Our world is characterised by change. Over the past two years the entire global economy has been shaken up, triggered by the housing market and credit crisis. The ideas of never-ending growth and turbo-capitalism as a model for success have shown themselves to be painful illusions.

At the same time, 20 years after the fall of the Iron Curtain, we recall a change which the most of us experienced at first hand, and which overturned the entire world order to which we had become accustomed after World War II.

All these – in the truest sense of the word – global political issues, but which are also relevant to all of our everyday lives, are echoed in this publication, IAMO 2010. The Leibniz Institute of Agricultural Development in Central and Eastern Europe cannot make a more valid case of why it is funded as an institute within the Leibniz Association by both the federal German government and the Länder for the social importance of its academic work.

The motto of our patron and polymath, Gottfried Wilhelm von Leibniz, was *theoria cum praxi*. By this he meant that science should not be mere academic self-fulfilment in an ivory tower, divorced from the needs of the world, but always needs to consider the question of its usefulness and benefit for mankind.

This is the question which guides the activity of the Leibniz institutions, which are now almost 90 in number. We always see science as more than excellent research. Of course, this is at the heart of what we do, but it forms the basis for more: Each Leibniz institute serves society with its triad of research, academic services and knowledge transfer.

Naturally, this is true of IAMO, too. The quality of its research has just recently been reconfirmed by the rankings of the German Research Community (DFG), which placed IAMO as the third most successful non-university research institution in the field.

*Prof. Dr Dr h.c. Ernst Th. Rietschel, President of the Leibniz Association*
of veterinary medicine, agriculture and forest sciences for the period 2005 to 2007. IAMO is also an outstanding location for the education of young academics. In 2007 IAMO was one of the first Leibniz institutes to establish a graduate school within the "Pact for Innovation and Research". The IAMO Graduate School "Prospects for small-scale farm structures in the new Member States of the European Union" won "Pakt" funding via the Leibniz competition.

As an example of its academic services we could highlight here the postgraduate courses in agricultural economics that IAMO offers to students from Eastern Europe.

The ways in which IAMO practises knowledge transfer, in the sense of making use of research findings for society, include giving policy advice to decision-makers, and providing decision guidance on issues of agricultural economics for the agricultural and food sector. IAMO is the only German research institute working on the agricultural and food sector, which is represented in the European AgriPolicy Network, an association funded by the EU Seventh Research Framework Programme. The aim of this network is to advise the European Union on issues of agricultural policy so as to improve measures in the areas of agriculture and rural development.

IAMO is thus a model Leibniz institution which executes the mission and scientific philosophy of the Leibniz Association with great vitality. It does not just do this in isolation, but makes a contribution in a larger context as well. Massive subjects such as world nutrition can no longer be dealt with by individual institutions or academic disciplines. Another distinctive feature of the Leibniz Association as a research organisation is that it works across institutions on a variety of socially relevant core topics. IAMO makes a key contribution to at least two of these core topics – economic research and agricultural research.

I hope this IAMO publication finds an interested audience which will gain a lot from reading it, and I wish IAMO every success and creative thinking for the future.

Ernst Th. Rietschel
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Agricultural terraces in Pingzhang, in the Chinese province of Yunnan
At the end of 2008, IAMO was awarded a further seven years of unconditional funding following a successful evaluation of the Institute. The past year has been marked by a successful expansion of our academic work. In particular there has been a sharp rise in the number of high-quality refereed articles. There had already been a substantial increase in 2008, and this continued along the same lines last year. Between 2006 and 2009 the number of high-quality refereed articles has trebled. This shows that internal quality management at IAMO, which is the responsibility of all staff members and is improving all the time, has a definite impact.

The key to successful publication, besides methodological excellence, is solid empirical work. Of major importance here are structured and semi-structured surveys. They allow information to be obtained directly from those concerned, provide a clear insight into the situation on the ground, and are often the foundation for realistic but also scientifically based policy advice. The number of surveys carried out by IAMO in 2009 (48 by 1/10/2009) almost trebled the figure in 2008. As an example we could highlight a project undertaken by IAMO’s international research group on China (http://www.iamo.de/china-group/home.html), which is looking at the effectiveness of the Chinese "Grain for Green Program". This is one of the largest programmes in the world to safeguard ecosystem services. To stop soil erosion, the Chinese government is paying farmers set-aside premiums if they take land on very steep slopes out of cultivation and replace this with permanent planting. Until now there has been no information about the efficiency of this programme’s implementation and the sustainability of the soil conservation policy. Extensive household surveys are necessary to obtain the
necessary database for the analysis. To carry out the survey, in 2009 Chinese and German academics from IAMO spent several months interviewing hundreds of farmers in villages in the South-western province of Yunnan. This mountainous province, which borders on Tibet, is difficult to access and severely afflicted by poverty. Besides data acquisition, visits such as these, in close cooperation with our local partners, allow a deep insight into the situation of the rural population. One result of the extensive surveys undertaken in numerous European and Asian countries has been that IAMO has gradually acquired a level of expertise in rural development in transition countries that is hard to find, not only just in Germany, but anywhere else in the world.

With the support of the Leibniz Association, IAMO will continue to step up its research into the CIS countries, in which it has more than fifteen years of expertise. Stemming from the DFG project on agroholdings in Russia, which was approved in 2007, and in conjunction with other research institutions, IAMO is currently in the process of setting up a research group on Russia and driving this project. Russia is not only a very promising market, but also has huge agricultural potential.

At the end of 2008 there were food riots across the globe and a short-term upsurge in food prices. Although there is no doubt the issue of feeding the world’s population will become hugely important again in the coming decades, and it is clear that transition countries will be severely affected, very few studies exist on this topic. Frequently transition countries themselves suffer to a high degree from (rural) poverty. At the same time some of them are becoming ever more important players in the agricultural export market. Crucial here is the question of the role the three large CIS countries, Russia, Ukraine and Kazakhstan, will in future play on world agricultural markets. The development of their position as "global players", and the exploitation of their powerful agricultural potential depend particularly on the efficiency of their agricultural markets. As an institute of the Leibniz Association, IAMO is committed to researching the pressing issues of our time. The Institute has thus started to expand considerably its work on the future agricultural markets in transition countries, with a particular focus on their stability and efficiency.

At the start of transition there was a great expectation that a radical restructuring to the free market of the institutional framework of agriculture at the farm, policy and market level, would by itself automatically lead to an agricultural boom. These expectations were not fulfilled, even though it is clear that a refusal to reform led in each case to a dead end. Instead, many countries created very specific institutions which strongly deviated from pure economic theory without inevitably leading to agricultural stagnation. More than 20 years after transition began, the question now is which specific regulation mechanisms or governance structures have developed on agricultural input and output markets, in the management of natural resources, and in agricultural policy decision-making in Central and Eastern Europe as well as Central and Eastern Asia. There also needs to be a debate about how new theoretical approaches can help with the analysis of rural institutions. These important topics will be addressed by the next IAMO Forum (2010), "Institutions in Transition – Challenges for New Modes of Governance", which will be held at IAMO from 16-18 June 2010.
The good to excellent achievements of IAMO in research, education of young academics and scientific exchange would not have been possible without our administrative colleagues, who show outstanding flexibility and untiring effort in their response to the ever-changing demands of an institute competing internationally in the sphere of research.

Nor would IAMO be able to continue to operate successfully without the active support of the German Ministry of Food, Agriculture and Consumer Protection, the Ministry of Culture and Education of the Land of Saxony-Anhalt, the Ministry of Agriculture and the Environment of Saxony-Anhalt, as well as the members of the board of trustees and the scientific advisory board. We would like to offer our particular thanks to all of them here.

At the heart of the first article, written by Gertrud Buchenrieder together with Csaba Csáki of Corvinus University in Budapest, formerly with the World Bank, is the impact of the current economic and financial crisis on rural areas and the agricultural and food economy in the CEECs. There has not yet been an article which gives such an overview, so with this IAMO is responding to the substantial need for knowledge amongst all the decision-makers concerned and the wider public. The three articles that follow this deal with questions of structural change in farms. After an assessment of 20 years of transition in Eastern German agriculture, we examine structural change in Polish agriculture, after which comes an outline of obstacles to investment in value chains for pork. The fifth article, which deals with the impact of the CAP reforms on China’s agricultural output and income, is followed by a summary of the most important findings of the IAMO Forum 2009, "20 Years of Transition in Agriculture". The last three articles present the most important findings of IAMO’s policy advice, which is of central importance to the Institute’s work. Two articles provide the reader with an overview of the findings of IAMO’s World Bank projects. The first of these looks at the ways and means of supporting cooperations in food-sector value chains in Bulgaria, Romania and Croatia. The second focuses on service provision by the agricultural administration in Romania and Bulgaria. The final article presents the findings of the EU-funded S-Farm project with policy recommendations on how to organise the future of semi-subsistence farms in the new accession countries of the EU.
Aller near Celle
The effects of the current financial and economic crisis on rural areas and the agri-food sector in Europe and Central Asia (ECA)

GERTRUD BUCHENRIEDER, CSABA CSÁKI

Introduction

The global financial crisis, brewing for a while, really started to show its effects in the middle of 2007 and into 2008. It departed from countries with highly sophisticated financial markets. On September 15, 2008, the internationally renowned Lehman Brothers went bankrupt and kick-started a global economic crisis. Subsequently, the spectre of recession has affected even countries with financial markets not dealing with structured financial products that had become popular as means of securitization. The financial crisis emerged to a large extent from a severe loss of value of such structured financial products, namely the collateralized debt obligations (CDOs) of the American sub-prime housing credit market.

1 A structured financial product is generally based on derivatives. A derivative is a financial instrument that is derived from some other asset, for instance real estate mortgages.

2 Securitization offered the promise of a new golden age of risk management by eliminating the mismatch between the long-term assets and short-term liabilities of traditional banks that had been the cause of innumerable financial crises since the dawn of banking. Through securitization, borrowers seeking long-term liabilities could be matched with lenders seeking long-term assets. Nevertheless, with regard to the subprime crisis, securitization also meant that banks pooled their various loans into sellable assets, thus off-loading risky loans onto others. Somehow it is ironic that a financial instrument designed to reduce risk and help lend more would backfire so much.

The transmission channels of the financial crisis are extremely diverse. They include higher loan interest rates resulting in rationing or even a credit crunch, changes in capital flows and commodity prices, reductions in investment and trade as well as in employment or migration-cum-remittances (BLANCHARD, 2009).

The effects of the financial crisis and its aftermath (i.e. the economic crisis) combined with a substantial fiscal crisis in some countries have been harsh on many people, not the least on rural people. Rural people have been particularly suffering from the crisis due to sharp changes in (agricultural) commodity prices. Generally, trends in agricultural commodity prices are difficult to predict. The agricultural credit market encountered an even stronger credit rationing, particularly through commercial banks. Consequently, productivity increasing farm investments are delayed. Non-farm sector jobs in rural regions were lost, wage rates fell particularly for unskilled labour. Rural-urban migrants and international labor migrants lost their employment (LIN and MARTIN, 2009).

This contribution concentrates on the effects of the current financial crisis and subsequent recession on rural areas, in particular on the agri-food sector in the Commonwealth of Independent States (CIS) and the two major sub-regions of Central and Eastern Europe (CEE), namely the new EU-member countries
as well as the rest of the region: The Balkan countries. These regions are addressed in the following as Europe and Central Asia (ECA). As of today, the majority of the world’s poor live in rural regions and rely on agriculture for a living – rural households make up 43% of the population in the ECA region and they are being significantly poorer than their urban counterparts. Furthermore, agriculture contributes about 9% to gross domestic product (GDP) for the ECA-region as a whole with 16% of the population is being employed in the agricultural sector (World Bank, 2000).

**Effects of the Crisis on rural areas and the agri-food Sector in the ECA-region**

The financial crisis had manifold effects on the real economic sector. The following effects are discussed in more detail for the agri-food sector in ECA: (1) changes in the farm commodity prices, (2) job cuts and pressure on real wage rates, (3) decrease in international and regional labour migration and remittances, (4) tightening in agricultural credit markets, (5) reductions in social programs, and (6) weakening in international aid.

The effects of the financial and economic crisis on rural areas, and especially on the agricultural and food sector, are not yet over, even if the agricultural sector in particular (more so than the food sector) appears to be overcoming the crisis somewhat. In general it is less dependent on the credit market, and the demand for (basic) foodstuffs is less sensitive to falls in income. The most serious effects on the rural economy seem to arise from job losses in the non-farm sector. Non-farm employment is on the decline at local, regional and international levels having a negative impact on the income of farm and other rural households as well. Our aim is to examine the vulnerability of the people employed in the agri-food sector as well as the rural poor in general to different consequences of the crisis. The World Bank (2009) estimates that, in 2009 alone, the number of poor people in the ECA region rose by 15 million and concluded that the crisis has reached people's home (see Figure 1).

Whereas the general effects on the rural population can be easily identified, the severity of the crisis’s impact and the individual transmission paths of its effects in the ECA region vary between individual countries, particularly if there are major differences in the structures of the agri-food sector and/or the non-farm sectors. There are at least five different country groups: (1) the new EU-member states, (2) oil and/or natural gas exporters such as Russia or Kazakhstan, (3) the rest of the CIS, (4) the Central Asian countries, and (5) the West Balkan. The new EU member countries are under the community umbrella and have some protection and support, making adjustment easier. The Common Agricultural Policy (CAP) provides continued and sizable subsidy flows to the farmers. Russia and Kazakhstan have entered the crisis with significant reserves and have a sizable scope for adjustment. The rest of CIS including Ukraine, Moldova, and the Caucasus are those most hardly hit by the crisis. This is similar for Central Asian countries poor in natural resources. The countries of the West

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3 This is a shorter version of Buchrieder and Csáki, 2009.

4 Heady et al. (2009: 17) report that overall the agricultural sector has suffered less from the financial crisis than the non-farm sector. In fact, some parts of the agricultural sector have even experienced growth. But this must be seen as a symptom of crisis, as unemployment and a crumbling or non-existing social system mean that resorting to subsistence agriculture is often the only means of survival.
Balkan also suffered significantly. As mentioned above, the crisis has impacted the agricultural and food sectors of individual countries in very different ways. The effect of the crisis on very large agricultural enterprises is, in many respects, similar to that on the industrial sector. Small farms, particularly those that produce predominantly for their own consumption, are mainly affected indirectly, especially by the loss of jobs in the non-agricultural sector.

The income effect of price changes of agricultural goods varies between individual commodities. The financial crisis gained momentum at a time when nominal commodity prices had reached a historic peak.\(^5\) This led in 2008 to record revenues in agriculture. Not all prices developed in the same way, however, which is partly due to varying demand effects on internal and foreign markets (Figure 2). In most countries within the ECA-region the fall in wheat and dairy prices had the most serious effects on farm incomes. It has to be mentioned as well that in some cases, currency depreciation had a positive effect on the food economy and agricultural exports. This was particularly true of countries producing at a surplus.

Declines in prices for staple foods typically have a positive effect on very poor rural people, because they spend a large share of their incomes on staple foods. However, a fact that is sometimes overlooked is that even farmers are often net buyers of staple foods (\textit{Ivanic} and \textit{Martin}, 2008). This observation is true for developing countries but to some extent also for transition countries, especially as it concerns the small-scale farm households. \textit{Csáki} (2009) estimates that there exist about 30 million small, predominantly subsistence orientated farms (0.5-1 ha or than 1 ESU)

\(^5\) At the beginning of 2008 the international community was shocked by serious food riots unleashed by price rises in the prices of (basic) foodstuffs. In summer 2008, however, most prices for goods started to fall – two months before the extent of the financial crisis became apparent. Nonetheless, the average prices for 2008 stayed at a relatively high level overall (OECD, 2009).
in the FSU and CEE. Declines in the prices of food showing high income-elasticities such as dairy products, beef or fruits and vegetables may, however, put pressure on the incomes of small-scale farms, which have a particular advantage in these labour-intensive products containing a high value added.

As indicated above, a major channel for transmission of the crisis is the loss of employment and earnings. Nevertheless, the crisis will have heterogeneous impact on labour market outcomes across households. In fact it depends on (1) the relevant labour market segment of the rural household, as agricultural households in particular, pursue several occupations, (2) the dependence of the labour market segment concerned on domestic and foreign markets, and (3) on household characteristics such as demographic composition, level of education and location.

As mentioned in the beginning, rural households in ECA often diversify their income sources. The income sources span from farm income, non-farm income in the region (self-employment and waged employment) or abroad (mainly unskilled waged employment) to unearned income (particularly social transfers). If there are inter-regional linkages, for instance in terms of rural-urban labour migration, job losses in non-rural sectors may induce a reversal in rural to urban migration and increase the pressure on the rural labour market and wage rates. In Armenia, for instance, the construction and export-oriented industries suffered most from the crisis. Insofar, the most prominent effect of the global economic crisis is the loss of jobs and pressure on wage rates (nationally and internationally) especially in the non-farm sector. This leads to cuts in the labour earnings or, in the extreme case, to people slipping into poverty. In fact, the crisis has put at risk the gains in poverty reduction in the region. Poverty increased in ECA from 6.9 % (2008) to 7.8 % (2009) based on the international poverty line of USD purchasing power parities (PPP) 2.5 per capita per day. More importantly, for nearly all ECA countries, poverty incidence is higher in rural than in urban areas, highlighting the ruralisation of poverty in the region (see Figure 3). For instance, only about 26 % of the Russian population live in rural areas but almost 60 % of the poor live there (ERSADO and UMALI-DEINIGER, 2009).

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6 The EU measures farm size in European Size Units (ESU). The value of 1 ESU is defined as a fixed number of EUR of Farm Gross Margin (FGM). Currently, one ESU equals 1,200 EUR. Based on this measure, more than 60 % of the farms in the new EU member states in CEE are subsistence farms (smaller than 1 ESU).

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**Figure 2: Resilience of agriculture facing the crisis: Illustrative agricultural examples**

- Limited resilience on credit: e.g. grazing cattle, e.g. flowers
- Strong demand shortfall: e.g. crops, e.g. pig meat
- Limited demand shortfall: e.g. flowers, e.g. pig meat
- Strong resilience on credit: e.g. grazing cattle, e.g. crops

Source: Adapted from OECD, 2009: 28.
Many countries in ECA are heavily dependent on remittances—remittances accounting for a large share of GDP. *International labour migration (cum remittances)* have slowed very rapidly in response to declines in demand for labour in key areas such as Russia and Poland (in the former Eastern Bloc) or in Italy, Germany and the UK, and to tightening of immigration policies. Associated with this reduction in migration has been a drop in remittance flows. Falling remittances have direct effects by reducing the purchasing power of the families in the countries of origin and indirect effects by lowering the demand for labour in non-traded sectors such as the construction of housing, an area heavily influenced by spending from remittances (Lin and Martin, 2009).

Ratha et al. (2009) predict that global remittances is falling by 7.3 % on average in 2009 to 304 billion USD from 328 billion USD in 2008. Often, it is the rural population that is out-migrating because of hidden unemployment in the agricultural sector and a lack of alternative non-farm employment opportunities in rural regions. Migrants from countries in ECA have been affected by the deepening recession and a rise in anti-immigration sentiment in Russia and the UK. ECA is expected to experience a very large percentage decline (-15 %) in migration in 2009 (Figure 4a). The impact of the worsening employment outlook in Russia has been particularly severe for Central Asian countries such as Tajikistan and the Kyrgyz Republic that receive a large

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**Figure 3: Ratio of rural to urban poverty rate in the ECA-region, 2006 to 2007**

![Graph showing the ratio of rural to urban poverty rate in the ECA-region, 2006 to 2007](image)

share of remittances from Russia, and where remittances are a large share of GDP (see Figure 4b and Figure 5). Indeed, Russia is home to the second-largest number of migrants in the world after the United States. Most migrants in Russia are employed in the sectors worst affected by the crisis: The construction and export-led manufacturing. Most migrant labourers to Russia tend to be relatively poorer and the bulk of them generally originate from rural areas. They are temporary migrants and tend to go for short durations. When seasonal migrant workers lose their jobs and fail to find new seasonal jobs, unemployment (in the rural areas of their home country) rises and remittance flows are severely reduced (ERSADO and UMA LI-DEININGER, 2009). Combined with a deteriorating economic outlook for Russia, the sharp depreciation of the Russian Ruble since September 2008 has reduced remittance inflows in nominal dollar terms to the Central Asian countries in 2009 (RATHA et al., 2009). The World Bank estimates that the economic slowdown and the drastic reductions in remittance flows lead to 2.1 to 5.3 percentage point increase in rural poverty in Armenia, Moldova, Kyrgyz Republic and Tajikistan (ERSADO and UMA LI-DEININGER, 2009). In Tajikistan, the poorest country in the region, it is estimated that a 30 % decline in remittances would cut household consumption in the poorest quintile by around 20 % (WORLD BANK, 2010).

35 % of remittances to the ECA region come from Western Europe (Figure 4b) as migration from CEE go mainly to Western Europe. Particularly the eastern new member states of the EU such as Poland benefited from the opening of the EU labour market. The resulting increases in migration to the UK and Ireland more than doubled remittances between 2004 and 2008. With a decline in economic activity in the UK, many migrants have returned and remittance flows declined (RATHA et al., 2009). The effect of job cuts on international migration and remittance flows to rural areas has received a great deal of attention not only in those countries affected.

Nevertheless, there exists also a strong linkage between national rural-urban migration and rural household incomes. The crisis certainly indirectly impacts on rural household income through its impact on the urban labour market too (ERSADO and UMA LI-DEININGER, 2009). Laying-off rural-urban migrants induces costly labour reallocation. This implies the need to find employment in other areas. Rural-urban migrants can move into the non-traded sectors, either in urban or rural regions. This means a reduction in remittances to rural areas. A second strategy to combat the crisis is a return to the agricultural (subsistence) sector (ERSADO and UMA LI-DEININGER, 2009; LIN and MARTIN, 2009). Experience with past economic crises showed clear evidence that rural-urban migration may be reversed in the wake of a crisis. This in turn can induce a fall in wages for farm workers, which only benefits those farm households that are net hirers of labour (BRESCIANI et al., 2002). ERSADO and UMA LI-DEININGER (2009) simulated for instance the impact of the crisis on rural poverty in Armenia taking into account sectoral patters of growth and employment. They estimated 3.1 percentage points increase (from 23.5 % of

7 HUANG et al. (2009) reported that the reduction in demand for labour in the Chinese export sector or construction business have caused a sharp decline in the number of internal rural-urban migrants (about 34 million people were laid off) and their wage rate (ca. 830 Yuan in 2008, ca. 790 Yuan in 2009). About half of the people that were actually laid off have found a new non-farm job in 2009, albeit at a lower wage rate. Of those who were laid off and did not yet find a new job in the non-farm sector, most (two-thirds) people returned back to farming.
the rural population to 26.5%) in rural poverty between 2008 and 2010 through the labour market transmission channel alone.

In general, remittance flows are stable or countercyclical during an economic downturn in the recipient country and resilient in the face of an economic slowdown in the source economy. The current financial crisis has hit, however, every country at once and it seems that remittances cannot function as an income stabilising livelihood strategy (ERSADO and UMALI-DEININGER, 2009).

**Figure 4: Remittance sources and flows**

Estimating the increases in production and trade costs associated with the tightening of agricultural lending is difficult, particularly since the rise in the effective cost of capital associated with credit rationing are unobservable. Nevertheless, credit scarcity is likely to diminish loan volumes in the agri-food sector too. Although the OECD (2009) claims that the financial crisis had not yet significantly affected agricultural credits by 2008, since the start of 2009 some banks have displayed a negative trend in the allocation of loans in this regard.

*(a) Remittance flows to ECA expected to decline in 2009 but recover in 2010*

*Source: RATHA et al. (2009) and ERSADO and UMALI-DEININGER, 2009.*

*(b) Sources of remittances for ECA region, 2008*

*Source: ERSADO and UMALI-DEININGER, 2009: 5.*
The effects of the credit crunch depend substantially on the agricultural structure. It seems clear that the direct impacts on production costs in the agri-food sector, when dominated by small-scale farms, are relatively small. On the other hand, large-scale farms in ECA with a higher volume of credit-financed working capital may be more constrained due to the crisis. It is no secret that the agri-food sector never was and probably never will be the preferred customer of the banking sector. Credit rationing to the agri-food sector has been always present – the financial crisis may make it only more visible (see Box 1). This is not to say that countries may not try to support the agricultural credit market. Poland for instance, decreased interest rates from 3.5 to 2% for preferential credits and extended reimbursement periods for credit to agriculture by 2-3 years. Some emerging countries also announced action planes for the agricultural credit market. At the beginning of 2009, Russia adopted a series of measures to facilitate the in-flow of finance to agriculture (EC, 2009: 61f), it

- Allocated budgetary funds for capitalising the two largest banks lending to agriculture;

**Figure 5:** Top recipients of migrant remittances among ECA countries in 2007, % of GDP

Box 1: Bulgarian Farmers caught between commodity and financial market pressure

Now, after the parliamentary elections in Bulgaria, the curtain will rise and the impact of the economic crisis will show itself in all its ruthlessness. The prices of most agricultural goods have fallen sharply and non-agricultural income is shrinking due to increasing unemployment. Only the new Bulgarian government and those EU funds that have not been frozen offer a little hope. Recovery from the crisis will require patience, however.

The banking sector can be seen as relatively stable. This is not true, however, of the market segment of agricultural credit. Here Bulgarian banks are under considerable pressure. For a while the banks gave particular support to micro-credits in rural areas, but now they are withdrawing from this sector and focusing on cleaning up their portfolios. Paper is used double-sided, travel costs are being reduced and the criteria for giving out loans are being tightened up. As the proportion of restructured and defaulted credits is growing, banks are increasingly concerned with monitoring their credit customers. The fact that credit advisors are turning up in villages is a sign that there are increasing problems with loan repayments. This feeds rumours, harms the reputation of the banks and reminds villagers of the banking crisis of 1997.

Florian Ammersdorfer, Observations from field research (2009)

- Increased funds for subsidising interest rates on agricultural loans;
- Extended repayment periods for certain types of subsidised loans, and
- Extended government guarantees of loans for agricultural enterprises that are included in the list of key national enterprises.

Due to the fact that national budgets are under extreme pressure as a consequence of the crisis, there are also concerns that governments could reduce their social transfers. As social transfers in transition countries are on average substantially lower than in Western countries, this may impact heavily on vulnerable population groups. For instance in the new member states of the 2004 EU enlargement round, expenditures on social protection are ten percentage points less in terms of GDP.

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8 For instance the national budget, as percentage of GDP deteriorated in Slovenia from -0.3 (2008) to -5.9 (2009). For a complete overview of the development of national budgets in ECA see Buchenrieder and Csáki, 2009.
than the EU-15 average of around 27 % (EC, 2006). In the case of the EU-25, the majority of the social protection spending goes into pensions. This is not to say, that there do not exist specific programs targeting the poor and vulnerable. One of the major effects of the crisis is that these social programs are threatened by the fiscal crises in many countries. Budget cuts impact upon by reducing social programs vitally important for rural people and especially for minority groups present in many ECA countries, for instance the Romas. ERSADO and UMALI-DEININGER (2009) point out Albania, Armenia, Kyrgyzstan, Georgia, and Azerbaijan as countries with effective safety nets that focus on poor families. But there is also considerable room for improvement in many countries, for instance Moldova, Bosnia, Tajikistan and Russia. Their social safety net programs appear to be weakly implemented and inadequately targeted although they spend between 1-5 % of GDP on them.

Not only foreign direct capital (notably foreign direct investment) but also foreign aid flows are generally pro-cyclical, implying that downturns in the richer countries tend to reduce the supply of private and public capital flows (HEADY et al., 2009). Subsequently, countries receiving foreign aid cannot expect that current levels of aid (low as they are) can be maintained as donor nations themselves go through the crisis. However, it has to be mentioned that most of the countries in the region have not received measurable foreign aid in the traditional sense, neither before nor after the crisis. Assistance is provided by the International Monetary Fund (IMF), the World Bank and EU mainly in the form of loans to ensure some sense of stability.

**Conclusions**

The crisis that began in the US sub-prime mortgage market and evolved into a world-wide financial and economic crisis has hit the ECA region the hardest. The cumulative impact of job losses and lower real wage rates in combination with the severe drop in remittances of labour migrants, tightened conditions in the agricultural credit market, and reductions in the social safety programs – to name only a few reasons – all contributed to the fall in GDP growth in the region. Growth has plummeted from a fast clip of 7.6 % in 2007 to 4.7 % in 2008, and is projected at negative 5.6 % in 2009 (SCHRADER and CELASIN, 2009). This economic development exacerbated the smouldering fiscal crisis. Combined with the tougher international financial market climate, this led to unsustainable budget deficits. Consequently the countries of the ECA region only have limited possibilities to conduct an anti-cyclical economic policy similar to Western European countries – for example with stimulus packages or raising social benefits. Thus, the ECA countries are projected to face a slow economic recovery (WORLD BANK, 2010).

When talking about ECA, we do not talk about a uniform region. At least five sub-regions need to be distinguished: (1) the new EU member countries, (2) Russia and Kazakhstan, (3) the rest of the CIS including the poor Caucasian countries and Moldova, (4) the Central Asian countries, and (5) the West Balkan. The crisis has affected the whole region, but the ability of combating it varies considerably between the five sub-regions listed above. The new EU Member States are clearly in the best position to overcome the effects of the crisis. Thus, the crisis made the advantages of being inside the EU very visible. In this country
group, the IMF provided significant financial assistance but ultimately not to the extent needed. Exporters of crude oil and natural gas such as Russia or Kazakhstan have more scope for public stimulus packages than any other countries in the ECA region. The other countries have been and still are exposed to the crisis, without being able to take any significant countermeasures of their own accord. Meanwhile they only receive low levels of international aid. The situation is even more serious because integration in global financial markets and dependence on international capital flows had already reached a certain level. Countries with a large domestic market, however, could adjust more easily. The negative effects of the crisis were sometimes softened due to the decline of energy prices and the currency depreciation in some countries.

As far as the agricultural sector is concerned, there are many interdependent transmission paths via which the crisis has an impact:

- Drop in demand for income-elastic foods and a reduction in prices of agricultural goods.
- Loss of employment and earnings of rural people working in urban centres, implying also costly labour reallocation.
- Rising rural poverty originating mainly from lack of opportunities in the non-farm sector and a sizable decline of crucially important international remittances.
- Decrease in credit-financed investments in agriculture, but especially in food industry.
- Collapse of sectoral government support programs and social safety-net measures in many countries.

The crisis impacts on the agricultural and food sector in varying degrees, however. Large farms or agroholdings are affected in a similar way to the industrial sector. The impact on subsistence farms, by contrast, is limited. Domestically owned food processing enterprises have suffered due to the tense situation on the agricultural credit market more than the primary agricultural sector. With the exception of the new EU Member States and countries rich in natural resources, state-supported credit lines for agriculture and the food economy have disappeared almost completely. Only richer countries such as Russia or EU Member States can adopt counter measures in the agricultural sector.

Rural poverty has increased, primarily because of job losses amongst the rural population in the non-agricultural sector – within their local regions, urban centres, and internationally. Subsistence farmers are continuing to produce chiefly for their own needs, but the number of them has risen sharply due to reallocation processes in the labour market. As in previous crises that have seen collapsing market structures and an impotent state, the countryside – especially the agricultural sector, above all small family farms – act as a social buffer. In the worst-case scenario, some rural regions return to the all-pervasive semi-subsistence economy they had just escaped from. The huge social dimension of the crisis may be exacerbated by the fact that, in most countries, social security programmes are bound to face drastic cuts soon, because of growing budget deficits. In this context, rural minority groups such as the Roma were affected especially hard. More than 80 % of the Roma in the ECA region are unemployed and mainly live in rural areas. The scarce means to support them have become even more limited due to the fiscal crisis.
Nevertheless, the prospect already exists that social transfers and unemployment programmes to combat the crisis will be deployed in some countries to alleviate the worst effects of the income shocks. Several countries in ECA already have social safety net programs in place to mitigate the income shocks. However, as the public budget is further stressed by drowning tax revenues, there is not only a lack of measures to stimulate the economy, but social protection programs may be cut back too.

Public investments, e.g. in infrastructure, offer short-term opportunities for increased employment and also lay the foundation for future productivity growth. Easier access to credit for small and medium-sized business enterprises in the non-farm sector, as well as for farms with growth potential, can also help create growth and employment. Funding training programmes for the unemployed, meanwhile, helps them prepare themselves for the changed labour market following the crisis.

In the face of this unparalleled crisis, governments in the ECA region still have many difficult decisions to make, even if we only take into account that the budget deficits have risen from 1.5 % of GDP (2008) to 5.5 % (2009). These deficits restrict the scope of governments to provide adequate support for social security programmes and at the same time to implement the necessary anti-cyclical stimulus measures.

**Further literature**


Today, China is also an aging society: every tenth citizen is over the age of 60.


Twenty years of agricultural transition in Eastern Germany: A review and classification

ALFONS BALMANN, ARLETTE OSTERMEYER, FRANZISKA SCHAFT

Introduction

Twenty years ago, on 9 November 1989, the Berlin wall came down. This historic event led to German reunification and marked the beginning of agricultural transition in the territory of the former GDR. Two decades later it is now time for a review of agriculture in Eastern Germany. This article will focus on the question of whether the process of transition in Eastern German agriculture has been a success.

Structures at the time of the Wende

To understand the structures that exist today, it is helpful to consider the history of the GDR. As a consequence of collectivisation, agricultural enterprises in 1989 were predominantly large-scale and geared towards mass production. This structure was a result of huge state intervention that began after the Second World War. Many landowners, particularly those who owned more than 100 ha, had their land expropriated without compensation after the war, and the holdings were distributed amongst so-called "new farmers". From 1952, these very small farms (with an average of 8 ha), along with other farms that had not been expropriated, merged over several phases to form agricultural production cooperatives (LPGs). Farmers were often forced to take part in this process. The goal of this consolidation was to subject agriculture to political control and to adapt it to the system of the planned economy. Large collective farms were deemed far superior to family farms and private businesses, as they allowed modernisation processes to be coordinated centrally, and permitted the development of mono-product enterprises which would benefit from the division of labour.

In the 1970s, specialised animal and crop farms were established, while LPGs were combined to form even larger units with several thousands of hectares. The goal here was to advance the industrialisation of agriculture and thereby increase efficiency. In 1989, 3,929 LPGs were farming around 5.6 million ha of land, 70 % of which specialised in animal production. A further 440,000 ha were farmed by around 450 state-owned farms (VEGs) which were under the direct control of central government.

The high degree of integration with upstream and downstream sectors involved a substantial proportion of the GDR population in the manufacture of agricultural products. In 1989, around 636,000 people were directly employed in agriculture; about another 223,500 in areas closely related to farming. Many of them worked in the agro-chemical centres, veterinary science, or farm management and administration.

In 1989, average productivity figures achieved for arable farming and animal production were 4.5 t/ha of wheat and 4,120 kg milk/cow. Labour and land efficiency were between 40 % and 60 % lower than those of West Germany. The reasons for this were
unfavourable climatic conditions, poor provision of resources, as well as a lack of awareness of ownership amongst LPG members.

From the planned economy to the free market –
The beginning of transition

After the collapse of the Soviet Union there was a radical overhaul of the entire GDR economy. The transition from a planned economy to a free market also affected the agricultural sector. Overnight, agricultural products suffered a huge drop in prices. This was chiefly due to the disintegration of Eastern German manufacturing, which could not keep up with the new competition from the West. The almost total disappearance of markets in the other former socialist countries of Central and Eastern Europe did the rest. Animal production was particularly badly hit. Whereas beef and pork had been important export products in the GDR era, especially in trade with the Soviet Union, by 1991 the number of pigs had fallen by around a half, and the number of beef cattle by around a third. There was also enormous pressure from the prices of farm equipment and resources, which did not fall to the same extent as producer prices.

As far as the political parameters were concerned, ultimately the general consensus was that no specific type of enterprise should be preferred, and that business forms and structures ought to develop as the result of competition processes within a free-market system of ownership. According to the Law on Agricultural Adaptation, the LPGs had to be transferred into other legal forms by the end of 1991 or liquidated. In total there were around 3,000 successor farms to the LPGs. Some members took back the land and equipment they had brought into the LPG, and started again from scratch as private farmers (Wiedereinrichter). State property and land expropriated between 1945 and 1949 – around one third of the total agricultural and forestry land – along with the state agricultural enterprises, the VEGs, were passed on to the Treuhand (trust) agency and its daughter organisation, the BVVG Bodenverwertungs- und -verwaltungs-GmbH (BVVG). The latter continues to be responsible for the privatisation of farmland.

The successor farms to the LPGs not only had to cope with losing land in the privatisation process, but also the re-evaluation of assets following the currency reform. A pre-determined exchange rate of 2:1 East German marks per DM meant that farm debts – and thus those of the former LPGs, too – as well as assets increased dramatically in real terms. The successor farms to the LPGs were burdened with debts of around 7.6 billion DM. At the beginning of the 1990s, the Law on Old Debts, introduced specifically for agriculture, brought about an initial relief, although a final solution only materialised in 2004 (a single payment corresponding to economic productivity). For many farms with high levels of debt these arrangements represented a huge burden, and the reason for this was that debts in the GDR era were frequently incurred on the orders of the state, often to pay for the upgrading of communal institutions or roads. In addition to the Law on Old Debts, further subsidies were granted as part of the land distribution at discount prices via the Treuhand. There were also grants for adaptation, investment allowances, reduced interest rates and public loans.

The legal specifications of joining the Federal Republic of Germany were complicated by membership of the European Union (EU) that accompanied this process. To integrate the farms of
Eastern Germany into the Common Agricultural Policy (CAP) they were allocated, for example, a milk quota of 70% of their 1991 output. The quotas were, overall, far below those in Western Germany, which resulted in a lower density of cattle in the East. EU integration also gave the areas of Eastern Germany access to direct payments and EU agricultural market policy. In the agricultural reform of 1992, a number of special regulations were implemented for the new German Länder, e.g. in price equalisation payments, land set-aside payments and animal ceilings. These market conditions had an impact on the restructuring of agricultural enterprises and helped farmers in Eastern Germany secure their livelihoods.

Comparison of developments between East and West

With regard to production technology and attainable yields, shortly after the Wende Eastern German structures did not appear competitive, in spite of the many different subsidies. Numerous restructuring processes at the business level, however, allowed the situation to change in favour of the large enterprises. Within a few years there was a huge increase in yields of many plant products, e.g. thanks to improved production technologies.

As far as milk productivity is concerned, already in 1992-93 similar results of around 5,000 kg per cow were achieved by private farms in both Western and Eastern Germany (see Table 1), while legal entities (LE) had not yet reached that benchmark. The picture has now totally changed: These days farms in Eastern Germany have higher average levels of productivity than their Western German counterparts. Even the leading Western regions in these areas, Lower Saxony and North-Rhine Westphalia, have been overtaken by the output of agricultural enterprises in Eastern Germany which are organised as legal entities in the form of cooperatives, special joint stock companies or limited liability companies. There is every indication, therefore, that large farms are able to make effective use of technological progress and know-how, particularly in animal production. It has not been possible, on the other hand, to attain the Western level of grain yields, largely due to unfavourable climatic conditions. In the first few years after reunification, the lack of capital for inputs

Table 1: Livestock and arable productivity 1992-93 and 2007-08

<table>
<thead>
<tr>
<th></th>
<th>1992-93</th>
<th>2007-08</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PF* West</td>
<td>PF East</td>
</tr>
<tr>
<td>Milk production</td>
<td>kg/cow</td>
<td></td>
</tr>
<tr>
<td>Milk production</td>
<td>5,088</td>
<td>4,989</td>
</tr>
<tr>
<td>Piglets</td>
<td>piglets/sow</td>
<td></td>
</tr>
<tr>
<td>Piglets</td>
<td>17.5</td>
<td>n/a</td>
</tr>
<tr>
<td>Grain</td>
<td>dt/ha</td>
<td></td>
</tr>
<tr>
<td>Grain</td>
<td>57.5</td>
<td>44.8</td>
</tr>
</tbody>
</table>

Notes: * Full-time private farms, ** Legal entities in Eastern Germany, *** LS – Lower Saxony, NW – North-Rhine Westphalia.
such as fertiliser, crop protection and technology may also have played a role.

As well as the increase in productivity, the drastic cutbacks in the workforce – the old ratio of 10 workers per 100 ha was substantially higher than the corresponding figure in the former West Germany – which were economically inevitable, have also been a major force behind the successful economic development of these farms. The main ways in which the workforce has been reduced are by the abandonment of non-agricultural subsidiary businesses, adaptation to demands that make economic sense, and the decrease in animal production. The large-scale structures in the East permit a considerably lower deployment of manpower per ha than in the West. For this reason the number of full-time employees, which in 1991 still totalled around 255,000, dropped by about half by 1993. On the other hand, with the increase in new farms and those starting out again as private farms, family manpower increased.

The changes in the factor of land are much slighter. After the Wende, agriculture in Eastern Germany retained its large-scale structure, even if farms overall were managing fewer plots of land. In 1992-93, legal entities farmed holdings that were almost 1,800 ha on average; the average size of a private farm, meanwhile, was a little larger than 150 ha. Outside of Schleswig-Holstein

Table 2: Indicators relating to sample farms in 1992-93 and 2007-08

<table>
<thead>
<tr>
<th></th>
<th>1992-93</th>
<th></th>
<th>2007-08</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PF West*</td>
<td>PF East**</td>
<td>LE East</td>
<td>PF West*</td>
</tr>
<tr>
<td>Farm size</td>
<td>ESU***</td>
<td>FT</td>
<td></td>
<td>ESU***</td>
</tr>
<tr>
<td>LF</td>
<td>ha</td>
<td>22.4</td>
<td>43.7</td>
<td>859.4</td>
</tr>
<tr>
<td>Rental price</td>
<td>€/ha</td>
<td>34.9</td>
<td>140.5</td>
<td>1,786</td>
</tr>
<tr>
<td>Manpower</td>
<td>AK/100 ha land</td>
<td>133</td>
<td>98</td>
<td>66</td>
</tr>
<tr>
<td>Total assets</td>
<td>€/ha land</td>
<td>9,112</td>
<td>2,875</td>
<td>2,804</td>
</tr>
<tr>
<td>Equity</td>
<td>€/ha land</td>
<td>7,336</td>
<td>1,754</td>
<td>1,275</td>
</tr>
<tr>
<td>Income</td>
<td>€/ha land</td>
<td>640</td>
<td>243</td>
<td>-27</td>
</tr>
<tr>
<td>Income</td>
<td>€</td>
<td>22,322</td>
<td>34,198</td>
<td>-47,508</td>
</tr>
<tr>
<td>Annual surplus or</td>
<td>€/manpower unit</td>
<td>16,708</td>
<td>22,081</td>
<td>15,422</td>
</tr>
<tr>
<td>income plus staff</td>
<td>%</td>
<td>-0.7</td>
<td>3.9</td>
<td>-2.1</td>
</tr>
</tbody>
</table>

Notes: * No national data, weighted average values, ** Weighted average values, *** Corresponding in 1992-93 to 1,200 € Standard Farm Incom (SFI), from 2007-08 to 1,200 € Standard Gross Margin (SGM).
and the Saarland, large farms in Western Germany – more than 50 ha – were few and far between. Although the agricultural structures in Germany have now converged somewhat, there are still big differences (see Figure 1). In Eastern Germany, for example, 5% of farms in 2007 were larger than 1,000 ha, but these worked almost half of the total agricultural land. In Western Germany, by contrast, substantially fewer than 1% of all farms (larger than 1,000 ha) worked less than 2% of agricultural land.

In both halves of Germany the trend since 1990 has been towards larger farms (see Table 2). In the old German Länder, this growth has mainly taken place as a result of other farmers quitting agriculture; in Eastern Germany, on the other hand, changes in farm holdings have been at the expense of the successor farms to the LPGs. This is chiefly a result of the privatisation of state farmland after the Wende. Up till mid-2009, around 590,000 ha of farmland had been privatised; a further 430,000 ha will become privately owned by 2020. Because this land is advertised for sale or rental to the highest bidder, rental prices (up to 40%) and sale prices (up to 52%) for BVVG land have risen sharply in the last few years due to the market developments and the increasing shortage of farmland. Rents in the East have risen considerably overall, but they are still around 40% below the Western level. Reasons for this are extensive farming and lower competitive pressure. On the whole, Eastern German agriculture has a competitive advantage over the West with regard to farm sizes and low rents. It is noticeable, however, that this competitive advantage does not automatically mean higher income. In many years, legal entities have, on average, recorded losses. Even the private farms cannot match the high income per hectare figures in Western Germany. On the other hand, the income of Eastern German farms cannot be easily compared to that of West German ones. Besides the differences in intensity (especially in animal production and root crop farming), Eastern German farms operate with a substantially lower quantity of their own production factors which have to be

Figure 1: Proportion of agricultural land farmed by categories of farm size and proportion of total farms by farm size in Eastern and Western Germany, 2007

Source: Office of National Statistics, BMELV, 2008,
paid for out of income. Income from private farms in the West, meanwhile, must pay for family manpower, equity and owned land. Income before staff wages are deducted in fact shows that Eastern German farms register a higher income per manpower unit than Western German ones.

The average level of total assets per ha of Eastern German farms is even further behind that of Western Germany than the per-hectare income. Relatively small amounts of owned land and a low intensity of animal husbandry are reflected in the modest levels of assets recorded in the account books of Eastern German farms. Western German farms, by contrast, have very high levels of land assets resulting from the fact that the proportion of owned land is around 50%, while land prices are several times higher than in the East. The difference in total capital, however, is also result of the much higher building and livestock assets in the West. Assets in the West, moreover, are covered by much more equity than in Eastern Germany. We can assume, therefore, that the very low level of equity in relation to farm size restricts growth opportunities, which in particular limits investment in the extremely capital-intensive area of animal husbandry. Low levels of equity combined with high income explain the much higher return on equity of Eastern German farms that has been seen in the last five years (s. Figure 2).

**Twenty years of transition – What has been achieved?**

In spite of the many new farms that have started up, large-scale structures still predominate in the new German Länder, chiefly due the fact that managers of LPG successor businesses, as well as new farmers and those starting again, have on the whole succeeded in developing very productive and profitable farms. It

**Figure 2: Development of return on equity by legal form**

![Graph showing development of return on equity by legal form](image)

*Source: Own representation using BMELV data for various years.*
is noticeable that larger than average farms also register above-average profits. As already discussed, the reasons for this are many and varied (including low rents, large areas of farmland, use of economies of scale). In spite of this economic success, however, agricultural enterprises in the East, as well as the sector as a whole, still face some problems:

- Farms are predominantly operating on leased land, with outside manpower and outside capital. As these factors all need to be paid for on a regular basis, there is a high level of vulnerability in times of crisis. Demands on management in Eastern Germany are thus often different from those in the West. The most crucial issues for the success of large farms are the management and motivation of waged and seasonal workers, securing land, and financing of activity.

- Farms in the East are in competition with those in other parts of Germany and the EU, which are operating under very different premises. Although the majority of small private and hobby farms in Western Germany operate with considerably higher costs, their much better levels of equity, and lower outgoings for family manpower and their own land allows them to survive not just in times of crisis. Because of poor employment prospects outside of agriculture and lower sunk costs in invested capital, all that most Western German farms can do while waiting the next generational change or future alternative investments is to base their production strategies on variable costs rather than the full costs until. This can give rise to a sort of ruinous competition.

- At sectoral level, moreover, more extensive farming, and especially the lower livestock levels in the East, are resulting in a substantially lower net product per ha than in the old German Länder even today, twenty years after the start of transition. It is not only the farms that are affected, but rural areas as a whole. The effects range from lower producer prices for feed grain to a reduction in job opportunities in agriculture and its upstream and downstream sectors (e.g. construction, the feed industry, processing).

In view of what has been achieved, as well as the problems that remain, the question arises as to whether there could have been other conceivable scenarios and whether these might have been more successful. It is fairly evident that the political decision to allow competition between different business forms, rather than favour one particular form as a model, was unavoidable. Because of their own structural deficits, Western German structures would hardly have been the model to strive for. Viewed realistically, moreover, these structures could not have been emulated, as they are based on enormous levels of equipment, land and human capital, without which they could hardly survive. Dividing up the large farms would not have brought any structural, economic or social benefits. Although these farms are still not consistently operating at their most profitable, they make an above-average contribution to the net product and employment in rural areas. Both rely to a considerable extent on continuing to use and develop the equipment and human capital present at the start of transition. It is equally unrealistic to assume that, due to their own limited financial power, the new farmers and those starting again could have taken the place of the large enterprises, or that more, sufficiently affluent farmers could have established themselves. Favouring the LPG successors, on the other hand, would have not have been a successful tactic either.
The farm managers and owners would have been freed from the necessity of orienting their decisions to the market and competition to lay the foundation for a sustainable development of the business.

... and what is the way forward?

Farmers in Eastern Germany have faced up to the challenges following the *Wende* and, from the ruins of the planned economy, have developed farms which are market-oriented and competitive. Successor farms to the LPGs have been able to become established, not only due to economies of scale and subsidies since the *Wende*, but also because of knowledge from the GDR era about the advantages of large structures.

The agricultural sector is currently facing parameters that are changing at an ever faster pace, and will continue to do so in the future. This acceleration is a consequence of the process of globalisation with its major shifts in supply and demand, the increasing importance of international quality standards, advances in biotechnology combined with an increased volume of knowledge, climate change, and greater use of scientific knowledge, which is already being reflected in the aforementioned successes of large farms. One of the biggest challenges of the coming decades will be to win social acceptance and appreciation of a competitively oriented modern agriculture.

Further literature


The aim of this article is to give an overview of structural change in Polish agriculture on the basis of the FADN data set, and to identify the reasons for this. The data set was compiled by taking a sample of 8,484 farms for the years 2004 to 2007. The study focuses on how specialisation in farms has developed, and on the growth of farm size within different production lines. We will also consider the changes in agricultural structures that will arise in the future if the observed trends continue in the years ahead. A major impetus of structural change are differences in factor productivity and thus the different remuneration of inputs. Factor productivity, in turn, is influenced by an array of other factors. These include farm size, economies and diseconomies of scale, the impact of technological progress, human capital, and the management skills of the farm manager. This paper is organised as follows. In the first part we shed light on structural change. The second part of the article deals with the impact of the various determinants of factor productivity in the different areas of specialisation.

Transition matrices for the prognosis of structural change

Transition matrices were used to analyse structural change. Individual farms were allocated a group affiliation (specialisation or farm size). Based on this, it was possible to record the migration movement between groups at different points in time. In the next step, the individual adjustment responses were aggregated and divided by the number of farms per group so as to calculate the share of farms that migrated from one group to another. As a result, the elements of the transition matrix are obtained. Multiplying the transition matrices by the number of farms at the beginning of the investigation period yields the distribution of the farms among the groups at the end of the investigation period. Assuming constant stochastic matrices, this method allows us to make reliable predictions about structural development. If we have a longer period, adjacent observation points can be used to assess the stability of the transition matrix. Small changes occurred in the matrices for this data set, so structural development was ascertained by using average developments during the period 2004 to 2007.

More dairy farms, fewer mixed farms

The first task was to investigate farm specialisation. The EU classification of farms according to main product lines was used for group affiliation in the study. The findings are shown in Figure 1. Overall, it is noticeable that in 2004 Polish agriculture was characterised by a relatively low degree of specialisation. Around 50 % of farms belonged to the group of mixed farms; other major lines were arable farming, dairy, and pig farming.
By 2007, however, clear changes were evident. The number of mixed farms and those specialising in arable farming had fallen, while the proportion of dairy farms had risen. If this trend continues over the next 10 years, in 2019 only 30% of farms may be without a marked specialisation. The number of dairy farms will almost double, while the proportion of pig and poultry farms should remain constant.

**Dynamic developments in dairy, pig and poultry farming**

We looked at changes in farm size for four production lines (arable, dairy, pig and poultry, and mixed farms). As our unit of measurement we used the European Size Unit (ESU), based on the Standard Gross Margin. The group boundaries can be seen in Figure 2. In 2004, a small-scale farm structure dominated in all production lines. Farms with fewer than 16 ESUs made up about 60% of all farms. There were hardly any large farms (> 100 ESUs) at all. What is noticeable is that at the beginning of the test period there were scarcely any differences between specialisations. And yet the proportion of small-sized (< 8 ESUs) arable and mixed farms was substantially higher than those of other specialisations.

Should the trends observed between 2004 and 2007 continue in the future, this distribution of farm sizes will change relatively...
little in the coming years. More rapid adaptation is taking place in animal production in particular. Even if very few large farms – greater than 100 ESUs – materialise in these production lines, we can detect a clear growth in farm size in the middle categories. Surprisingly, this process has not been at the expense of smaller farms (< 8 ESUs), but medium-sized ones (8-16 ESUs), meaning that there is a noticeable trend towards the development of a bipolar agricultural structure.

Limitations to interpretation

The methodology used here allows a simple and rapid analysis of processes of adaptation in agriculture. Significantly, however, only historical developments can be studied and projections made from these. One of the limitations of this approach is that, because nominal production values are used, it is impossible to say whether structural changes have taken place due to price or

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Figure 2: Farm Size Development by Specialisation

![Chart showing farm size development by specialisation](chart.png)

Source: *Own calculations.*
volume adaptations. We must assume, therefore, that the rise in importance of milk production and the decline in mixed farming are chiefly the result of the increase in milk prices since Poland’s accession to the EU, and not the adaptation of production structures. The lack of statistical information means that the price effects in the analysis presented here cannot be eliminated.

Another limitation of our approach concerns the consideration of policy reforms or policy restrictions. Future events such as policy changes cannot be given consideration. Here, expert knowledge is needed to provide at least a qualitative assessment of adaptation reactions. Expert knowledge is also helpful for evaluating the transition matrices. For example, corrections are needed when during the observation period there is a belated structural change that had previously been impeded. Conversely, impediments that are removed can also be given due consideration. It is expected, for example, that the current pressure on milk prices will effect structural change to the benefit of the dairy industry.

Here we should highlight in particular the impact of the milk quota system. Due to restrictions on production, the potential for development is far from being fully exploited. Over the next few years, therefore, structural change will become less pronounced until the expected expiry of the milk quota scheme in 2015.

In spite of these restrictions the approach outlined here offers important insights into the course of structural change. It is of particular relevance to agricultural policy that farm size growth takes place at the expense of medium-sized farms. This suggests that agricultural production performs a variety of functions for farming families. Besides maximising income through growth, we should also note income stabilisation via diversification of the factor input in small farms.

**Identifying differences in productivity**

When analysing the driving forces behind structural change, factor productivity and its determinants are pivotal. In general, we must assume that, in the long run, only those branches of agricultural production and farm sizes will prevail that can provide higher factor remuneration, and thus are connected with higher factor productivity.

The following analysis is based on the assumption that there are other elements determining farm output besides the extent of factor input (hours of labour, land farmed, use of inputs, as well as the sum of depreciations and service costs as an indicator for capital outlay). These include the quality of factor input, technical change and farm heterogeneity. The quality indicators were soil quality, the educational level of the farm manager and the age of the capital stock. For material inputs we based our calculations on the proportion of seeds and feed used that were produced by the farms themselves. The effects of technological progress were approximated by using a trend variable. Other determinants are farm heterogeneity (management skills of the farm manager, as well as economic and natural factors relating to the farm’s location) and the exploitation of the production potential, i.e. the efficiency of the factor input. These factors could not be observed directly, so specific estimation procedures were used which, in conjunction with assumptions about the distribution of these values in the sample, allow us to measure their impact on the level of production.
The computation is based on the assumption that production structures can be effectively depicted using a translog production function. All monetary values were deflated, either to separate the price effects from the volume effects, or to exclude the former.

The results of the computations allowed us to compile an input index. The figures were standardised so that the input index reflects the position of each farm at each point in time relative to the mean value of the sample. Similarly, we were able to calculate an output index from the production values. The ratio between the output index and the input index gives us the factor productivity. Standardisation not only allows us to depict productivity development, but also consistently show productivity differences between farms. Figure 3 provides an overview of average productivity development in the various farm specialisations.

**Structural change through differences in productivity**

In the period under investigation, average factor productivity on farms increased slightly. There are clear differences, however, between the various specialisations, with regard to both levels of factor productivity and the development of this indicator. Dairy production as well as pig and poultry farming recorded over-average productivity. Arable farming had average productivity,
while mixed farms were at the bottom of the scale. The differences in productivity are consistent with the structural developments outlined above; as expected, production specialisations with a high level of productivity registered a substantial growth in farm size. Moreover, the low productivity of mixed farms can be seen as a cause of the increasing specialisation in agricultural production.

**Determinants of differences in productivity**

We shall now look at the extent to which scale effect (SE), factor quality (QUA), technological progress (TCH), farm heterogeneity (HET) and efficiency (EFF) influence differences in productivity between the various specialisations. Technically speaking, factor productivity is the product of these factors of influence. The various determinants were again calculated in the form of standardised indices. In this way we can see the contribution they made to productivity development in the sectors. This approach also allows us to make a direct comparison of the importance of the determinants in the individual areas of specialisation. The results of these calculations are shown in Figure 4.

In all areas of specialisation technological progress (TCH) had a positive effect on production. There were no significant differences, either in level or in time frame. This suggests that innovation had no distorting effects on specialisation. Moreover, the impact of technological progress on changes in productivity was relatively low. The same is true of the exploitation of production potential (EFF). This effect, on the other hand, influenced the areas of production in different ways. There were potential advantages for milk production as well as pig and poultry farming, and yet the development was not the same. Whereas the efficiency of factor input rose on dairy farms, pig and poultry farms registered a negative trend. In arable farming – albeit with ups and downs – and on mixed farms, untapped production reserves were at average levels.

The scale effect (SE) reveals the extent to which size advantages can be realised in agricultural production. Economies of scale had a significant impact on pig and poultry farming as well as on mixed farms. With mixed farms, economies of scale reduced productivity, meaning that, technologically, there are no size advantages with this type of farm. By contrast, exploiting returns to scale brings benefits to pig and poultry production. This finding is consistent with what has been seen in other countries. Here, organisational and biological-technological advances have led to an increasing standardisation of production, accompanied by extensive industrialisation. This process also involves a concentration of production into larger units. Similar developments have occurred in Polish agriculture. Although the proportion of farms has remained pretty consistent (Figure 1), the average farm size in this area of production has risen sharply (Figure 2).

It was not only with regard to economies of scale that mixed farms had a disadvantage; with factor quality (QUA), too, they were at a below-average level. On the one hand factor quality is the result of natural characteristics such as soil quality, but it also depends on business decisions. One possible cause could be that mixed farms are less integrated into wholesale markets, as they use a higher proportion of their own-produced feed and seeds than other farms. The difference in quality is also the result of poor investment in human and real capital over the past few years, however. This analysis does not allow us to differentiate between these influences. The reduction in the proportion of
mixed farms in the sample (Figure 1) suggests that diversified agricultural production is not going to be a long-term option for Polish agriculture given a continued decrease in market risks. For many farms, investment is more likely to lead to further specialisation.

In dairy cow production there are significant advantages with regard to the indicator farm heterogeneity (HET). The causes of this cannot be clearly identified for this indicator either. It is probable that farm managers in dairy production have better management skills than in other areas of specialisation. Here, however, we need to identify why these skills have dramatically improved in a short period of time in milk production only. Growth processes in pig and poultry production ought to have led us to expect a similar effect. Dairy production, however, is marked by
Landscape in South-east Poland
stronger vertical integration than other areas of production. In particular we should cite the transfer of know-how from dairies to farmers. Another cause of the positive influence of HET is a migration of production to regions with relative advantages for milk production. This interpretation is consistent with the changes observed in Polish milk production over the past few years. These findings suggest that HET is, in fact, a conglomeration of a variety of factors. Further studies are needed explicitly examining the effects of various location-related factors, to provide more detailed information about the distribution of management skills and the effect of this on production and structural change.

**Conclusion: Structural change and options for agricultural policy**

Over the next few years structural change will continue in Polish agriculture. We must assume that, given straightforward market and production risks, farms will increasingly specialise. Dairy production, in particular, may benefit from this development. Besides specialisation, farms will continue to grow in size, although here the tendency is towards a dual structure, as growth is chiefly taking place at the expense of medium-sized farms. The challenge to agricultural policy is adapt its strategy and structure so that – amongst other things – it can accommodate the various functions of farming in both very small and fairly large agricultural units. It must also be sufficiently flexible to allow a differentiated consideration of the various determinants of production development, so that the forces of growth in Polish agriculture can work at an optimal level. One of the most important things here is to create an appropriate economic, institutional and organisational framework in which farms can optimise their opportunities for growth.
The landscape in Yunnan in South-west China is dominated by woodland and fields
Does vertical integration help to overcome investment barriers in the German pork production chain?

ALFONS BALMANN, KARIN LARSEN, OLIVER MUSSHOFF

Introduction

Modern pork production is a very capital and technology intensive business. Both stages of the production chain – piglet and hog production – require large investment. In Germany, the investment needed to create one full-time job in the hog-feeding sector may be more than one million Euros. The corresponding figure for piglet production is 500,000 Euros. Moreover, the necessary investments in pig production are characterised by irreversibility with a significant proportion of sunk cost. Another characteristic of pork and piglet production is the high uncertainty in returns, primarily caused by substantial fluctuations in piglet, hog and feed prices. Figure 1 illustrates the volatility in German prices during the period 1996-2008.

**Figure 1:** Price variation in German piglet, hog and feed prices 1996-20

Figure 1 shows that specialised hog producers who buy piglets on the spot market face a substantial price risk on both the input and output side. The total variation in net return depends on how the input and output prices co-varies. PIETOLA and WANG (2000) found that for the pork chain in Finland, prices for piglets and pork are not strongly correlated. Using a real options approach, the authors conclude that investment reluctance is higher in a pork chain where farms produce either piglets or hogs and trade piglets on a spot market, than where farms integrate piglet production and hog feeding in a combined production system.

In the case of German pork and piglet prices, the coefficient of correlation is high (around 80 %) suggesting that hog producers who buy piglets on the spot market may not be exposed to a substantially higher uncertainty in total net return. However, Figure 1 also shows that piglet and pork prices are not always coherent. In particular, fluctuations of piglet prices quite often overshoot the price change for pork. Thus, a shock on one side of a supply chain may cause amplifying shocks up-/downstream the chain. This suggests that it is important to relate investment decisions within the pork supply chain not only to the external uncertainty, but also to consider how participants at the different stages of the chain respond.
Below we aim to answer the question whether stronger vertical integration along the pork production chain reduces investment reluctance. This is based on a comparison of two production systems:

i) A perfectly integrated system in which piglets and hogs are produced in equal amounts and

j) A system in which firms produce either piglets or hogs. In the latter system, piglets are traded on a spot market.

Given the two characteristics of pork production described above – uncertainty in returns and sunk cost – the next question is: How should an appropriate investment analysis be conducted under these conditions? This study uses an agent-based real options approach when comparing the two production systems. In this way, the subsectors and the spot market interaction can be modelled explicitly and price dynamics can be simulated.

The real options approach is motivated by the fact that both piglet and pork production are characterised by high uncertainty in income and sunk investment costs. Following to the traditional investment analysis approach, the net present value method, one would simply compare the size of the investment outlay and the sum of (discounted) expected returns. If the present value of the expected returns exceed the investment outlay, this criterion suggests that the investment should be carried out. However, in the presence of uncertainty and irreversibility, and when the investment can be suspended, it has been suggested that the real options approach is a more suitable method. This approach accounts for the fact that volatility of returns creates new information, and that waiting allows a consideration of the value of this potential information. Thus, it considers that flexibility concerning when the investment should be undertaken has a value.

In the case of pig production, this approach has previously been applied by Pietola and Wang (2000) and Odening et al. (2005). The studies show that the real options approach leads to superior decisions. However, Odening et al. (2007) also show that the application has to be based on appropriate assumptions.

The following section will briefly explain the model that was used in the analysis and the assumptions that were made. After that, the results will be presented and discussed.

**Model and assumptions**

This section will very briefly explain the main ideas of the model that was used and the assumptions that were made. A more detailed description of the model can be found in BalMann et al. (2009). Two systems for pork production were compared:

- A closed system in which piglets and hogs are produced in equal amounts. The two steps of the production process (piglet and pork production) are thus perfectly integrated in this system.

- A spot market system in which firms specialise in either piglets or in pork. Piglets are traded on a spot market.

Uncertainty was incorporated in the model by assuming a stochastic demand for pork. That is, it is assumed that the iso-elastic demand function is shifted up and down according a geometric Brownian motion. For simplicity, all other variables were assumed to be constant. In the model, the farms, their behaviour and their interactions were modelled explicitly using an agent-based approach. Thus, a bottom-up approach was applied instead of looking at the market at an aggregate level. A number of agents represent identical farms which compete within their subsector and trade with the other subsector.
The farms identify optimal investment strategies for Monte Carlo simulations of demand changes for the hogs, and can invest in production assets (buildings) without knowing how the direction of demand and supply will evolve in the future. It is assumed that all producers are aware of the investment strategies and the production capacities of other producers. Moreover, piglet producers are assumed to know the actual production capacity of pork producers, but not the actual (dis-)investments. Every farm invests according to its individual investment trigger which is derived by linking Monte Carlo simulations of the agent-based model with a so-called genetic algorithm. This allows them to identify optimal investment strategies. The assumed production costs were chosen so that they proportionally correspond to the cost structure of German pig production today.

Results

As an important step to analyse whether vertical integration really leads to reduced investment reluctance in pork production, price dynamics in the two production systems were simulated under various assumptions regarding demand volatility, demand elasticity and depreciation rates. Figure 2 illustrates the price dynamics for given dynamics of demand for pork and parameter assumptions. It can be seen that the spot market and closed system lead to very similar price paths. This suggests that vertical integration does not strongly influence production volume or welfare. In accordance with real German price data, there is a high co-variation between piglet and hog prices. Furthermore, the normalised variation in the simulated piglet price is higher than that of the hog price. This is also consistent with real German piglet and hog prices.

Figure 2: Price path in alternative scenarios for given dynamics of demand for pork (under the assumption of a volatility of the demand parameter equal to 10 %, demand elasticities for piglets and pork equal to -1/2 and depreciation of piglet and hog buildings equal to 5 %).

Furthermore, it is interesting to analyse how the price dynamics are affected by the useful lifetime of the breeding barns for piglets. In the model, this is represented by the depreciation rate. Figures 3 and 4 thus illustrate simulated price paths for lower (Figure 3) and higher (Figure 4) depreciation rates for breeding barns. It can be seen that a higher depreciation rate, i.e. a shorter expected lifetime of breeding barns, leads to a lower price volatility. This is because of higher flexibility of adjustment. That is, investments with a high depreciation rate can be considered as less irreversible. On the aggregate level, this implies that production can respond relatively quickly to demand shocks.

In Figure 3, the depreciation rate for piglet barns is 5 % and in Figure 4 it is 20 %. The assumed depreciation rate for pork is 10 % in both figures.
In general, the price dynamics depend on following factors:

- Demand volatility, i.e. the level of uncertainty in quantity demanded.
- Demand elasticities, i.e. the responsiveness of the quantity demanded to a price change.
- The deprecation rate of production facilities which here represents the useful lifetime of the piglet and hog buildings.

The question of whether vertical integration really leads to reduced investment reluctance in pork production was ultimately answered by comparing the optimal investment triggers for the two production systems (i.e. the real options approach). The optimal investment trigger maximises the expected net present value of future cash flows, and is determined by the volatility in returns. If the triggers were substantially lower for the closed system, this suggests that this production system reduces investment reluctance. It was found that the investment trigger for pork in the closed systems does not differ substantially from the investment trigger of the spot market solution, irrespective of the assumptions regarding demand volatility, demand elasticity and deprecation rate. This suggests that – purely from a real options perspective – stronger vertical integration does not substantially increase investments.

Thus, although the simulations showed that certain assumptions regarding, for example, demand elasticities and deprecation rates have an impact on the price dynamics, and thus the investment triggers, of the different production stages, the general result is that – from a pure real options perspective – vertically integrated systems in pork production are not superior to market solutions.

**Figure 3:** Simulated price paths with relatively lower deprecation rate for breeding barns (all other assumptions the same as in Figure 2).

![Simulated price paths with relatively lower deprecation rate for breeding barns](image1)

Source: Authors.

Note: The deprecation rate for breeding barns is 5 % (10 % for finishing barns).

**Figure 4:** Simulated price paths with relatively higher deprecation rate for breeding barns (all other assumptions the same as in Figure 2).

![Simulated price paths with relatively higher deprecation rate for breeding barns](image2)

Source: Authors.

Note: The deprecation rate for breeding barns is 20 % (10 % for finishing barns).
Conclusions

The research presented in this article used an agent-based real options approach to analyse whether vertical integration in pork production reduces investment reluctance. This involved the simulation of the development of piglet and hog prices over time and it was shown that the price dynamics are determined by factors such as the price elasticity of demand, demand volatility and depreciation rates. It was shown that both production systems lead to very similar production dynamics. The main finding is that vertical integration in pork production does not substantially reduce investment reluctance. Although it was found that stronger vertical integration in pig production does not necessarily reduce investment reluctance from a real options perspective, it is important to highlight that there may be other factors offering good reasons for a vertically integrated system. For example, in integrated systems, the risk of not being able to buy/sell piglets is avoided. There is also evidence that the production conditions can be improved by integrated systems.

Further literature


Can the CAP have any influence over agricultural production and rural poverty in China?

For developing countries, agricultural production and rural poverty are crucial issues. This is especially true of China with its large rural population. China is one of the largest developing countries and is home to almost one fifth of the world’s population. Although China has made great progress over the past 30 years in rural development and combating poverty, large sections of the rural population still live below the poverty line. The issues of agricultural production and rural poverty are thus still very much at the top of the agenda in China.

It is expected that the Doha round of the WTO negotiations, with its three "pillars" – market access, export subsidies and domestic support – will have serious consequences for global agricultural trade, agricultural production and agricultural prices. The results of the Doha round, therefore, will directly affect the poor population in rural areas of the Third World, who live off agriculture. There are many studies on the relationship between global agricultural trade and poverty, or between trade liberalisation and the phasing out of national subsidies in industrialised countries on one side, and on the other, the income of the poor, rural population in developing countries who live off agriculture. These studies conclude that there is a correlation between global trade liberalisation and poverty. They also show, however, that different poverty structures in the individual countries under examination lead to differing effects of trade liberalisation on poverty, and above all that the effects tend to be short term. Many scientists also believe that the massive subsidies which industrialised countries give to their farmers, in conjunction with the resulting surplus production and subsidised exports, are harming agriculture in developing countries. As a large proportion, if not most of the poor households in many developing countries work in agriculture, the impact of extensive agricultural subsidies in industrialised countries on rural poverty is an important topic for developing countries.

If we consider that the WTO in principle recognises national subsidies for agriculture and that they will continue to have an impact on global trade, it makes sense to analyse some of the effects of agricultural policy reforms in major agricultural exporters such as the EU. At the same time the EU receives more than a quarter of all global agricultural imports. Consequently, it is very possible that the EU’s Common Agricultural Policy (CAP) is not only significant for global agricultural trade, but also for the development of rural poverty throughout the world. This article will present the initial findings of an ongoing study on the effects of the CAP reform on rural poverty in China.
The reforms of the EU’s CAP and their impact

The reforms of the CAP are highly significant for the EU’s food sector and finance budget, as well as for agriculture across the globe. The most important reforms of the CAP include early measures such as the introduction of milk quotas in 1984, the MacSharry reforms of 1992, Agenda 2000, the major reform of 2003 when decoupling was introduced, and finally the so-called CAP “Health Check” which has been ongoing since 2008, and which is monitoring the measures implemented in 2003.

Overall we can say that the reforms are predominantly a reaction to the changing conditions of agricultural production within the EU, but also a response to other influences. Studies on the relationship between the CAP and the WTO show that WTO requirements significantly influence the shaping of the CAP reforms. The Uruguay round of WTO negotiations over world trade liberalisation, for example, had an impact on the MacSharry reforms of 1992; and the Doha round on Agenda 2000. At the same time the CAP itself has an influence on the WTO negotiations over world trade liberalisation, as the EU has noticeably established itself as a major player in the various WTO rounds. Changes in world agricultural trade policy have also influenced global agricultural production via the impact these have had on prices. Developments on global agricultural markets and EU agricultural markets thus have a mutual influence on each other. As the CAP becomes ever more significant for non-European countries, there will be increasingly more research into its global impact outside of the EU. This is particularly the case given that, with some important agricultural products, the CAP has a massive influence on the activity of the world market.

Recently the 2008 CAP Health Check – a mid-term scrutiny of the major reform of 2003 – analysed the effectiveness of the individual rules. Its stated aim is to fine-tune the 2003 reform so as to improve its practical implementability and effectiveness. On 20 November 2008 EU agricultural ministers reached political agreement over the CAP Health Check. They agreed to disband the land set-aside scheme, gradually increase milk quotas until their eventual abolition in 2015, and turn market intervention into purely a safety net. There has also been an increase in modulation, i.e. direct payments to farmers are being cut and the monies this frees up redirected to the fund for rural development. To improve the reform of 2003 the Health Check thus contains a series of measures which are likely to have a long-term influence on EU agricultural production and world agricultural trade. We must look at these changes in order to analyse the impact of the current CAP reforms on China.

Simulation of the impact of the "Health Check" on China’s agriculture and rural poverty.

We have analysed the impact of the Health Check on agricultural production and rural poverty in China with the help of a computable general equilibrium model (CGE) and a partial equilibrium (PE) or sector simulation model. We have used the GTAP general equilibrium model as it has the advantage that it takes into account factor migration between economic sectors, and does not treat agriculture as an isolated sector, but as an integral part of the economy. As the GTAP model does not provide any detailed information about China’s agricultural sector, the partial sector model CAPSiM (China’s Agricultural Policy Simulation and Projection) has also been used. The “model combination” GTAP-CAPSim enables us to simulate a variety of relevant scenarios.
To take into account all the variations in resource endowment within the individual countries it was necessary to make certain assumptions and, to start with, to simulate the economic changes of the ten years (2004-13), before beginning the actual simulations. The most important assumptions are based on research by members of the GTAP research association. It was also necessary to consider other factors such as China’s entry into the WTO and the abolition of the Multifibre Arrangement (MFA).

In addition we had to determine a concrete scenario for the Health Check based on the analysis of global trade. The most important policy assumptions come from official EU documents and other studies. The assumptions about the Health Check concern direct payments, land set-aside and modulation. The assumptions about the remaining GAP rules relate to their status in 2004. The following have been used for a baseline scenario without policy changes and for a simulation scenario:

In large markets, such as this one in Beijing, Chinese farmers offer their goods for sale.
Baseline scenario:

1. Decoupling: Decoupling means removing the link between subsidization and production. As far as the CAP is concerned the current valid arrangement is the baseline for the simulation. The Member States can still link up to 25 % of direct payments to production.

2. Land set-aside: Each year farmers should set aside 10 % of their agricultural land.

3. Modulation: Modulation should provide Member States with an incentive to reallocate direct payments to farmers (first pillar of the CAP) to payments for rural development measures (second pillar of the CAP). The EU CAP reform of 2003 stipulates obligatory reallocations for all EU-15 Member States at the level of 3 % in 2005, 4 % in 2006, and 5 % from 2007. For the EU-10 Member States there are no stipulated reallocations before 2013.

The simulation scenario with measures implemented:

1. Decoupling: Total decoupling by 1 January 2013.


3. Modulation: An increase of 5 % in reallocation sums spread over four stages – 2 % in 2009, and 1 % in each subsequent year.

Key findings and conclusion

The findings of the simulation show that the Health Check has only few negative effects on agricultural production and rural poverty in China. Of the 22 products investigated there are only negligible changes in agricultural production. This, in turn, means that there are only minimal changes in rural incomes.

To evaluate the impact of the "Health Check" we have compared the differences in 2013 for key macroeconomic and agricultural values between the model simulation where measures have been implemented and the baseline scenario without any policy changes. With the "Health Check scenario" China’s social product, or welfare, is 15m$ higher in 2013, and so only marginally above the baseline scenario. The difference is a 0.002 % increase in Chinese social product with the "Health Check scenario". Chinese exports of agricultural products fall and imports rise. On the other hand, all 25 EU Member States show a greater deviation from the baseline. Their social product and exports of agricultural products rise, while their agricultural imports decrease. The findings for other countries follow the Chinese pattern, that is to say world trade develops slightly in the EU’s favour.

The "Health Check" will only have a slight impact on Chinese agricultural production. The effect on individual products is not uniform, however. There will be slight positive changes for all field crops, pigs, poultry, eggs and milk. By contrast, beef, lamb and fish will exhibit negative changes. Regarding crops we can add that soya and oilseed production will scarcely change, as these sectors in China have weak or even no comparative advantages, whereas wheat, fruit and vegetables will experience above-average growth due to comparative advantages.

The changes in the volumes of Chinese foreign trade have little concurrence with the expected changes in production. Almost all products will see a slight drop in exports and imports, i.e. less than 0.5 % (with the exception of the comparatively important imports of wool, fruit, vegetables and eggs). The only increases will be in exports of sweet potatoes, potatoes, eggs and fish.
All in all the effects on Chinese exports are minimal. Although the percentage changes in import volumes are, on average, ten times those of exports, the variations are still slight. Lower levels of wool, vegetables, fruit and eggs will be imported overall as domestic production is above the baseline scenario. Only fish imports will rise, possibly as a reaction to a fall in Chinese output.

The impact of the "Health Check" on poverty in China is also minimal. On average the annual drop in per capita agricultural income compared to the baseline scenario will only be 0.29 Yuan. Of this figure, 0.26 Yuan of this represents losses in field crops and 0.04 Yuan losses in animal production, while income for fishing will rise by 0.01 Yuan (1 Euro is about 10 Yuan). For the lowest income group, agricultural income falls by 0.16 Yuan, i.e. a lower drop than in other groups. For those with the lowest incomes, 0.14 Yuan of this drop will come from plant production and only 0.02 Yuan from animal production. There are no noticeable changes in fishing. A regionally disaggregated analysis of the effects of poverty was also carried out. It established that for the lowest income groups the reduction in income is not equally distributed across regions. The coastal region suffers greater losses than the interior.

In general we can say that the "Health Check" has only a negligible negative impact, and sometimes none at all, on agricultural production and poverty in the rural areas of China. A possible explanation for this is that the measures of the "Health Check" have not involved any major changes. Another possible reason might be that bilateral trade between the EU and China represents only a small portion of overall agricultural trade, meaning that the only effects are manifested as changes in global market prices. As far as poverty is concerned there are only minimal drops in income, particularly for the lowest income group.
IAMO staff took part in the project "The effects of payments for ecosystem services on human well-being and land use in upland Yunnan, China", another project by the IAMO’s international research group on China, in the South-western Chinese province of Yunnan. There they carried out household surveys and expert interviews. Zhanli Sun, Daniel Müller and Jens Frayer returned from this three-month research visit to Halle with a large amount of valuable data. The scientists want to find out why farmers take part in environmental farming programmes such as the Sloping Land Conversion Program. The changing land use which these entail will be analysed along with the socioeconomic consequences. Led by Daniel Müller and in collaboration with Jianchu Xu from the Kunming Institute of Botany/Center for Integrated Mountain Research (CMES), questionnaire-based interviews about this subject were carried out of more than 500 households in Baoshan and the prefecture of Lijiang. In discussions with forestry officials, village leaders and academics, Sun und Frayer also obtained background information and valuable insights. In spite of cultural differences, the language barrier, and the fact that they often had difficulty even reaching some remote villages, Sun und Frayer were able to finish their field research one month early and with one third additional data. This is mainly thanks to the outstanding support provided by our local partners – Jianchu Xus and his team from CMES. Collaboration between IAMO and CMES will be extended in the future.

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The fall of the Berlin Wall in November 1989 was a potent symbol of the beginning of the transition processes to free-market systems in the former socialist countries of Central and Eastern Europe. Over the past two decades the agricultural and food sector, as well as rural areas, have undergone huge institutional, economic, political and social reorganisation. Guided to a large extent at first by reform packages, which aimed at liberalising markets, or farm restructuring via land and property reforms, the transition processes had wide-ranging implications not only for how farms and individuals acted, but for the entire agricultural value chain and rural living conditions. The intensity and success of transition varied considerably between countries, however.

The goals of the IAMO Forum 2009, which took place in Halle (Saale) from 17 to 19 June 2009 under the title, "20 Years of Transition in Agriculture: What has been achieved? Where are we heading?", were to debate the influences, the effects and the course of the transition processes in the agricultural and food sector, highlight prospects for future development for agriculture and rural areas, and thus improve our understanding of "transition".

More than 160 participants from over 20 countries

More than 160 participants from over 20 countries, chiefly scientists, but also politicians and representatives from business, discussed the conditions, effects and experiences of 20 years of transition in the agriculture of Central and Eastern Europe. For the first time the IAMO Forum was hosted jointly with the European Association of Agricultural Economists (EAAE) and the European Review of Agricultural Economics (ERAE). Four plenary sessions, three parallel sessions and two poster sessions analysed the transition processes using different methodologies and from the perspective of a variety of disciplines, and also debated the future responsibilities of policy and research. The podium discussion at the end of the academic part of the conference focused on future trends and challenges.

The conference was opened by Dr Rudolf Wendt from the German Ministry of Food, Agriculture and Consumer Protection (BMELV), Hans-Jürgen Schulz from the Saxony-Anhalt Ministry of Agriculture and the Environment, and Prof. Dr Alfons Balmann from IAMO. The speakers talked in particular about the process of transition in the new German Länder, which is marked by a number of idiosyncrasies. These include on the one hand substantial funds from the old German Länder, and on the other the immediate opening of the border coupled with membership of the EU internal market and the introduction of the EU’s Common Agricultural Policy. The adaptation requirements this produced led to a sharp reduction in jobs and a drop in animal production and processing. Since then, however, an extremely productive and profitable agriculture has developed in Eastern Germany, but one which is more vulnerable in crises – not least due the fact that farmers still have low levels of equity – and is unable to exploit all its potential for value creation.
There was a total of 15 poster presentations at the IAMO Forum 2009
**ERAE/EAAE special session**

In the first ERAE/EAAE special session Prof. Dr Eugenia Serova of the FAO gave an overview of development in the 27 post-communist countries. She emphasised that it is not possible to talk of a single process of transition; individual countries, and in some cases individual regions within these countries, have undergone very different developments. According to Serova, this is chiefly due to the different conditions prior to transition – these include not only historical, economic, natural, cultural and geo-political factors, but also differences in benefits, subsidies and financial opportunities. The conclusion this points to is that there is no general recipe for functional transition processes and that, for the most part, success or failure are down to the differing conditions rather than the restructuring processes themselves.

Prof. Dr Johann Swinnen of the Catholic University of Leuven, Belgium, gave further insight into the transition processes of the agricultural sector. In his lecture he emphasised the role of transition research in drawing up basic principles about the most important institutions of a free-market economy and the conditions under which they function properly. These principles include, for example, the recognition that the theoretical market equilibrium, in which supply equals demand, can only be expected if property rights are guaranteed and market institutions exist so that the provision of the supply can be guaranteed. Taking the example of four transition countries, Swinnen also showed that dysfunctional factor markets in particular have proved the greatest obstacle to successful restructuring.

Prof. Dr Csaba Csáki from Corvinus University in Budapest, Hungary, discussed the effects of transition on rural areas in the states of Central and Eastern Europe. For Csáki the rural population are the losers in the wholesale restructuring of society. The gap between urban and rural regions is getting ever wider, he said. Especially in the new Member States of the European Union, agriculture and the rural economy are insufficiently competitive. Csáki identified the lack of entrepreneurship and advice on offer as the most important problems.

In his lecture, Prof. Dr Stephan von Cramon-Taubadel of Georg August University, Göttingen, addressed the role of transition research using articles published in the eleven most important English-language journals. Around 200 or 2.3 % of all articles published between 1989-2000 focused on this topic. Von Cramon-Taubadel described this proportion as low in relation to the subject’s importance. A sobering picture also emerged...
when considering the development of international research networks. The extremely fragmented networks that exist are sustained and linked by a few leading authors, he emphasised. Researchers from Central and Eastern Europe are hardly represented at all.

Social and environmental effects of transition processes

Besides the ERAE/EAAE special events, another high point of the Forum were two plenary sessions, one of which looked at the social and environmental impact of policy measures and decisions, the other at general economic issues. Dr Thomas Sikor from the University of East Anglia, Great Britain, examined the success of land reforms using the examples of Albania, Romania and Vietnam. Sikor emphasised that the success of land reforms cannot be taken for granted; it relies substantially on the extent to which the reforms take into account the circumstances and behaviour of the actors concerned, institutional and political parameters, as well as the size, location and value of the land to be redistributed. He also pointed out that land reform is not confined to Central and Eastern Europe, but should be seen as a global phenomenon. Dr Daniel Müller (IAMO) outlined in his lecture the effects of transition processes on land use in selected countries. He looked upon the restructuring processes as a "natural experiment" which enables us to gain a special understanding of the forces underlying changes in land use. International comparisons would allow us to make conclusions about country-specific changes in land use which have resulted from the reform policies that have been implemented and specific post-socialist developments. In this way, by using satellite pictures, country-specific comparisons can help provide a greater understanding of the impact of policies on land use, and can improve our understanding of relations between man and the environment in transition situations.

General economic aspects of transition processes

Prof. Dr Ulrich Blum of the Institute of Economic Research in Halle, Prof. Dr Jan Hanousek from the Prague Center for Economic Research and Graduate Education, and Prof. Dr Konrad Hagedorn and Dr Volker Beckmann from the Humboldt University in Berlin discussed general economic aspects of transition processes. Blum gave a picture of the overall economic development in Eastern Germany in the context of the effects of the socialist planned economy. He identified the lack of head offices and headquarters amongst large concerns as the main impediment to the Eastern German economy. His forecast: Eastern Germany would need around 30 head offices to ensure successful economic development. At present however, not one DAX-listed company has its corporate headquarters in the five new German Länder. Blum’s strategic recommendation, therefore, is to focus on new technologies such as the solar industry to prevent the migration of successful firms and to promote the acquisition of assets and setting up of businesses. In his lecture, Hanousek outlined the effects of privatisation, as transition economies tend to be marked by a surplus of human capital and a lack of private property. He concluded that privatisation in itself was no guarantee of economic success. The key factors, he insisted, were the manner of privatisation, the corporate governance of the businesses, market access, and legal and institutional parameters. He also emphasised that there was some evidence that foreign ownership had a faster and often more positive impact
on business success than national ownership. Hagedorn and Beckmann highlighted how Central and Eastern European countries had overcome the restructuring processes and discussed whether these could give rise to sustainable developments. Their research found that in most cases transition processes had provided countries with more opportunities and did not represent a significant threat. This was also true as far as the environmental impact was concerned. They noted that the positive effects were to be seen most clearly in those countries that had since joined the EU.

Podium discussion highlights future trends and challenges

The conference participants again debated future trends and challenges at the end of the IAMO Forum 2009. Prof. Dr Csaba Csáki moderated a discussion about the future issues the European food and agricultural sector must address. Participating in this debate were Prof. Dr Monika Hartmann of Bonn University, Dr Alex Lissitsa, President of the "Ukrainian Agribusiness Club", Prof. Dr Michael Petit, emeritus professor at the Institute of Mediterranean Agronomic Research, Montpellier, France, and Prof. Dr Harald von Witzke of the Humboldt University in Berlin. Absolutely essential here is the extent to which the agricultural and food economy can respond successfully to international trends such as higher quality requirements from consumers and increasing technological and processing standards in the face of globalised markets and technological innovations. In the long term this includes global challenges such as food security and climate change. The form European agricultural policy takes after 2013 may also have a substantial impact on further development. Increasing productivity is one way of successfully responding to some of these challenges. We must bear in mind, however, that countries such as Russia and the Ukraine may well take very different paths from that struck by EU policy to fulfil their productivity and efficiency potential.

Selected determinants and results of transition delivered in 24 papers and 15 poster presentations

A further 24 papers were delivered in nine parallel sessions, which looked at selected determinants and results of transition. The sessions gave an insight into aspects of efficiency and productivity, focused on areas of internationalisation and competitiveness, discussed the role of institutions and governance, or considered the implications for factor markets. Looking at Slovenian farms, for example, Štefan Bojnec and Laure Latruffe highlighted that technological efficiency has a positive relationship to farm size, whereas public subsidies have had a negative impact on farm efficiency both before and after EU entry. As Slovenian agriculture has a relatively smaller farm structure than the European average, the authors conclude that a growth
During the field trip the participants visited the milking plant at Ostrauer Agrar GmbH
in productivity is not the only factor driving structural change in agriculture. In their study, Lajos Baráth and Heinrich Hockmann came to the conclusion that variations in total factor productivity in Hungarian agriculture are determined predominantly by changes in technology and technological efficiency. The authors insisted, however, that only well-run farms were capable of positively exploiting the advantages of technological progress for themselves. In their comparative study, Supawat Rungsuriyawiboon and Xiaobing Wang demonstrated that the development of total factor productivity varies between different transition countries. The authors believe that in transition countries there is still a great need for new technologies and improvements in efficiency, and that this will persist in the future in view of the global increase in demand for agricultural products. Focusing on the Polish dairy sector, Lisbeth Dries discussed the connections between institutional change and farm restructuring in various stages of transition. Although Poland's EU entry considerably accelerated the restructuring processes, new obstacles also emerged, for example via the introduction of milk quotas and restrictions on trade in quotas. Jan Falkowski considered the productivity of farms in six Central and Eastern European countries and concluded that access to credit has a very positive effect on investment activity, whereas he could not find any consistent links between investment and factor provision for land and labour. Ladislav Jelinek emphasised that transaction costs resulting from the former economic regime still had a marked effect on current structures. These should not be ignored, especially when addressing the question of why land prices in the Czech Republic are low compared to the EU average. Ongoing projects and interim research findings involving young scholars were also publicised in 15 poster presentations.

Field trip to Ostrauer Agrar GmbH

A half-day field trip to Ostrauer Agrar GmbH provided an opportunity to see a practical example of how the challenge of transition processes has been successfully mastered. From discussions and a visit round the enterprise, the 30 or so participants gained a number of key insights into the business practice of a successful agricultural association.

All papers given at the IAMO Forum 2009 have been made available to participants and other interested parties on a CD ROM. The papers are also available, password-protected, via the web site and are downloadable on demand. An article giving an overview of the conference as well as selected papers from the Forum has also appeared in a special edition of the journal *Agrarwirtschaft*. The publication of the ERAE special edition with the papers from the EAAE/ERAE special session and other selected papers from the Forum is planned for spring 2010. Other papers will appear this same year in the journal *Agricultural Economics – Zemědělská ekonomika*. 
Above: The village of Csíkszépvíz, Pogány-Havas region (Central Romania)

Below: Many Romanian farmers still work their land by hand
Transition processes from a planned to a free-market economy have taken place in the countries of Central and Eastern Europe for about twenty years. One result of these change processes has been that consumers in this region are increasingly demanding higher-quality products. The rise in demand for high-quality foods, combined with investments by foreign enterprises in the processing sector, has led to the restructuring of vertical coordination along the value chain. Overall we have seen that the aim is for closer cooperation and stronger vertical coordination along the entire value chain. To achieve this, established businesses, especially international retail chains and brand manufacturers, are offering their suppliers a variety of support measures. These so-called "structured finance instruments" include pre-financing for production facilities, investment subsidies, supplier credits, credit guarantees and extension services. Ultimately, such extensive forms of support amount to so-called "productive partnerships". In addition to bilateral partnership models, multilateral partnerships with more than three partners are increasingly being established as well. An example of a bilateral productive partnership is a dairy which, together with a milking machine manufacturer, provides a dairy farmer with a new milking machine, initially free of charge. The dairy pays for the milking machine by transferring a certain percentage of its income from sold milk directly to the milking machine manufacturer. Cooperation between enterprises at various stages of the value chain can go beyond vertical coordination to become a merger or one business taking over the other, which is also defined as vertical coordination. This allows the market and cooperation risks, which are often high, to be eliminated.

In spring 2009 IAMO, combining the joint efforts of Linde Götz, Jon Hanf, Agate Pieniadz and Thomas Glauben, undertook a study for the World Bank on this very subject. The focus of the project was the importance of productive partnerships and structured finance instruments in the value chain for milk in Romania, for fresh fruit and vegetables in Croatia, and for beef in Bulgaria. The findings were used to draft suggestions as to how farms – small farms, in particular – can be integrated into modern value chains with strong vertical coordination. The key component of the study was the carrying out of partly standardised telephone and face-to-face interviews with the main actors in the three value chains. The most important findings are outlined below.

Findings of the study and policy recommendations

Vertical coordination is strongest in the Romanian dairy sector and especially within productive partnerships. In Croatia’s fresh fruit and vegetable sector, on the other hand, vertical coordination is weaker; here annual contracts to establish payment modalities are the norm. Vertical coordination is rare in the Bulgarian beef sector; here coordination mostly occurs via
If we compare the findings relating to the three countries, we can see that productive partnerships are furthest developed in the Romanian dairy sector. The greatest differentiation amongst forms of partnership is evident in premium dairies. In Croatia there are scarcely any productive partnerships between farmers and large supermarket chains, with the exception of the dominant supermarket chain, "Konsum". On the other hand vertical coordination is more developed – going as far as productive partnerships – between farmers and wholesaler-s, and between farmers and exporters of products in the premium quality segment. It has been shown that in the Bulgarian beef sector, most market transactions take place via spot markets. Only a few productive partnerships could be identified here, and even in these exceptions the partnerships were characterised by a low intensity.

Structured finance instruments are widespread in the Romanian dairy sector, are of limited importance in the Croatian fresh fruit and vegetable sector, and fairly insignificant in the Bulgarian beef sector. In the Romanian dairy sector there is a variety of structured finance instruments on offer, although bilateral contracts between farmers and dairies are most common. In general, supermarkets do not offer any structured finance instruments in the Croatian fresh fruit and vegetable sector, with the exception of the dominant supermarket chain, "Konsum" and some wholesalers and exporters in the premium segment, which make extensive use of bilateral instruments. "Konsum" does not only obtain its products from contractually tied farmers; it also buys up farms (vertical integration). In the Bulgarian beef sector structured finance instruments are only used within vertical integration.

The range of support measures for farmers is most widely developed in the Romanian dairy sector, followed by the Croatian fresh fruit and vegetable sector, whereas it is negligible in the Bulgarian beef sector. The most important support measures offered by Romanian dairies to farmers include the provision or pre-financing of inputs and production facilities (milking plants, cows) as well as extension services. Leading dairies are supporting their milk suppliers by jointly developing business plans, and are also offering technical support for the installation and operation of modern production technologies. In Croatia producers only get inputs in the form of seeds and plug plants. In some cases farmers are offered supplier credits to rent or buy machinery, technical support, and other forms of financing. In the Bulgarian beef sector all that could be found were price incentive systems to improve product quality.

The main obstacles to further development of productive partnerships in the Romanian milk chain are still the high level of market fragmentation and the weak horizontal cooperation between small milk producers. In Romania it is evident that small farmers, in particular, have great difficulty in meeting the demands of modern milk chains. Substantial investment is needed to modernise the production technology. The same is true of the education and training of milk producers. There are also big differences between producers with regard to their access to product markets, production factors and services, such as veterinary care. Small dairies, in particular, have more difficult access to input and product markets. Furthermore, small milk producers are rarely organised into farmers’ associations. Even if there is a tendency towards new forms of horizontal cooperation (e.g. producers’ organisations) the management skills of
these are still at a low level. This makes it difficult for these organisations to satisfy the demands of modern milk chains.

**The main obstacles to a greater development of productive partnerships in Croatia’s fresh fruit and vegetable chains** include the high level of fragmentation and the low degree of organisation of farmers. In Croatia fresh fruit and vegetables are chiefly grown in orchards and plots smaller than a hectare. For this reason most small farmers do not meet the minimum supply volumes demanded by supermarkets. Small farmers also lack the financial means to set up distribution structures, which is another requirement for direct integration into supermarket chains. Consequently, farmers who are unable to meet these demands have to offer their products to the supermarkets via a wholesaler. A proportion of the profit margin goes to the middleman, however, which means a reduced income for the farmers. What is more, the production and price risk in the Croatian fresh fruit and vegetable sector is high, while producers undertake few measures to minimise risk. There is also a lack of ambitious risk management strategies, especially to reduce the raw material risk.

**There are three obstacles hindering the further development of productive partnerships in the Bulgarian beef sector.** The first and greatest restriction on the development of productive partnerships in the Bulgarian beef sector is the poor demand for beef production – especially for fresh meat. Second, high-quality imports from other EU countries of processed products such as salami largely satisfy the demand for meat. This means that there are few incentives for Bulgarian beef producers to expand production or produce high-quality goods. Third, there is a flourishing black market where poor-quality beef is traded at very low prices.

In all the countries studied the domestic producers are increasingly facing competition from EU imports. The overwhelming majority of people surveyed admitted that they would like to buy more products from local and national suppliers, but only if these products were of a similar quality to the imports and could be delivered at comparable prices. At present producers have a clear preference for EU imports.

The study established that in all value chains the effectiveness of contracts is severely limited by institutional failure. The relevant economic parameters must be radically improved. Further efforts need to be made above all to improve the legal enforcement of contracts, develop services and the infrastructure necessary for this, and to reduce the widespread black market, in all the markets studied. In the case of Romania, moreover, the demand for simple quality controls is much greater than what is offered by its public and private service providers. This represents another obstacle to formation and development of productive partnerships between producers and dairies.

**Romania should support the setting up of independent quality controls.** The Romanian government should focus (more) on the development, implementation and monitoring of quality standards, particularly for raw materials, e.g. by providing veterinary inspections directly on farms. To increase the efficiency of quality controls, the government must assist the setting up of independent supervisory institutions, which currently exist in very small numbers. One solution here could be the establishment of a non-governmental organisation for quality controls.

The Romanian government should not invest in value chains that are coordinated by dominant producers or retailers. Our findings show that well-known producers or retailers already
have highly developed and well-coordinated value chains. We have also seen that it is these chains which already have access to the newest technologies, expert knowledge, and private and public financing. Today there is already a large discrepancy between the modern value chains that are generally dominated by international producers and those value chains which have been created by domestic actors, most of whom are small players. To prevent this discrepancy from widening even further, and to stop smaller actors (but ones with potential) on the market from disappearing altogether, there should be no additional (technological) support and funding given to prominent producers and retailers.

In Croatia there ought to be active support for the horizontal organisation of fruit and vegetable farmers. The Croatian government should create a flexible legal framework for various forms of organisation such as producer associations, which support horizontal cooperation. This includes the establishment of legal parameters in accordance with European law, so that producer organisations can be set up. It is also our recommendation that the current law on cooperatives should be modernised. Furthermore, pilot programmes for producer organisations should be given greater technological and financial support.

In addition, there is a need for measures to reduce the production and raw material price risks in the Croatian fresh fruit and vegetable sector. Fruit farmers must be helped to manage their production and raw material price risks. The insurance instruments that the Croatian government already offers must also be made more effective.

In Bulgaria we advise against investing in a market for which there is insufficient demand. In our analysis we found no evidence that the demand for beef will increase in the future. Rather, we predict that the demand for fresh meat, in particular, will remain low for the foreseeable future.

Horizontal integration and development of market niches as opportunities for small farms?

The establishment and support of horizontal cooperations (e.g. cooperatives) can accelerate the integration of small farmers into modern value chains. These days, prominent producers and retailers are chiefly looking for products which meet international quality standards. As small farms cannot produce goods of the required quality in sufficient quantities, they should join forces horizontally into larger units. The horizontal cooperation of small farmers can thus be seen as an opportunity to participate in modern value chains. It must be admitted, however, that agricultural producers in all three countries are generally reluctant to cooperate in formal structures.

We also recommend the exploration of the potential of market niches. Our analyses suggest that, for small farmers, the occupation of market niches can be an alternative to opening up the mass market via food retail chains. Potential market niches in these countries include regional and organic products. Some of the experts we interviewed, however, have suggested that the necessary know-how, experience and support are lacking to develop a marketable structure of regional food production.

Not all farmers will continue to exist in the market. This means that social security nets must be extended. Our study shows
that a large proportion of small farmers will neither wish to find a market niche, nor seek horizontal integration. These farms thus have no prospects of being integrated into modern value chains. In all probability these farms will quit the agricultural sector in the future. As they represent a social problem rather than one pertaining to the agricultural and food economy, ministries of social welfare rather than agriculture ought to take responsibility for these small farmers. The impending problems can be solved by income support measures or the extension of relevant EU retirement programmes.
Review of public service delivery in agriculture for Bulgaria and Romania

KELLY LABAR, STEFAN WEGENER

Introduction

For the new member states (NMS) of the European Union (EU), the administrative capacity for managing the Common Agricultural Policy (CAP) continues to evolve. Therefore, delivering services that are crucial for implementing CAP measures (e.g. advisory services, the administration of grant applications and farm payments) is challenging. To find out more about current administrative capacities for and obstacles to implementing CAP measures in these countries, the World Bank commissioned the study titled "Review of Public Service Delivery in Agriculture for Bulgaria and Romania". This study aimed at assessing the administrative service quality provided to Bulgarian and Romanian farmers within the CAP, the quality of back office support to policy-makers and planners, as well as the quality and client orientation of technical and socio-economic advisory and extension services. The field research and its subsequent report (LABAR et al., 2009) were carried out between November 2008 and April 2009 by a team of IAMO researchers that included Gertrud Buchenrieder, Kelly Labar, Doris Marquardt, Martin Petrick, Insa Theesfeld and Stefan Wegener of the Department of External Environment for Agriculture and Policy Analysis.

Partitioning the CAP into direct payments (Pillar I) and rural development measures (Pillar II) has various implications for administering policy implementation. Pillar I measures are designed centrally but administered locally. Thus, they require a high degree of involvement from beneficiaries in terms of information provision. Furthermore, many important decisions affecting the amount of transfers to beneficiaries are made locally. In contrast, the design of Pillar II measures can be adapted to local circumstances more flexibly. Even so, in addition to efficient technical administration, Pillar II measures also require rural stakeholders to be creative and entrepreneurial. Agricultural administration therefore must have different capacities and competencies according to which CAP measures are considered and implemented. In order to assess whether these capacities are already in place in Bulgaria and Romania, or are on their way to being settled, the study first reviewed the institutional capacity and experience with improving service quality among established EU Member States, with a focus on exemplary "best practices".

Best practices and current reforms of administrative procedures in the established member states focus on new controlling instruments, the reconfiguration of tasks across various levels of government, and increasing cooperation among administrative units. IT-based controlling instruments are now increasingly used by agricultural administrative bodies. In line with new approaches to rural governance, the delineation of tasks of various levels of government agencies is another area of current reform. It has become good practice to define these tasks more narrowly, specify their starting and ending dates, and to evaluate their performance independently. Horizontal cooperation between separate administrative units (such as states or counties) with
similar tasks became more and more widespread to save costs and realize economies of scale (Kliebisch, 2007).

With these best practices in mind, this study assessed the accountability and capacity in the agricultural service delivery chain of both Bulgaria and Romania. To do so, representatives of key organizations involved in CAP implementation were interviewed. Furthermore, primary data on the perception of farmers with regard to service delivery was incorporated in the study (Marquardt et al., 2009). Subsequently, the study suggested policy options and considered investment opportunities to improve administrative capacity.

**Methodology and field work**

The approach used in the study, which assessed administrative service delivery, combined two major concepts: first, accountability in the relationships between the CAP stakeholders, and second, the administrative capacity of organizations involved in CAP implementation. The notion of accountability as outlined in the World Development Report 2004 (WDR, 2004) describes the relations between key actors responsible for service provision and distinguishes five key features to accountability: delegating, financing, performing, informing, and enforcing. Delegating includes the conditions that actors are aware a certain service is available and also understand how to apply for its measures. Financing means that the resources are provided for delivering the service. Performing determines whether the service has been supplied or not. Informing shows whether organizations are able to assess the quality of their service delivery through the gathering of feedback and data collection. Finally, enforcing is required in order to impose actions against inappropriate performance. For high quality service, each of these features has to be effectively institutionalized.

The second concept of administrative capacity is defined using three main dimensions (Verheijen, 2007): policy, people and systems. The elements of each dimension are summed up in Figure 1.

**Figure 1: Dimensions of administrative capacity**

<table>
<thead>
<tr>
<th>Administrative capacity</th>
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<tbody>
<tr>
<td><strong>Policy</strong></td>
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<tr>
<td>- Strategic planning</td>
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<tr>
<td>- Policy coordination</td>
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<tr>
<td>- Performance management</td>
</tr>
<tr>
<td><strong>People</strong></td>
</tr>
<tr>
<td>- Human resources legislation</td>
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<tr>
<td>- Human resources management</td>
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<tr>
<td>- Human resources development</td>
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<tr>
<td><strong>Systems</strong></td>
</tr>
<tr>
<td>- e-governance</td>
</tr>
<tr>
<td>- Data collection and processing</td>
</tr>
<tr>
<td>- Technical and material resources</td>
</tr>
</tbody>
</table>

*Source: Own calculations.*
The conceptual framework is based on the identification of failures between the various levels of the service delivery chain (accountability) and at the different dimensions of administrative capacity. Figure 2 provides a synthetic view of the methodology used in the study.

The assessment of accountability and administrative capacity was carried out based on face-to-face interviews conducted with farmers and actors from the major organizations. The study considered organizations at the national level (located in the capitals), the district/regional level (district of Harghita for Romania and Plovdiv for Bulgaria) and the local level. Interviews were carried out in different directorates of the respective countries’ ministries of agriculture, as well as in the paying agencies and in different extension services or farmers associations. To assess the administrative service quality as perceived by the farmers, semi-structured interviews with farmers in one region of each country were carried out in early 2009 (Marquardt et al., 2009). These results provide insights into commonly shared opinions among farmers regarding the problems they encountered when applying for a CAP measure, and allow us to assess the quality of the accountability relationship between front offices and farmers.

**Main results**

Both Romania and Bulgaria display considerable progress in service delivery related to the CAP. However, in both countries, an over-centralization of decision-making leads to situations in which resources provided at the national level do not sufficiently

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**Figure 2: Conceptual framework of the study**

<table>
<thead>
<tr>
<th>Accountability</th>
<th>Administrative Capacity</th>
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<tr>
<td><strong>Actors</strong></td>
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<tr>
<td>Top administrative level, e.g.</td>
<td>Assessing actual capacity (policy, people, systems)</td>
</tr>
<tr>
<td>- Ministry of Agriculture</td>
<td></td>
</tr>
<tr>
<td>Intermediate administrative level, e.g.</td>
<td>Inventory of best practices and services in the EU-15</td>
</tr>
<tr>
<td>- Regional offices of Paying Agencies</td>
<td></td>
</tr>
<tr>
<td>Bottom administrative level, e.g.</td>
<td></td>
</tr>
<tr>
<td>- Local offices of Paying Agencies</td>
<td></td>
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<tr>
<td>- Agricultural Extension Services</td>
<td></td>
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<tr>
<td><strong>Farmers</strong></td>
<td></td>
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<tr>
<td>Identification of failures (Delegating, Financing, Performing, Information about Performance, Enforceability)</td>
<td></td>
</tr>
</tbody>
</table>

*Source: Own calculations.*
meet the local needs and conditions. Regions differ on key dimensions, such as the level of land fragmentation or the limited road accessibility of farms, and hence require differentiated systems for managing CAP implementation (NRDP Romania, 2008, RDP, 2007). Moreover, the sometimes slow information flow concerning centralized decisions and frequent revisions of administrative procedure manuals hampers the work of subordinated organizations.

Within the agricultural service delivery chain, different agencies often have overlapping responsibility and the delegation of tasks is sometimes unclear. This is especially true for Romania, where four independent organizations at the county level are involved in CAP implementation. All these agencies engage in promotion, extension and control. For instance, it appears that land declarations for CAP applications and the control of their accuracy are partly performed by identical fieldworkers.

Moreover, there is insufficient information exchange between farmers and agencies. The existing farmers’ associations require further development and are now only representing particular producer groups. This situation leads to the low enforceability of farmers’ interests and very limited participation in the design of CAP measures. Feedback on the quality of service delivery are neither spontaneously provided by farmers nor systematically collected by agencies. The lack of enforceability can result in less adequate policy design and implementation. In addition, various agencies’ front offices are situated in different locations. This makes contact between farmers and administrations more cumbersome and increases farmers’ transaction costs, e.g. when requesting information. Likewise, this may also result in incoherent information provided by the agencies, as distance impedes direct and informal communication between offices.

Many CAP measures are not specifically tailored to small-scale farmers, who in both countries form by far the largest group of farms. Consequently, delivering information and assistance about CAP measures to those small-scale farmers induces high administrative costs, and remote, small-scale, elderly, and uneducated farmers tend to be excluded from agricultural services. Moreover, land use and land ownership fragmentation entail high transaction costs for farmers when making applications, and also bind administrative capacities that could otherwise be used for verifying and processing applications.

The study also detected problems with human resource management and data processing within the administrations. Because wages are not competitive, the recruitment of qualified employees is hampered and those previously hired leave for the private sector once they are trained. Moreover, different salary levels between agencies and diverse bonuses that are additionally used as top-ups result in an inconsistent and opaque salary system, thus decreasing staff motivation. Finally, despite significant efforts being put into the implementation of the IT system, problems persist and the current setup of the various IT systems appeared to impede data processing and data exchange between agencies. Furthermore, a lack of updated and consistent sector data and public service accounting data hampers performance management and decision-making.

**Policy guidance**

Considering the main results of the study, the following policy guidance for the European Commission (EC) and for individual countries can be proposed.
At the EC level, the goal orientation of the CAP in the NMS should be reconsidered. More specifically, Romania and Bulgaria are young EU member states and are still undergoing economic transition. As such, particular attention should be paid to the specific conditions of these countries, for example the high share of smallholders who require social welfare measures as well as options to either diversify their income sources or exit farming. Likewise, commercial farmers need favorable investment conditions. Further support for the development and implementation of Pillar II measures that go beyond narrow farm support should

*In parts of Central Romania farmland is divided into small fields such as here in Pogány-Havas region*
be provided by the EC. Such measures could be better targeted to national and regional rural development goals. To further improve the goal orientation of policy measures, the upcoming mid-term evaluation (in 2010) should move beyond simple descriptive measures of program implementation and, for instance, better consider the quality of service delivery.

Moreover, it should be ensured that the sequence of measures introduced is appropriate to the countries' respective needs. For instance, support for the establishment of a functioning advisory service should precede the implementation of capital subsidies and investment schemes.

At the country level, the improvement of organizations' administrative capacity and their customer orientation is a central issue. Firstly, long-term strategic planning should be reinforced and be based on more detailed, pre-defined criteria. Secondly, coordination of the rural development program and other complementary operational programs need to be enhanced by intensifying coordination between the responsible ministries and agencies. To improve decision-making, it should also be determined whether some responsibilities could be devolved to lower administration levels, e.g. by decentralizing decision-making authorities. This concerns, for instance, decisions on policy implementation, but also on the amount and type of training, the recruitment of staff and the procurement of other resources.

Moreover, information exchange between agencies and service delivery could be improved by establishing integrated agricultural offices joining the different front office agencies in the same building. Thus, farmers could efficiently make applications through one-stop, face-to-face appointments.

Furthermore, a more comprehensive and tailored system of human resource management should be elaborated. This particularly concerns the training of new and existing agency staff. Such a system would involve improved mechanisms for identifying the specific training needs of employees. But the wage system also requires more transparency and consistency, which would increase incentives for employees and remove existing distortions.

Finally, feedback opportunities for farmers should be increased. The further development and outreach of farmers associations needs to be facilitated. In addition, client satisfaction surveys and better communication on how to make inquiries or provide feedback about services should be among the key tools implemented to improve service provision.

**Further literature**


Pogány-Havas region borders on the Eastern Carpathians in Central Romania
Do semi-subsistence farm households have a future in the European Union?

JANA FRITZSCH, STEFAN WEGENER, GERTRUD BUCHENRIEDER, JARMILA CURTISS, SERGIO GOMEZ Y PALOMA

Introduction

In the course of the enlargement of the European Union (EU), tiny agricultural households – so-called semi-subsistence farm households (SFHs) have come under the focus of the Common Agricultural Policy (CAP). The policy has been facing, and still does, the question of which incentives might induce these households to orient themselves more closely to the market or to quit agriculture. Both solutions would bring about a welcome structural change. And yet the question of appropriate policy measures is not an easy one to answer. On the one hand there is a lack of reliable statistical data on SFHs, and on the other it is probable that SFHs pursue a number of strategies simultaneously to maintain their livelihoods. The strategies that are relevant to a particular household chiefly depend on its socio-economic characteristics. From this it follows that, to advance structural change and guarantee sustainable livelihoods for the rural population, each type of household must be pinpointed with tailor-made policy measures. Consequently, this article addresses two issues: (i) What are the characteristics of SFHs in Central and South-eastern Europe? and (ii) Which development strategies would benefit them most?

What are the characteristics of SFHs in Central and South-eastern Europe?

To answer this question, household surveys took place in 2007 in Poland, Romania and Bulgaria. Finding the right households to survey proved to be a challenge as there is no universally accepted definition for semi-subsistence farming. According to EU regulation, SFHs are "agricultural holdings which produce primarily for their own consumption and also market a proportion of their output" (European Union Regulation 1698/2005, Article 34(1)). This definition is not very precise and it is up to the EU Member States to adapt it to the conditions prevailing in their individual countries. The EU measures the economic size of farms with its own unit – the European Size Unit (ESU). One ESU corresponds to a standard gross margin of 1,200 Euro. In Poland, farms between 2 and 4 ESUs (MARDP, 2007) are counted as SFHs. In Bulgaria the range is wider, and all farm households between 1 and 4 ESUs are considered to be SFHs. Romania has set the broadest limits. There, SFHs can be between 2 and 8 ESUs (MARDR, 2008). Taking into account these national limits, in our study an SFH was defined as a household operating a farm between 1 and 4 ESUs. In addition the household must market a proportion of its agricultural output. On the basis of this definition, a total of 544 SFHs were surveyed in three countries.
A cluster analysis allowed us to identify four types of SFH from the sample. Each type has particular characteristics which clearly differentiate it from the three other types (Figure 1). In accordance with these characteristics the individual types were defined as rural pensioners, rural diversifiers, farmers and rural job-starters. The rural pensioners (pink line, 83 households) are the oldest farmers and have the highest share of social payments in their net household income. They also work the smallest farms. The rural diversifiers (brown line, 150 households) have the highest level of formal education, which can be seen as a reason for the highest share of non-agricultural income in their net household income. A greater proportion of their agricultural output, moreover, is for their own use than in all other groups, and they produce the highest number of different goods.

**Figure 1**: Web diagram of the semi-subsistence farm household types

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**Source:** Own calculations using data from household interviews in the S-FARM project.

**Notes:**

Key to the axes: 1: Dependency ratio, 2: Highest level of formal education in the household, 3: Agricultural qualifications of farmer, 4: Age of farmer, 5: Agricultural experience of farmer, 6: Share of non-agricultural income in net household income, 7: Proportion of agricultural output for own use; 8: Annual credit balance of household, 9: Economic size of farm, 10: Farmland used (ha), 11: Share of crops in total agricultural output, 12: Number of agricultural goods produced, 13: Share of social payments in net household income.
agricultural goods. The farmers (green line, 153 households) work the largest farms and, with the highest annual credit balance (net income minus household outgoings), they are the best-placed household type in the sample. The rural job-starters (blue line, 103 households) combine the youngest farmers with the lowest level of relevant work experience. These households have the lowest annual credit balance.

In conclusion we can state that there is no typical SFH, but rather various household types farming under different circumstances. This means that an individual household has goals and strategies that can differ from those of another household.

**Which development strategies would most benefit semi-subsistence farm households?**

The fact that there are different types of households makes it difficult to answer the question of the best development strategy. What is more, SFHs pursue several strategies simultaneously to maintain their standards of living – in contrast to market-oriented farms which generally only maximise their profits. For this reason a multi-objective linear programming model (MOLP) was used to depict the possible effects of a variety of household strategies supported by policy measures. Household preferences were also taken into consideration. Unlike conventional programming models, which only optimise a single objective function, multi-objective models can optimise several objectives simultaneously. Specifically, agricultural net production, non-agricultural net income and annual credit balance of households were maximised, whereas farm labour hours were minimised.

To cover all household types and national idiosyncrasies, one real-life household was simulated per household type and country – twelve households in all. The simulation year was 2016.

Figure 2 shows the results of four decision scenarios. In the base scenario the farm household just receives subsidies based on the single area payment scheme. This represents a strategy where the household is not contemplating any adaptation, but waiting and farming in the same way as before. In the farm development scenario the household also receives, in addition to the subsidies based on the single area payment scheme, assistance to invest in the farm. Here both the expansion of the farm and the modernisation of production are deemed investments. The self-employment scenario is based on the assumption that the household sets up a family business and receives financial assistance for this. Besides the family business, the household continues to work its farm, for which it receives subsidies according to the single area payment scheme. In the early retirement scenario the farmer transfers the farm to his successor and, in return, receives a pension.

The model shows that waiting and farming as before is not an option, as many households would thereby earn an income that did not cover their outgoings and led to a negative annual credit balance. This situation is exacerbated if the SFH gives up its farm and instead takes early retirement. In fact, most of the simulated households could profit from a farm development strategy.

Farm development is the strategy that best matches the characteristics of farmers. For rural diversifiers and job-starters the self-employment and farm development strategies result in the highest credit balances. In most simulated scenarios, rural pensioners will end up in an economically unviable situation or – if their life is already unviable economically – remain in it. There are also country-specific deviations from these general statements, however. For Polish rural diversifiers and job-starters it is economically more advantageous to give up the farm than to set
up a family business. Bulgarian rural pensioners, meanwhile, would be able to enjoy a satisfactory retirement with the pension provision in their country.

**Conclusion**

In conclusion we should reiterate that SFHs do not constitute a homogeneous group. Data from the household surveys in Poland, Romania and Bulgaria show that the development opportunities for most households are hindered by insufficient assets, even though some households earn a considerable income with non-agricultural employment. Many heads of households and farm owners are relatively old, while younger heads of households do not have enough human capital in the form of relevant training and skills. Simulations for the year 2016 show that policy can support structural change in the semi-subsistence agricultural sector by a number of different measures. Success, however, is wholly dependent on the measures being accurately tailored to the individual semi-subsistence types. Although rural diversifiers are not in a particularly good situation, their non-agricultural income and the farm together guarantee a satisfactory existence. On the basis of their relatively high level of education, it can be assumed that this household type will be able to maintain its status quo until retirement, particularly as retirement is impending for rural diversifiers. In most of the simulated scenarios rural pensioners do not have a viable existence. Given their advanced age, the best way of supporting them would be via properly functioning and generous social networks. As rural pensioners already have to struggle with a negative annual credit balance, it would not be enough merely to adjust pensions to economic growth. Adjustments would have to be higher to provide assistance given the serious situation that exists. Those SFHs classified as

**Figure 2: Simulated annual credit balance of households in 2016**

Source: *Own calculations using data from household interviews in the S-FARM project.*
farmers have the best potential for development. Even at the time of the study and without any additional policy measures these households live in comparatively good economic circumstances. In spite of this, measures to stimulate farm development would help them to grow further and operate successfully. The average age of the farmers is pretty high, however. This household type must therefore ask itself how the farm can be made attractive enough for a potential successor. Here the introduction of an efficient pension scheme is very important. Overall, this household type can benefit from CAP measures. Similarly to the farmers, the rural job-starters should also be targeted by policy measures. They are relatively young, but do not have sufficient agricultural training. At the same time their opportunities for employment in non-agricultural jobs are limited. If they wait and farm as before, their socioeconomic situation will continue to deteriorate. It would be in their interests to improve their chances of non-agricultural employment. But they also need agricultural advice to be able to invest in their farms and develop promising production strategies and marketing concepts.

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The opinions expressed in this article are those of the authors and do not necessarily represent the views of the European Commission.

Further literature


IAMO building
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. It is clear that the agricultural and food sector, as well as the policy of the expanding Union, are also affected by these divergent developments. 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 Länderei 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 help those concerned deal with still incomplete transition processes, and 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. It 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 new medium-term agenda (2008-2015), which came into effect at the start of 2008, was 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 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 new medium-term agenda, in effect since January 2008, 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 PD Dr Gertrud Buchenrieder (*née* Schrieder)
- 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 2009, IAMO’s Executive Director by rotation has been Prof. Dr Thomas Glauben.

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 1/1/2010 the following individuals were members of the board of trustees: MinDirig. Dr Joachim Welz (Chairman, Ministry of Culture and Education of the Land Saxony-Anhalt), MinR. Dr Ulrich Neubauer (Deputy Chairman, German Ministry of Food, Agriculture and Consumer Protection), Under-secretary Jürgen Stadelmann (Ministry of Agriculture und the Environment of the Land of Saxony-Anhalt), MinR. Dr Rudolf Wendt (German Ministry of Food, Agriculture and Consumer Protection), Prof. Dr Stephan von Cramon-Taubadel (Georg August University, Göttingen), Prof. Dr P. Michael Schmitz (Justus Liebig University, Giessen), Prof. Dr Bernd Six (Martin Luther University, Halle-Wittenberg), Dr Reinhard Grandke (CEO of Deutsche Landwirtschafts-Gesellschaft DLG e. V.).

As of 1/1/2010, the following were members of the scientific advisory board: Prof. Dr Stephan von Cramon-Taubadel (Chairman; Georg August University, Göttingen), Prof. Dr P. Michael Schmitz (Deputy Chairman; Justus Liebig University, Gießen), Prof Dr. Michael Grings (Martin Luther University, Halle-Wittenberg), Prof. Dr Ernst Berg (Rhineland Friedrich Wilhelm University, Bonn), Prof. Dr Michael Kirk (Philipps University, Marburg), Prof. Dr Ewa Rabinowicz (AgriFood Economics Centre, Lund, Sweden), Prof. Dr Dr h.c. Ulrich Koester (Christian Albrecht University, Kiel), Prof. Ph. P. Johan Swinnen (Catholic University, Leuven, Belgium) and Prof. Dr Dr h.c. Dieter Kirschke (Humboldt University, Berlin).

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 joint summer school as well as a nationwide PhD student programme. At the personnel level the links between MLU and IAMO are also strengthened by the fact that MLU’s Prorector of Strategic Planning, Prof. Dr Bernd Six, sits on IAMO’s board of trustees.

IAMO also works closely in 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. history. As far as our partners in Germany are concerned, we have strong links with Berlin, Bonn, Hohenheim, Kiel, Göttingen
Organigram of the Leibniz Institute of Agricultural Development in Central and Eastern Europe
and Münster. There are also close relationships with chairs of agricultural economics and institutes at agricultural and economics colleges and universities in our partner countries. Here we should mention the increasingly close cooperation with Chinese universities, but also with other non-university research institutions.

Amongst our partner universities we should particularly cite the National Agricultural University of Ukraine (NAUU) and the National University "Kyiv Mohyla Academy", both in Kiev; the Higher School of Economics in Moscow; the Agricultural University in Astana, Kazakhstan; the State University in Pinsk, Belarus; Warsaw University of Life Sciences (SGGW); Corvinus University, Budapest and Gödöllö University, both in Hungary; and the University of National and World Economy in Sofia, Bulgaria. We should also mention the Centre for Agricultural and Rural Development (CARD) at Zhejiang University in China, and Hanoi Agricultural University in Vietnam. In addition, IAMO exchanges a wide range of scientific ideas with the Institute for Agro-economics and the LICOS-Centre for Institutions and Economic Performance at the Catholic University in Leuven, Belgium; Wageningen University in the Netherlands; 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, and with the University of Wisconsin in Madison. A number of IAMO staff participated in events at the "Workshop in Theory and Policy Analysis" at Indiana University, which was partly chaired by Elinor Ostrom, the 2009 Nobel laureate in economic sciences.

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, Federal Research Institute for Rural Areas, Forestry and Fisheries), the Leibniz Centre for Agricultural Landscape Research (ZALF) in Müncheberg, the Leibniz Institute for Regional Geography (IfL) in Leipzig, and the Potsdam Institute for Climate Impact Research (PIK). There are close relations with many non-university research institutions in Central and Eastern Europe. Of note here are: In the Czech Republic, the Institute of Agricultural Economics and Information in Prague (ÚZEI); in Slovakia, the Research Institute of Agricultural and Food Economics in Bratislava (VÚEPP); 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 (VIAPI), both in Moscow; in Ukraine, the Institute of Agrarian Economy at the Academy of Agricultural Sciences in Kiev; 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. IAMO’s partners in Western and Northern Europe are: 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); in Austria, the Austrian Federal Institute of Agricultural Economics in Vienna; and in Sweden, the Swedish University of Agricultural Sciences of Uppsala (SLU).
Right: As part of the BMELV collaborative project "German-Kazakh Dialogue on Agricultural Policy", Rakhim Oshakbayev (l.) und Roman Kanatovich Kussainov from the Kazakh Centre for Economic Policy Analysis in the Agro-industrial Complex paid a visit to IAMO on 13/11/2009
Below: Kazakh delegation at IAMO
Supporting young academics

One of the three core tasks of IAMO is to help develop the next generation of researchers. In particular, therefore, the Institute supports the study for doctoral and post-doctoral degrees. At the start of 2010, around 48 theses are being supervised at IAMO, and five members of staff are working on their post-doctoral degrees (Habilitation). Last year, four IAMO staff submitted the following theses to Martin Luther University, and successfully defended them:

- "Motives when buying wine – Differences between German and Ukrainian consumers" (Astrid Rewerts);
- "Rural development as provision of local public goods: Theory and evidence from Poland" (Andreas Gramzow);
- "Determining the competitiveness of the Belarusian dairy sector: The meaningfulness of competitive indicators and the development of a coherent measurement strategy" (Mikhail Ramanovich);
- "The internationalisation of agricultural enterprises. The example of German, Danish and Dutch direct investment into Ukrainian agriculture" (Henriette Stange)

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. In addition, the agro-economic coffee meetings at IAMO provide an opportunity to discuss early, often provisional findings.

The Doctoral Certificate Programme in Agricultural Economics (www.agraroekonomik.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 should 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 of the Christian Albrecht University in Kiel, the Faculty of Agriculture and Horticulture at the Humboldt University in Berlin, IAMO, the Institute of Agricultural and Food Sciences at MLU, The Faculty of Agricultural Sciences at Georg August University in Göttingen, and vTI, Brunswick. The PhD course is based on a modular system. In 2009, IAMO professors and staff helped organise academic events relating to the following modules:

- "Household behaviour: Theory and Applications"
- "Topics in Industrial Organization"
- "Agent-based Modelling in Agricultural and Resource Economics"
- "Management and statistical analysis of survey data"
- "Introduction to Geographic Information Systems and spatial data analysis"
- "Foundations of agricultural economics"
- "Structural equation modelling with LISREL (hard-) and SmartPLS (soft-modelling)"
Visiting academics at IAMO and summer schools

The further training and education of academic scholars is one of IAMO’s core tasks. As mentioned above, IAMO focuses chiefly on supporting junior academics from our 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 2008 to September 2009, 38 predominantly young visiting academics from 18 countries carried out research at IAMO. 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.

Since 2002, Martin Luther University Halle-Wittenberg and IAMO have been jointly running the summer school in CIS countries on "Agriculture in the Transition Process" under the leadership of Michael Grings (MLU) From 3 to 21 August 2009, the eighth summer school took place in Kostroma, Russia. The course was funded by the German Academic Exchange Service (DAAD). The 29 participants, mainly young professionals, from science and agricultural administration, obtained a comprehensive insight into a variety of different academic disciplines. The timetables included courses on agricultural policy, vertical cooperation in the agricultural and food sector, strategic management, decision making in the presence of uncertainty, and agricultural leasing and land markets. Field trips complemented the theoretical learning. Besides MLU professors Michael Grings and Peter Wagner, the other lecturers in Kostroma were IAMO’s Jon H. Hanf, Vladislav Valentinov and Jürgen Wandel, Heinz Ahrens (formerly MLU) and Peter Tillack (formerly IAMO).

For the first time last year a summer school took place in the Armenian city of Yerevan, from 6 to 12 July. Our local partner and organiser was the International Center for Agribusiness Research and Education (ICARE). The 25 participants, who included masters and doctoral students as well as young academics from Armenia, were taught about the subject of "Vertical Coordination in Agri-Food Chains". The discussions focused on very small farms which must overcome a number of particular challenges to remain viable in the future. These include access to input and output markets and issues of internal organisation. IAMO’s Jon H. Hanf, Milada Kasarjyan and Agata Pieniadz acted as lecturers there. In Yerevan they were able to present findings from their own research and they obtained an insight into transition-specific aspects of the Armenian agricultural and food sector. The success of the summer school has enabled IAMO to further develop its contacts in Armenia.

"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 which
looks at the "Prospects of small-scale farm structures in the new Member States of the European Union". Many farms in the new EU Member States cannot measure up to the demands of modernising value chains for food and increased competition within the enlarged Union. We must, therefore, ask whether and how the farm structure deficits that exist in many regions can be overcome, how agriculture in these regions can be successfully integrated into changing food sector value chains, and how the social problems thrown up by the necessary structural change can be solved. Six German and three PhD students from Hungary, Bulgaria and Albania are currently working on particular research projects. You can find further information on our web site under the heading "research".

The research projects are focusing on the following three topic fields:

- Change in the agricultural sector and business adjustment strategies;
- Inter-enterprise and cooperative adjustment strategies in relation to the demands of supply chains;
- Institutional parameters and implications for (regional) policy

Besides its research activity, the IAMO graduate school provides systematic support for junior 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.

In 2009 the graduate school again offered a module which was tailor-made for the specific needs of PhD students, and which was also open to those on the Doctoral Certificate Programme. Following Michael R. Carter’s (University of Wisconsin-Madison, USA) module on the topic "Microeconomics of Growth, Poverty and Inequality", which ran in 2008, in February 2009 Claudia Becker of Martin Luther University Halle-Wittenberg taught on the topic of "Management and statistical analysis of survey data."

Both modules met with great interest from PhD students. In February 2009 there was also a one-week "Graduate School Research Workshop" in the Polish city of Karpacz. This was organised by the PhD students themselves and gave them the chance to discuss their individual works in progress.

Research findings from the Graduate School were presented to a broader public thanks to a mini-symposium organised by Gertrud Buchenrieder, Judith Möllers and Martin Petrick during the 27th Conference of the International Association of Agricultural Economists (IAAE) in Beijing, China. Under the title "Structural change in Europe’s rural regions – Farm livelihoods between subsistence orientation, modernisation and non-farm diversification", researchers from the graduate school gave papers on non-farm diversification, the importance of bio-gas production and the flexibility of family farms.

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

The research group “Economic Dynamics and Social Equilibrium in Rural China”, which was set up at IAMO in 2008, is currently working on ten sub-projects. The breadth of topics
ranges from the impact of cooperation between farms and land consolidation measures on farm development, questions of rural education and the economic integration of ethnic minorities, to the effects of Chinese environmental programmes and international trade policy on rural living conditions in China.

The individual projects are helping to find approaches for addressing the radical 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. The initial findings from the development economist, Kelly Labar, show, for example, that in rural China it is almost exclusively children of educated parents who enjoy a secondary education. This means that many young people cannot make a contribution to economic and social development that is commensurate with their talents and abilities. Here, the development of targeted grant programmes is one very effective long-term means of creating educational equality and advancing economic growth.

Some initial findings have also emerged in the project by the agricultural economist Hai Lin. He is using an economic model of world agricultural trade which was developed by a Chinese partner institute, the Centre for Chinese Agricultural Policy (CCAP) at the Chinese Academy of Sciences, to quantify the effects of the European Common Agricultural Policy on the agricultural sector and consumer welfare in China. The reform measures currently in place until 2013, termed in EU jargon the Health Check reform, are reducing production incentives for European farmers. This is relieving the world markets, e.g. for cereals and oilseeds, and is tending to lead to higher prices there. On the one hand, Chinese farmers are benefiting from this because the price boom increases the value of their crops and thus their incomes. On the other hand, the price of feed for their cattle is also rising, which in turn reduces profit. As consumers, too, they (just as the non-farming households) are in general worse off on account of higher food prices. Whether the advantages will outweigh the disadvantages or vice-versa is a question that can only be answered empirically. Lin’s model findings predict a negative overall impact, albeit very small, of the Heath Check reforms on the real per-capita incomes of Chinese farmers.

In 2009 three researchers spent lengthy research visits in the provinces of Zhejiang, Sichuan and Yunnan carrying out extensive surveys whose findings are now being evaluated. The research group’s contacts with scientists in China and the USA were of great help for the organisation and carrying out of the surveys. IAMO is now 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 (see separate article). Since 2008 the research group has been funded by money from the Pact for Research and Innovation. More details on the research group can be found on a special web page: http://www.iamo.de/china-group.home.html.

**Development of third-party funding**

**Third-party funded projects in 2009**

I. Newly approved third-party funded research projects

- **Projekttitel:** Market power modelling issues and identification problems. An investigation of selected Hungarian food chains
  
  Drittmittelgeber: DFG-Sachbeihilfe
II: Ongoing externally funded research projects in 2009

- **Projekttitel**: Terms of reference – Review of public service delivery and productive partnerships in agriculture for Bulgaria, Romania and Croatia
  Drittmittelgeber: Weltbank

- **Projekttitel**: Prototypical impacts on multifunctional activities in rural municipalities (PRIMA)
  Drittmittelgeber: 7. Forschungsrahmenprogramm der EU

- **Projekttitel**: Comparative analysis of factor markets for agriculture across the member states
  Drittmittelgeber: 7. Forschungsrahmenprogramm der EU

- **Projekttitel**: Initiation of a strategic and technical reference group for an integrated modelling platform for agro-economic commodity and policy analysis (IMAP)
  Drittmittelgeber: EU-Tender, IPTS

- **Projekttitel**: Information and communication needs assessment of national agricultural research and extension system (NARES) and its stakeholder in Armenia
  Drittmittelgeber: FAO

- **Projekttitel**: Social capital and informal social networks in changing natural and institutional environment
  Drittmittelgeber: DFG-Sachbeihilfe

- **Projekttitel**: Preisbildung und Wettbewerb auf räumlich differenzierten Märkten – Simulation und Analyse komplexer Marktstrukturen am Beispiel des Rohmilchmarktes
  Drittmittelgeber: DFG-Sachbeihilfe

- **Projekttitel**: Werte als Motive von Konsumentenentscheidungen – Ein interkultureller Vergleich
  Drittmittelgeber: DFG-Sachbeihilfe

- **Projekttitel**: Agroholdings im Agrar- und Ernährungssektor in Russland: Entstehungsgründe, Funktionsweise und Entwicklungsperspektiven
  Drittmittelgeber: DFG-Sachbeihilfe

- **Projekttitel**: Ökonometrische Wirkungsanalysen von Fördermaßnahmen für die ländliche Entwicklung (FOR 986)
  Drittmittelgeber: DFG-Sachbeihilfe

- **Projekttitel**: Modelle betrieblichen Strukturwandels (FOR 986)
  Drittmittelgeber: DFG-Sachbeihilfe
• Projekttitel: Preisbildung und Einkaufsverhalten im Lebensmitteleinzelhandel
Drittmittelgeber: DFG-Sachbeihilfe

• Projekttitel: Financial deepening and efficiency of rural financial intermediation
Drittmittelgeber: DFG-Sachbeihilfe

• Projekttitel: Das Wachstum der sächsischen Landwirtschaft 1750-1880
Drittmittelgeber: DFG-Sachbeihilfe

• Projekttitel: Enlargement network for agripolicy analysis (AgriPolicy)
Drittmittelgeber: 7. Forschungsrahmenprogramm der EU

• Projekttitel: Trade, agricultural policies and structural changes in India’s agrifood system (TAPSIM)
Drittmittelgeber: 7. Forschungsrahmenprogramm der EU

• Projekttitel: Modern agriculture in Central and Eastern Europe: Tools for the analysis and management of rural change (MACE)
Drittmittelgeber: 6. Forschungsrahmenprogramm der EU

• Projekttitel: Structural change in agriculture and rural livelihoods (SCARLED)
Drittmittelgeber: 6. Forschungsrahmenprogramm der EU

• Projekttitel: Vereinbarung über die Gewährung einer Finanzhilfe für eine LEONARDO DA VINCI Partnerschaft im Programm für lebenslanges Lernen
Drittmittelgeber: EU, GD Bildung/Kultur, Bildung für EUROPA

• Projekttitel: Die zukünftige Bedeutung und Funktionen von Genossenschaften in einem vertikalisierten Agri-Food Business
Drittmittelgeber: DZ Bank-Stiftung

III: Externally funded research projects completed in 2009

• Projekttitel: Transformation landwirtschaftlicher Familienbetriebe in der VR China
Drittmittelgeber: Stifterverband für die Deutsche Wissenschaft/DFG

• Projekttitel: Market power in German and Hungarian food chains
Drittmittelgeber: DFG-Sachmittelbeihilfe

• Projekttitel: Terms of reference – Review of public service delivery and productive partnerships in agriculture for Bulgaria, Romania and Croatia
Drittmittelgeber: Weltbank

• Projekttitel: Sustainability of semi-subsistence farming systems in New Member States and Accessing Countries (S-Farm)
Drittmittelgeber: EU-Tender, IPTS

• Projekttitel: Study on the functioning of land markets in the EU Member States under the influence of measures applied under the Common Agricultural Policy
Drittmittelgeber: EU-Tender, CEPS
• Projekttitel: Information and communication needs assessment of National Agricultural Research and Extension System (NARES) and its stakeholder in Armenia

Drittmittelgeber: FAO

Selected third-party funded projects

Below is an outline of the three most important projects for which new "Pakt" and third-party funding was obtained. This is followed by a brief description of the high-quality international research consortium REAP which IAMO joined in 2009.

EU project on European factor markets

The European project "Comparative analysis of factor markets for agriculture across the Member States" is being funded as a "collaborative project" in the work programme "Knowledge Based Bio-Economy" (KBBE) of the EU’s 7th Research Framework Programme.

Access to the production factors of capital, labour and land is essential for farming to be competitive and also for processes of rural development in the European Union. The markets for these factors, however, are for their part influenced by changes in the economic environment of rural areas, such as technological progress, processes of globalisation, changes in consumer preferences, or policy reforms. Whereas agricultural commodity markets in Europe are substantially integrated thanks to the Common Agricultural Policy, there is considerable heterogeneity between the Member States as far as factor markets are concerned. In a recently approved research project of the Seventh Framework Programme IAMO is taking part in an international consortium examining the performance of agricultural factor markets in the EU Member States. The aim of the project is a comparative analysis of these markets, of the effects on structural change, and of the economic development of rural areas in Europe. The project is breaking new scientific ground, as there has never been an all-European comparison of all the factor markets cited. In addition to comparing political and institutional parameters, the project is focusing on a quantitative analysis of factor markets with the assistance of econometric methods and simulation models.

The project is being coordinated by the Centre for European Policy Studies (CEPS) in Brussels, under the leadership of Johan Swinnen. The other project partners are the French National Institute for Agricultural Research (INRA), the Agricultural Economics Research Institute (LEI) from the Netherlands, the University of Kent in the UK, the University of Warsaw in Poland and ten other partners besides IAMO. From IAMO,
Alfons Balmann is looking into land markets, while Gertrud Buchenrieder and Martin Petrick are researching capital markets. The consortium is expected to start working at the beginning of 2010.

Federal Ministry for the Environment project on a sustainable bio-methane strategy for Europe

The supply of bio-methane from Russia, Belarus and Ukraine, via biochemical as well as thermo-chemical conversion, represents a promising option of an optimised renewable supply of heating, energy and fuel. The potential for generating energy in this way in the target countries and Western Europe is good given the high level of possible agricultural yields, the substantial volume of waste land that exists in transition countries, and Germany’s connection to the Eastern European natural gas pipeline network. A project entitled "Sustainable European bio-methane strategy" is being carried out by the "Wuppertal Institute of Climate, Environment, Energy GmBH", Dresden Technical University – Chair of Forestry and the Timber Industry – and the Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO), and coordinated by the German Biomass Research Centre GmBH (DBFZ). It is being funded by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The stated aim of the project is to calculate the technical potential of bio-methane production, to examine technological, economic and ecological aspects, as well as those relating to energy and climate policy, and to analyse the legal and market-related framework for the provision, supplying and distribution of bio-methane in Russia, Ukraine and Belarus. Led by Dr Daniel Müller, IAMO is calculating the future technical potentials of biomass from agriculture. Competition for land use – with food production, for example – is being prevented in the analysis by the development of specific sustainability guidelines. One of IAMO’s key tasks is to estimate the long-term farm production potential, assuming that the existing structural obstacles to productivity in the farming sector will be removed. As the target countries may well be particularly badly hit by climactic changes in the future, these factors which reduce yields must also be considered in the study. Methodologically, IAMO is using spatially explicit computer models to integrate socioeconomic and natural geographic factors. The development, calibration and evaluation of spatially differentiated crop yields or land use models should result in reliable estimations with regard to biomass potentials in European Russia, Belarus and Ukraine. Finally, together with our other project partners, IAMO is helping develop a set of recommendations, in which the potential contribution of a bio-methane strategy should be included as an aim of German and European energy and climate policy.

The "BioenergyPlanet" research network

Funded by the "Pact for Innovation and Research", a Leibniz Association "BioenergyPlanet" research network is examining the impact of the global expansion of biomass use on the economy, climate and biodiversity. The project partners are the Potsdam Institute for Climate Impact Research (PIK, project coordinator), the Leibniz Institute of Agricultural Development in Central and Eastern Europe (IAMO), the Leibniz Institute for Agricultural Engineering Potsdam-Bornim e.V. (ATB), and the Leibniz Institute of Vegetable and Ornamental Crops Großbeeren and Erfurt (IGZ). IAMO is focusing on the transition countries of Eastern Europe and the former Soviet Union.
Ukraine, Belarus and Russia all have a large untapped agricultural potential, basically because of the relatively low level of productivity in these countries and of the large volume of unused agricultural land. Not only, therefore, can these countries considerably increase their output of foodstuffs; they can also produce biomass which can be used for renewable supplies of heating, electricity and fuel.

Within the BioenergyPlanet project IAMO, under the leadership of Dr Daniel Müller, is assessing the volume of potential agricultural resources in Ukraine, Belarus and (European) Russia that can be technologically and sustainably harvested in the coming decades. The study is also differentiating between various uses (food production, heating, electricity and fuel). Specific questions that being addressed are:

- What would be energy output (thermal and electrical energy) in relation to the volume of (virtually) produced foodstuffs if there were better exploitation of agricultural potential?

- Without considering other rival land uses, what is the energy equivalent that could be produced outside of the study region if Ukraine, Belarus and European Russia only produced additional volumes of foodstuffs and these were sold on the world market?

- Which of these paths are sustainable according to European and global climate goals?

IAMO will focus particularly on gauging the potential output of agricultural goods by 2030. We will study a variety of scenarios which consider the elimination of existing structural obstacles in agricultural sectors, as well as future climate changes in the target countries (see the project "Sustainable European biomethane strategy"). Spatially explicit yield models are being used for these simulated calculations. The future potential of bio-mass on wasteland is also being investigated in selected case studies in Ukraine, Belarus and Russia. Local business indicators and greenhouse gas records are being used to produce a detailed economic and ecological analysis of energy generation on wasteland.

The area under investigation is one of the most important agricultural regions in the world. IAMO’s research findings are thus making a very useful contribution to addressing the issues covered by BioenergyPlanet’s research.

**REAP – A project on rural education in China**

In 2009 the International Research Group on China succeeded in establishing another research cooperation with the Center for Chinese Agricultural Policy (CCAP) at the Chinese Academy of Sciences. The two institutions are now working together on the "Rural Education Action Project" (REAP). REAP is a particular type of large-scale project in that it is conducted by "action-oriented research". This approach corresponds perfectly with the ideal of "applied basic research" for the solution of current social problems, an approach to which IAMO, as a member of the Leibniz Association (WGL), is committed. Besides researching rural education in China, the aim of the REAP project is to provide thousands of poor people from underdeveloped rural regions with access to higher education. The most important project partners are the Freeman Spogil Institute for International Studies, the School of Education (both Stanford University), CCAP,
the Northwest Social-Economic Development Research Center (Xi’an, Shaanxi) and Tsinghua University in Beijing. The chief objective of the strategies developed in the project is to target funding so that it raises the proportion of children from the rural underclass participating at all school levels including in educational establishments for young children. In particular the aim is to assist children of migrating workers and to improve nutrition so that the children are in a better situation to take an active part at school and in education.

The data for the REAP studies come from extensive field research examining participants in REAP programmes as well as non-participants as a control group (randomised control trials) so that the actual effectiveness of the measures can be evaluated. This approach involves a comparison between a randomly selected sample of individuals from the overall study group receiving financial assistance and help with food, and individuals with similar characteristics, but who do not receive such assistance. This methodology, which has already been tried in Mexico and Indonesia, is being used for the first time in China. It produces a solid assessment of the effectiveness of the programmes applied to different population groups, and allows the policy recommendations to be drafted in such a way that their impact is accurately targeted. The extensive data collected by REAP represent an excellent basis for further research. They are a rich seam for every analyst examining inequality in access to education in China and looking for ways to eliminate unjust obstacles in the Chinese education system.

From IAMO, Stephan Brosig, Kelly Labar, Thomas Glauben and Martin Petrick are working together with CCAP and are thus continuing a successful collaboration with Xiaobing Wing, who was researching at IAMO until November and is now working at CCAP. You can find more information about the REAP project at http://reap-china.org/index.asp.

**Development of IAMO lectures**

![Graph showing the development of IAMO lectures](image)

**Source:** Institute’s own statistics.

** 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 events with an international audience, and in 2009 almost two-thirds of all lectures were given abroad. The costs of 52 of the 147 lectures given in 2009 were met by the organisers (26) or by third-party funding (26). Since 2007 the number of lectures given by IAMO staff has risen, and in 2009 it reached its highest level in the Institute’s history. The number of papers delivered by IAMO staff at international conferences and specialist symposia has remained at a high level over the past few years.

**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 an impetus for restructuring in the agricultural and food sectors in partner countries. Below is an outline of the most important conferences, symposiums and workshops run by the Institute in 2009.

**Agricultural policy symposium at Green Week 2009**

On 18 January 2009 IAMO ran a symposium for International Green Week in Berlin on the topic "20 years of transition – Does the global consumer now exist?" The symposium formed part of the "Forum International Green Week" organised by the German Ministry of Food, Agriculture and Consumer Protection. At the heart of the event was the question of whether the desires and needs of consumers around the world are converging, and regional and cultural differences increasingly vanishing. What we have seen over the course of globalisation is a differentiation in consumer behaviour vis-à-vis food. A larger and more varied choice of products enables consumers to be more specific in how they develop and satisfy their individual needs. In Central and Eastern Europe the concurrent trends towards homogenisation and an increased demand for Western products are only actually evident in booming urban centres such as Prague, Budapest, Moscow and Kiev. Although large globalised enterprises can use their strong market position to push trends and thus advance the cause of uniformity, socio-economic, regional and cultural differences continue to influence consumer behaviour. Debating this topic were: Prof. Thomas Glauben (IAMO), Dr. German Jeub (BMELV), Prof. Dr Jens-Peter Loy (CAU Kiel), Dr. Jutta Roosen (TU Munich) and Rainer Thiele (Kathi Rainer Thiele GmbH). Chairing the discussion was Dietrich Holler (from the journal *agrarzeitung*, formerly *Agrarzeitung Ernährungsdienst*).

**IAMO Forum 2009**

The IAMO Forum 2009 took place from 17 to 19 June 2009 under the title "20 Years of Transition in Agriculture: What has been achieved? Where are we heading?" More than 160
participants from more than 20 countries, predominantly academics, but also politicians and representatives from business, discussed conditions, effects and experiences of 20 years of transition in the agriculture of Central and Eastern Europe. Given the international significance of the fall of the Berlin Wall 20 years ago, the IAMO Forum was run in conjunction with the European Review of Agricultural Economics (ERAE) and the European Association of Agricultural Economics (EAAE). Four plenary sessions, three parallel sessions and two poster presentations examined transition processes using different methodologies and from the perspective of different disciplines discussing as well future tasks for policy and research. The podium discussion at the end of the academic part of the conference focused on future trends and challenges. To round of the conference a half-day excursion to Ostrauer Agrar GmbH gave participants the opportunity to see a working example of a business that has successfully overcome the challenges of transition processes.

The two plenary sessions – "Social and Environmental Impacts of Policies" and "General Economic Perspectives" focused on the findings of transition research. The main speakers were: Thomas Sikor, School of International Development, University of East Anglia, GB; Daniel Müller, IAMO, Germany; Ulrich Blum from the Halle Institute for Economic Research (IWH), Germany; Jan Hanousek from the Center for Economic Research and Graduate Education – Economics Institute (CERGE-EI), Czech Republic; and Konrad Hagedorn and Volker Beckmannn from the Humboldt University in Berlin. The two EAAE/ERAE special sessions were organised by academics and managers of international organisations. The main speakers were: Stephan von Cramon-Taubadel from Georg August University, Göttingen, Germany; Eugenia Serova from the Food and Agriculture Organisation (FAO), Italy; Johan Swinnen from the Catholic University, Leuven (K.U. Leuven), Belgium; and Csaba Csáki from Corvinus University, Budapest, Hungary. In the concluding podium discussion – "Agriculture in CEEC towards 2030: Where are we heading?" – chaired by Csaba Csáki, Monika Hartmann from Bonn University, Alexej Lissitsa, President of the "Ukrainian Agribusiness Club", Michel Petit Emeritus Professor from the Mediterranean Agro-nomic Institute of Montpellier, France, and Harald von Witzke from the Humboldt University in Berlin debated the future issues that the European Agricultural and Food Sector must address.

There were sections with lectures on the following topics:

- Efficiency;
- Internationalisation, innovation and competitiveness;
- Land markets;
- Trade;
- Political economy and institutions;
- Governing the food chain;
- Productivity;
- Structural change;
- Factor markets.

The SCARLED project group session took place under the title "Lessons of Best Practice in Managing Agricultural and Rural Transition in an Enlarged EU". In addition to the lectures there were also two poster presentations. The plenary lectures were on the following topics:
• Propertising projects: Post-socialist policy and practice;
• The transition as a natural experiment: How broad-scale transformation affects local land use change;
• The long shadow of real socialism: The special case of Eastern Germany;
• Effects of privatisation and ownership in transition economies;
• Transition, natural resources and sustainability

All the papers delivered at the conference can be accessed, with the necessary password, on the IAMO web site and downloaded on demand. Selected papers from the Forum appeared in a special edition of the journal *Agrarwirtschaft* at the end of 2009. The ERAE special edition with the papers from the EAAE/ERAE special session and other selected papers from the Forum was published in spring 2010. Other papers will also appear in 2010 in the Czech journal *Agricultural Economics – Zemědělská ekonomika*.

**Events scheduled for 2010**

**IAMO Forum 2010**

The title of the IAMO Forum 2010, which will take place from 16 to 18 June 2010 in Halle, and is being organised by IAMO, is "Institutions in Transition – Challenges for New Modes of Governance". The international conference is looking at the latest research in the field of institutional change and the accompanying challenges for the agricultural sector and rural regions. The focus will be on research findings relating to developments in Central and Eastern Europe as well as Central and Eastern Asia. Topics for discussion will include new forms of governance or managing processes of policy formulation (the need for evaluation, impact analyses and integrated models), shaping of policies (decentralisation, bottom-up activities) and the coordination between actors on the input and output markets (energy, capital, labour, food, landscape). Here the management of natural resources such as soil and water, or the role of biodiversity, are of special importance. Social security systems in rural areas, moreover, create particular demands, requiring innovative governance structures. Not least in the field of governance, theoretical ideas and methodologies need further development to allow a better analysis and evaluation of institutional restructuring and its impact.

**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

*Development of numbers of articles published in refereed and indexed journals*

*Source: Institute’s own statistics.*
of numbers of articles published in journals by IAMO staff since 2000. After the total of publications in print rose substantially after 2004, the annual average fell from 131 (2005-2006) to 103 (2007-2008). At the same time, however, the number of refereed articles with an impact factor which are listed on the Science Citation Index (SCI) and the Social Science Citation Index (SSCI) has risen from an annual average of 1.4 (2001-2003), to 4 (2004-2006), and then to 14 (2006-2009; only up to 4/11/2009). IAMO’s internal quality management for publications has thus had a significant effect.

Discussion papers

The Discussion Paper series continued in 2009 with the following publications that can all be downloaded free in PDF format from the IAMO web site (www.iamo.de/doc/##):


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 24 conference proceedings and 28 monographs have been published. In 2009 the following volumes were published:


IAMO on the Internet

The Institute’s Internet presence (www.iamo.de) aims to provide outsiders and interested users with a quick overview of IAMO’s core tasks and aims, as well as of staff research topics, findings and publications. Our Internet presence is based on the Open Source Content Management System TYP03.

Each member of staff has the opportunity to maintain and update the content of their individual pages independently. This ensures that the site is very much up to date. The 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 gives information on 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 information about IAMO’s core tasks, institutional structure, staff and library.

Via the library page, online searches of the library catalogue can be made using OPAC. Current job vacancies can also be found via the Institute menu. The Research menu leads to information about current research projects, with short project descriptions and details of the staff involved, select publications, and research cooperation with other institutes. The Events menu provides details of the annual events either organised by the Institute, or in which IAMO is taking part. These include the IAMO Forum, the PhD workshop, as well as seminars and workshops on a variety of possible topics.

Here, users can find out about programmes and speakers in advance, and view papers that have been submitted. The online
service also provides access to all in-house publications (IAMO Series, IAMO Discussion Papers, IAMO Annual Reports and IAMO Annual). Publications by staff members can either be viewed in the complete publication list, or directly on the individual staff pages. The Portal menu contains a comprehensive and structured collection of links.

Since October 2007 the IAMO web site also has its own alumni homepage <http://www.iamo.de/alumni/index.html>. alumni@IAMO.de is the communication and service network for former IAMO staff members and visiting researchers. It provides a large number of activities to help alumnae and alumni keep in contact and share their experiences, and thus maintain a life-long connection with each other.
View of inner courtyard at IAMO
**by car**

*From the south:* Leave the A9 motorway at the Rippachta 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 Kröffitz/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 Kröffitz/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 Krloffitz. 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.
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.

Photos
LEIBNIZ-GEMEINSCHAFT (S. 5), TIMEA TÖRÖK (S. 9, 90, 101), ZHANGLI SUN (S. 8, 25, 44, 53, 56), HAUKE SCHNICKE (S. 12, 70), HAI LIN (S. 44, 50), ANDREAS GRAMZOW (S. 42), WIEBKE MEYER (S. 58, 59), BRITTA PAASCHE (S. 61, 62), GERGELY RODICS (S. 64, 75, 78), ALEXEJ LISSITSA (S. 84, 105, 107).

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