

Activities

The programme of work of CATSEI is organised along the lines of distinct work packages:

(1) *Current state and prospects.* Quantitative information is collected on recent trends in agriculture and on major driving forces outside agriculture in order to obtain an updated baseline scenario for the Chinagro model.

(2) *Trade.* The impact of China's and EU's imports and exports on world agricultural prices is estimated. Special attention is paid to a comparison of agricultural policies in China and EU, and to analysis of specific commodities in which China and EU may complement each other.

(3) *Social conditions.* The project conducts own surveys to obtain specific insight into land tenure regulations, local government taxation, farmer incomes from non-agriculture and rural safety nets. Combination of these surveys with available secondary data allows analysis of the effects of projected economic trends on poor rural households.

(4) *Environment.* Quantitative indicators of environmental pressures are derived, distinguishing between agricultural water availability and non-point source pollution from nutrient emissions in crop and livestock farming. Possible effects of climate change for China are also looked into.

(5) *Synthesis.* The Chinagro model is extended by integrating findings from the previous work packages. Simulations are performed to come up with scenarios and policy options that seek to combine efficiency, equity and sustainability, taking into account the implications for international trade, especially for the EU and developing countries.

(6) *Policy Dialogue.* Throughout the project, policy dialogue and dissemination of results are major objectives, involving leading agricultural experts and policy makers, both from China and the EU, as well as from international organisations.

Participants

The participating institutes with their leading scientist:



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Chinese Agricultural Transition: Trade, Social and Environmental Impacts

A three-year multidisciplinary international project to investigate the impacts of China's economic transition on its agricultural economy, with a particular focus on:

- Consequences and prospects for international trade, especially between China and the European Union
- Impacts on social conditions in rural areas
- Environmental implications

The Research Consortium consists of:

SOW - CCAP - IIASA - SOAS - LEI - IFPRI

with funding from the European Union, under the Sixth Framework Programme for Research and Technological Development



Background

Growth and distribution

China's reforms towards a socialist market economy, initiated in the late 1970s, have led to a period of sustained high growth that is expected to last for many more years to come. Between 1985 and 2005 per capita national income multiplied more than fourfold, resulting in a significant reduction of poverty but also in accelerating income differences. While the urban-rural income ratio was still about 2.5 in 1985, it had increased to more than 3.5 by 2005, in spite of massive migration to urban areas. Containing these income differences will be crucial for maintaining social stability.

Food demand

At the same time, the income increases caused major changes in food consumption towards higher quality products and richer diets. Urban meat intake has increased from 18 kg per person per year in 1980 to 60 kg in 2005, and similar growth rates are found for dairy. Rural meat intake is still moderate, at 33 kg per person per year, but is also going up fast.

Agricultural trade

For foreign trade, the crucial question is to which extent the additional demand for meat and dairy will be met by rising imports or by rising domestic production, which in turn may lead to increasing feed imports. On the other hand, the liberalized trade environment offers also possibilities for expansion of exports, especially building on China's comparative advantages in producing high-quality fruits and vegetables, provided that it can meet the strict food quality and safety requirements imposed by rich countries. Recent years have already witnessed a significant growth of agricultural exports from China to the European Union. Furthermore, trade volumes will be affected by the increasing role of biofuel in the world's energy supply but in this respect China's ambitions are moderate and international developments hard to predict.

Transition

In the coming years the agricultural sector will have to adjust further to the changing trade and demand conditions, which is a major task in a situation of rising income gaps between rural and urban areas and among regions. On top of that, the

sector is facing increasing environmental pressures due to falling groundwater levels and mounting nutrient surpluses, whereas urbanization increases the competition for land and serious uncertainties

exist about the possible effects of climate change. These threats call for careful policy formulation in guiding the process of agricultural transition.

Objective

The overall objective of CATSEI is to investigate the impact of China's current economic transition on its agricultural economy, with special reference to

- consequences for international trade, in particular the EU-China trading patterns,
- farm incomes and rural social safety nets,
- environmental pressure due to water scarcity and nutrient surpluses.

Challenges

Three factors render the research program of the project particularly challenging. First, the transition of China's economy proceeds at an astonishing pace that asks for an almost continuous evaluation of agricultural policies, taking into account all recent developments regarding incomes, urbanization, consumption patterns, opening up of markets and environmental damage.

Second, China is a country of extremes, both geographically

and socially. Apart from booming coastal provinces, it has remote areas where income growth is much slower. Migration can only to a limited extent compensate for these diverging trends. With respect to natural conditions, a multitude of agro-ecological zones covers the country. Due to these differences, as well as varying transport costs, agricultural prospects differ widely across regions. The research has to be explicit on these diversities.

Third, the mere size of China's economy makes it imperative to assess its impact on the rest of the world. As said before, China may become a large importer of meat and feeding stuffs, but also has the potential to become a major exporter of horticultural products. Since developments in this area do not only depend on market forces but also on changes in trade and food safety policies as laid down in multilateral and bilateral trade agreements, the research must take these highly complicated arrangements into consideration.

Scientific approach

Approach

CATSEI opts for a quantitative approach, supplemented by qualitative investigations. Findings from separate but coherent analyses in the fields of trade, social conditions and environment will be integrated in a general equilibrium welfare model to arrive at policy options that account for efficiency, equity and sustainability considerations.

Chinagro-model

In modeling, the project does not start from scratch but builds upon the Chinagro model, developed in an earlier EU-funded project of the same name. It is a geographically detailed general equilibrium welfare model that comprehensively depicts China's farm sector in 2433 counties, while connecting these through trade and transportation flows to each other, to rural and urban consumers and to abroad. The model assumes exogenous trends for a wide range of driving variables (such as non-agricultural output, demography, migration, available crop and grass land, technical progress, and government taxes and tariffs). Scenario simulations cover the period 2000-2030

and report on supply and demand volumes, trade flows, market prices, farm incomes and nutrient surpluses, inter alia.

Other tools

The Chinagro model will be used in tandem with other state-of-the-art decision support tools and associated databases. For the trade component, linkages will be established with a similarly structured model for European agriculture and the GTAP-model on world trade. For the social component, geo-referenced household surveys will be combined with the most recent population census and a detailed geographical data set. Furthermore, price transmission between coastal markets and inland farmers is analyzed using market surveys. For the environmental component, agro-ecological assessment tools will be applied to derive production potentials under alternative levels of water availability and different climate projections.