection (BMELV). Coordinated by Dr Linde Götz and Prof. Dr Thomas Glauben, the project, which is being funded to the tune of 395,000 euros, aims to work out approaches for mobilising cereals production as well as the export potential of Russia, Ukraine and Kazakhstan (RUK countries).

By considering the land currently lying fallow, the project will evaluate the unused land potential as well as the possibility of increasing output by making use of technological progress. A key part of this project will analyse the significance of the RUK countries for the global cereals markets. The focus here is on examining the trade relations with the countries in the crisis-hit Middle East which import cereals. Also important are the institutional and infrastructural obstacles to the trade in cereals, such as transport and storage capacity, and corruption. The significance of market power and the impact of political market interventions, such as export restrictions, on national cereals markets will likewise be investigated. Ultimately, the RUK countries offer large, to date untapped potential for the production of cereals. The research will be used as the basis of theses written at IAMO, and also to develop strategies for how this potential can be mobilised for both production and export. An important component of the project is to develop concrete recommendations for the BMELV (Federal Ministry of Food, Agriculture, and Consumer



Palm oil plantation in East Kalimantan, Indonesia

Protection) about measures which will facilitate the exploitation of hitherto untapped potential.

Climate change and agricultural growth:

The EPIKUR project

The research project "Economic and natural potentials of agricultural production and carbon trade-offs in Kazakhstan, Ukraine and Russia" (EPIKUR) also got underway at IAMO in 2012. The project has almost 470,000 euros worth of funding and will run for three years. The funding was obtained through the Leibniz Association's internal competition process (SAW process) under the aegis of the Pact for Research and Innovation (Leibniz Excellence Initiative). Our local partners in the region are the Russian Institute for Agricultural Problems and Informatics (VIAPI), the Ukrainian Agribusiness Club (UCAB) and the Analytical Centre of Economic Policy in the Agricultural Sector (ACEPAS).

Under the leadership of Dr Daniel Müller and Prof. Dr Heinrich Hockmann (both IAMO), over the next three years an international team of researchers will consider yield gaps and unexploited land resources to investigate and assess the potential in the production of agricultural commodities in the countries listed above. As far as feeding a growing world population is concerned, Kazakhstan, Ukraine and Russia are some of the most promising states of the former Soviet Union. The researchers intend to investigate yield gaps by linking spatially explicit crop growth models with farm efficiency analyses. A spatial allocation model should allow the analysis of the recultivation potential of farmland which is currently lying fallow. Then, using scenarios of technological progress, climate change and the profitability of recultivation, the researchers will calculate future production potentials. Recultivation certainly produces CO₂ emissions. The

final evaluation, therefore, must weigh up the environmental damage with the extra economic benefit of recultivation. The aim of such a trade-off analysis is to identify possible strategies of environmental protection for agricultural growth based partly on more intensive land use. EPIKUR will allow the first integrated study of how large the agricultural potential of the region is and to what extent the potential of this fallow land can be exploited without endangering the global climate.

Capacity building in the region is an important part of EPIKUR, too. A stable, long-term international network of excellence on the topic of agricultural potential in transition countries must be developed with the intentional inclusion of our Eastern partner countries.

Competitiveness of supply chains: COMPETE

As part of the 7th EU Framework Research Programme, IAMO, as coordinator, succeeded in obtaining funding for a major project entitled "International comparisons of product supply chains in the agro-food sector: Determinants of their competitiveness and performance on EU and international markets" (COMPETE). Of this money, 414,000 euros will go to IAMO. The COMPETE project, coordinated by Prof. Dr Heinrich Hockmann and Dr Inna Levkovych (both IAMO) will run for three years, and will involve 15 partners from academia and industry from Germany, Romania, the Netherlands, Slovenia, the Czech Republic, Italy, Great Britain, Serbia, Italy and Poland.

The aim of COMPETE is to assess the competitiveness of European supply chains in the agricultural and food sector, using a combination of different innovative theoretical and methodological approaches. The scientific findings will then be used to

develop coherent recommendations for policy action, to improve the competitiveness of the knowledge-based bioeconomy in Europe. The scientific analysis will focus on:

- (1) Working out effective indicators of competitiveness
- (2) Determining the variables which influence these

For the first of these, comprehensive definitions of competitiveness, integrating different new approaches of micro- and macroeconomics, must be developed. Compared to a conventional approach, the perspective of the food industry needs to be expanded to cover the whole supply chain, including the production of agricultural raw materials, intermediate products and end products. This wider and more integrative perspective will form the basis for the empirical analysis, to compare the position of EU supply chains on global markets with those of their main competitors.

The second part of the project will analyse key variables which influence competitiveness. These include the impact of political intervention, the business environment, productivity in agriculture and processing, the functionality of domestic and international markets, and the effects of innovations in the food-processing industry. The investigation of any one of these variables will be innovative, and not only expand scientific knowledge both methodologically and theoretically, but improve our ability to derive policy recommendations from the research.

IAMO lecture activity

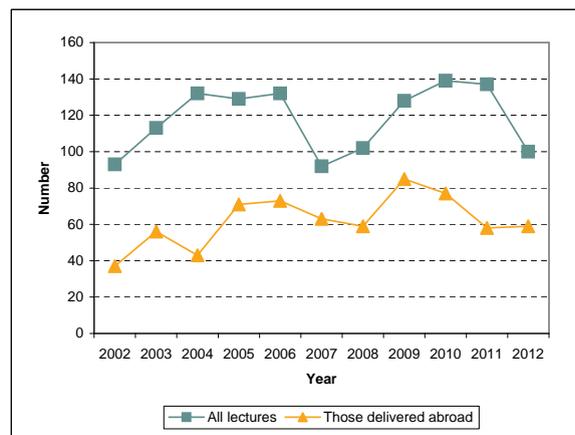
Besides publishing their work in journals, another important activity of IAMO staff is the presentation and discussion of research findings at national and international conferences, forums and workshops. A large proportion of lectures by IAMO

staff are delivered at international events. Just over 60% of lectures in 2012 were given abroad. The costs of 40 of the 81 lectures given in the period 1/1/12-30/09/12 were fully covered by the organisers (19), third parties (17), or other sources (4). There was mixed financing for two lectures, while one lecture was paid for out of the speaker's own pocket. The expenses for 38 lectures were entirely covered by IAMO's budget.

Conferences and seminars

Conferences and seminars are essential for IAMO to be able to fulfil its third core task, which is to act as a forum for the exchange of academic ideas in all questions of agricultural development in transition countries. The events organised by the Institute represent an important platform for scientific exchange, both on a national and international scale. Besides greater academic collaboration, the meeting of academics with decision-makers from the food industry and politics often provides

Development of IAMO lectures



Source: Institute's own statistics.



an impetus for restructuring in the agricultural and food sectors in partner countries. Here we should also highlight the fact that in the field of agricultural economics IAMO makes an important contribution to so-called scientific "capacity building" in research and teaching in our partner countries, and has a crucial role in developing long-term viable networks. Below is an outline of the most important conferences, symposiums and workshops run by the Institute in 2012, besides the IAMO Forum.

IAMO expert panel at Green Week 2012

On Friday 20 January 2012, more than 250 guests came to the expert panel "Agricultural investment in Russia, Ukraine and Kazakhstan – "Land grabbing" or an opportunity for development?", organised by IAMO as part of the Global Forum for Food and Agriculture. The German Ministry of Economics hosts this forum every year during International Green Week. The expert panel brought together high-ranking experts from academia, business and politics.

In his introductory speech, Prof. Dr Alfons Balmann remarked that, contrary to the optimistic expectations at the start of the transition process, and in spite of an increase in demand worldwide, agricultural output in Russia, Ukraine and Kazakhstan has been no better than sluggish. In many cases farmland has been set aside. According to IAMO estimates the figures for European Russia alone amount to 27 million hectares. Increasing demands on actors in the supply chain and technological progress are making modern agriculture knowledge intensive and capital intensive. A successful agricultural and food sector needs investors, therefore, who have sufficient risk capital and the corresponding know-how, and who can transfer this to the

farms. In Balmann's view, foreign investment represents a fundamental development opportunity for Eastern Europe.

Dr Oane Visser, Assistant Professor in the Department of Anthropology and Development Studies at Radboud University in Nijmegen (Netherlands), emphasised that only gradually are the developments in the former territories of the Soviet Union – large-scale land investments – also being regarded as a form of "land grabbing". Hitherto, discussion of this phenomenon has been limited to Africa, Latin America or Asia. According to Visser's studies, it is predominantly Western European companies who are investing in European Russia, whereas in Kazakhstan and Siberia the investors are mainly from China, South Korea and Japan. In many rural areas, processes of migration and an aging population often produce a greater willingness to sell to foreign investors. Visser stressed that agricultural investments can have negative as well as positive effects. If they are successful, rural life could definitely become attractive again for young people.

An example of this was given by Stefan Dürr, founder and owner of the German-Russian business group EkoNiva. His enterprise has been operating in the Russian farming sector for 18 years. With six sites, he now has 160,000 hectares of arable land and 28,000 cattle. EkoNiva is the third largest dairy producer in Russia. Dürr regards himself as a responsible entrepreneur who also invests in the social infrastructure in order to make his business and the location attractive for young, qualified professionals. In Voronezh, for example, in the district of Liski, he runs a kindergarten amongst other things, and supports the local football association. This level of social engagement was a demanded by the public administration – the other condition,

besides the creation of jobs, stipulated by the head of Liski district authority to the foreign investor. Dürr highlighted that the local administration plays a very large role in rural development of the district. Oleksandr Kuts, Director of the Food Department of the Ukrainian Ministry of Agriculture, gave an insight into Ukrainian agricultural policy. Until 2010, the main thrust of policy was to support the merging of farms into large agroholdings, as a result of which Ukraine became one of the largest exporters of cereals in the world. For the last two years the political discussion has now revolved around the question of whether it makes sense to support only agroholdings, or whether smaller family farms should be given support, too. Kuts emphasised that foreign investors are, in principle, welcome in Ukraine.

Dr Gulmira Issayeva, advisor to the Kazakhstani Minister of Agriculture, discussed the situation in that country. She said that since 2005 investment in agriculture has doubled, and credit volumes have risen 27 times. Agricultural businesses have received credit on more favourable conditions than the rest of the economy. In Kazakhstan 84 per cent of farm land is operated by private land-users and 15 per cent by the state. Less than 1 per cent is in private ownership. At present, 1.6 million hectares of land are not being used for their designated purpose. The government is seeking to make laws, she added, which will allow these areas to be expropriated.

The final speaker on the panel was Elisa Manukjan from the Department of "World Food Affairs and International Food and Agriculture Organisations" at the German Ministry of Agriculture. She described the efforts of the FAO, including the participation of Germany, to develop guidelines for good land governance. These voluntary guidelines were drawn up by

government representatives, business people and representatives from non-governmental organisations in 15 workshops held across the globe. They will be issued in May this year. The FAO is already working on the guidelines for implementation, one of which deals with agricultural investment. This is the first time a significant international instrument has been created which will be characterised by participation and a focus on human rights.

IAMO in close cooperation with the Ukrainian Agribusiness Club (UCAB)

UCAB is the association of large agricultural enterprises in Ukraine. In the presence of the Ukrainian Minister of Agriculture, Mykola Prysyazhnuk, IAMO and the Ukrainian Agribusiness Club signed a cooperation agreement on 20 January 2012 during International Green Week 2012 in Berlin. The aim of this agreement is to produce closer scientific and technical collaboration between the two institutions. Joint research projects will be undertaken and joint events organised. The agreement partners are also seeking to provide targeted support for young academics, including making possible study visits by members of staff to the partner institute, and supporting further education projects. In this vein, UCAB set up a further education centre to train urgently needed specialists for the Ukrainian agricultural sector. With its scientific expertise, IAMO will participate in this project. IAMO has already helped organise an international conference under the direction of UCAB and AgriEvent. Other organisers were the Ministry of Agrarian Policy and Food of Ukraine and the German Committee on Eastern European Economic Relations. The III International Conference "Large Farm Management: Improvement of Efficiency and Productivity" was

held on 19 September 2012 in Kiev. It is the only conference of this type, which addresses the management of agroholdings and related developments, as well as improvements in productivity and financing. There were around 500 participants from agricultural businesses, suppliers, partner organisations, the government, universities and other research institutions.

Events scheduled for 2013

Expert panel on agricultural policy at International Green Week 2013

At the Global Forum for Food and Agriculture (GFFA) 2013, which is being hosted by the German Ministry of Food, Agriculture and Consumer Protection (BMELV) as part of International Green Week in Berlin, IAMO is organising an agricultural policy symposium in conjunction with the German Committee on Eastern European Economic Relations. The event, which is entitled "From micro credit to shareholder value: Access to sources of financing in the agricultural sector of Eastern Europe and Central Asia", will see representatives of the political, academic and business communities investigate the relations between business structures and sources of financing, and discuss the opportunities and risks for the development of capital markets and state investment programmes. The expert panel will take place on Friday 18 January 2013 from 12.30 to 14.30 in Hall 7 of the International Congress Centre (ICC) in Berlin.

IAMO Forum 2013

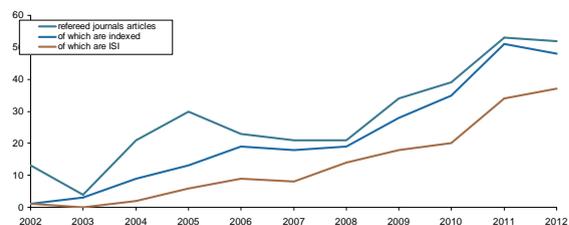
The topic of the next IAMO Forum is "Rural areas in transition: Services of general interest, entrepreneurship and quality of life". It will take place from 19 to 21 June 2013 in Halle (Saale)

and is being organised by IAMO in conjunction with the Johann Heinrich von Thünen Institute (vTI). The focus of the Forum is the critical development in many rural areas of Central and Eastern Europe as well as China. Rural areas frequently have a concentration of poverty and aging populations, there is a lack of job opportunities, entire regions are emptying. The most important questions are how current policy on the development of rural areas can be improved and how negative trends can be combated. You can find up-to-date information on the IAMO Forum 2013 on our web site (www.iamo.de/forum/2013/about-the-conference.html#.UK-BzGemHpE).

Publications

Academic staff at IAMO publish their findings in scientific journals, monographs, anthologies and discussion papers. A complete list of publication can be found on IAMO's web site on the Internet (www.iamo.de). The diagram below illustrates the development of numbers of refereed and listed articles published in journals by IAMO staff since 2002. Since 2003, the number of refereed articles with an impact factor, which are listed on the Science Citation Index (SCI) and the Social

Development of numbers of articles published in refereed and indexed journals



Source: *Institute's own statistics.*



IAMO Forum 2012

Science Citation Index (SSCI), has been rising continually, and increased again in 2012. By September 2012, the 30 articles falling into this category had already almost reached the previous year's figure of 34, which shows that IAMO's internal quality management for publications continues to be effective.

Studies on the Agricultural and Food Sector in Central and Eastern Europe

In the series of "Studies on the Agricultural and Food Sector in Central and Eastern Europe" IAMO publishes monographs and conference proceedings that deal with agro-economic issues in Central and Eastern Europe. All publications from volume 22 onwards can be downloaded from the internet free of charge <www.iamo.de/dok/sr_vol###.pdf. Until now in the studies-series 29 conference proceedings and 40 monographies have been published. In 2011 the following volumes were published:

TARAS GAGALYUK (2012): Goal Achievement in Supply Chain Networks – A Study of the Ukrainian Agri-Food Business, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 64, Halle (Saale).

AMANDA SAHRBACHER (2012): Impacts of CAP reforms on farm structures and performance disparities: An agent-based approach, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 65, Halle (Saale).

LILI JIA (2012): Land fragmentation and off-farm labor supply in China, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 66, Halle (Saale).

SABINE BAUM (2012): Ausprägung interregionaler Disparitäten und Ansätze zur Entwicklung ländlicher Räume in Mittel- und Osteuropa, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 67, Halle (Saale).

AXEL WOLZ, CARMEN HUBBARD, JUDITH MÖLLERS, MATTHEW GORTON, GERTRUD BUCHENRIEDER (Hrsg.) (2012): Patterns Behind Rural Success Stories in the European Union: Major Lessons of Former Enlargements, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 68, Halle (Saale).

WIEBKE MEYER (2012): Motives for remitting from Germany to Kosovo, *Studies on the Agricultural and Food Sector in Central and Eastern Europe*, Vol. 69, Halle (Saale).

IAMO on the Internet

The Institute's web site (www.iamo.de) aims to provide outsiders and interested users with a rapid overview of IAMO's core tasks and objectives, as well as of staff research topics, findings and publications. Our Internet presence is based on the Open Source Content Management System TYPO3. This allows members of staff to maintain the content of their individual pages independently, ensuring that the site is up to date. Our web site also aims to achieve the goal of maximum accessibility. The advantages of an accessible-to-all, standard compatible web site are: access for all users, easy maintenance and smaller file sizes. From the home page, which shows news, events and the most recent publications, users can access information from the Institute, Research, Events, Publications and Portal categories. The Institute menu leads to material on IAMO's mission statement, core tasks, institutional structure, staff, library and job vacancies. On the Library page users can search the library catalogue using OPAC. The Research menu leads to information about current research projects, with short project descriptions, a list of staff involved and select publications. It also provides an overview of research cooperations with other institutions. The Events menu gives details of the annual events

either organised by the Institute or in which IAMO is taking part. These include the IAMO Forum as well as seminars and workshops on a variety of different topics. Here users can access advance information about programmes and speakers, and view papers that have been submitted. The web site also

provides access to all our in-house publications. These include the IAMO series, Discussion Papers, Annual Reports, the IAMO Annual and IAMO Policy Briefs. Publications by staff members can be accessed directly, either from the complete publication list or via the individual staff papers.





View of inner courtyard at IAMO

How to find us

» by car

From the south: Leave the A9 motorway at the Rippachtal junction, and take the A38 towards Merseburg. At the Halle-Süd triangle change onto the A143 and follow this road until the Halle-Neustadt/Halle-Zentrum exit. Then take the B80 for about 8km towards Halle until you get to Rennbahnkreuz. At the entrance into town get into the left-hand lane and go straight on along the B80 towards Kröllwitz/Universität. Turn left at the ice-rink and follow Blücherstraße to the end. Then turn right. At the end of the avenue turn left into Theodor-Lieser-Straße. IAMO is in the building on the right-hand side.

From the north: Take the A9 motorway (Berlin-Munich) as far as Halle/Brehna. Follow the B100 towards Halle until you reach the outskirts of the city (traffic lights at Dessauer Brücke). Get into the right-hand lane and turn left, still on the B100 to Zentrum and Magdeburg. Turn right immediately into the B6 towards Magdeburg and then take the next exit (Zoo, Wolfensteinstraße). Carry on along Wolfensteinstraße (underpass, several traffic lights, Reilstraße/Große Brunnenstraße crossing) until you reach Burgstraße. Turn right and take the next available left turning over Saalebrücke. Once over this bridge take the first right turning, drive back under the bridge and continue along the embankment of the Saale. Turn left at the next crossroads into Weinbergweg towards Universität, and follow the road until the next set of lights. Continue straight ahead into Walter-Hülse-Straße. The IAMO building is on the right-hand side. Turn right into Theodor-Lieser-Straße and IAMO is now in front of you.

From the north-west: Coming from Magdeburg take the A14 (direction Leipzig or Dresden) to the Halle-Peißen exit, then take the B100 to Halle. See "From the north" for further directions.

From the west (on the B80): Follow the B80 until the Rennbahnkreuz. At the entrance into town get into the left-hand lane and continue along the B80 towards Kröllwitz/Universität. Turn left at the ice-rink and follow Blücherstraße to the end. Then turn right. At the end of the avenue turn left into Theodor-Lieser-Straße. IAMO is in the building on the right-hand side.

» by train

Leave the station by the main exit and follow signs to the tram stop "Riebeckplatz/Hauptbahnhof". From here take tram number 4 towards Kröllwitz. Alight at the Weinberg Campus stop (about 15 minutes from the station). The Institute is on the left-hand side of the road as you get out.

» by plane

Leipzig-Halle airport is 20km from Halle. A regular shuttle train takes you to the main station. See "By train" to find the way from there.



Publisher's note

IAMO's publications also include the series of in-house *Discussion Papers*, the series *Studies on the Food Sector in Central and Eastern Europe*, and the *Institute's Annual Report*.

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