

Erber, Georg; Petrick, Martin; von Schlippenbach, Vanessa

Article

Causes and Consequences of Rising Food Prices

Weekly Report

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Erber, Georg; Petrick, Martin; von Schlippenbach, Vanessa (2008) : Causes and Consequences of Rising Food Prices, Weekly Report, ISSN 1860-3343, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin, Vol. 4, Iss. 12, pp. 73-79

This Version is available at:

<https://hdl.handle.net/10419/151035>

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Weekly Report

Causes and consequences of rising food prices

Since mid 2007 there has been a dramatic rise in prices for basic foods such as internationally traded varieties of rice, corn and wheat. At the moment, it is rather impossible to estimate how far speculation in the commodity markets has contributed to this development. Irrespective of this, a long-term solution to present and future supply shortfalls, including investment in more efficient agro-technologies and infrastructures is required. This is a matter for the international community which should continue to promote the abolition of international trade barriers in the agricultural sector in addition to local measures to provide structural aid. Hoped-for structural change may however be impeded if agricultural producers are exposed both to the market power of trader demand and the supplier power of upstream suppliers. It therefore appears that controls on abuse of market power at an international level are urgently required in order to increase the efficiency of agricultural markets and ultimately to secure the food supply.

The drastic price increase in agricultural products has brought hunger back onto the political agenda (Figure 1).¹ The low income population is the very people who can no longer offset price rises by restructuring their expenditure. The FAO (Food and Agriculture Organization) estimates that currently around 862 million people worldwide receive inadequate nourishment. The hope that favorable economic development could vastly reduce hunger has now been dashed.²

If the present price increases were to represent a long-term trend, there would be a threat of acute hunger crises in the future. But even moderate price increases, attributable to a growing demand for higher-value agricultural products and bio-fuels, can lead to continuing supply shortfalls in the long-term. The growing world population and rising living standards make an increase in agricultural production inevitable. This can be achieved both by rises in productivity and expansion in cultivable land.

Horizontal and vertical impediments to market liberalization frequently stand in the way of these objectives. A better understanding of transactions within the agri-

¹ These developments provoked the fear of an international supply crisis which drove the people in countries such as the Ivory Coast, India, Mexico, Cameroon and Senegal onto the streets. The FAO gives a regular overview of the crisis countries. FAO: Crop Prospects and Food Situation. No. April 2008,2.

² Cf. The Global Hunger Index Progress Indicator. This is published regularly by the International Food Policy Research Institute (IFPRI).

Georg Erber
gerber@diw.de

Martin Petrick
petrick@iamo.de

Vanessa v. Schlippenbach
vschlippenbach@diw.de

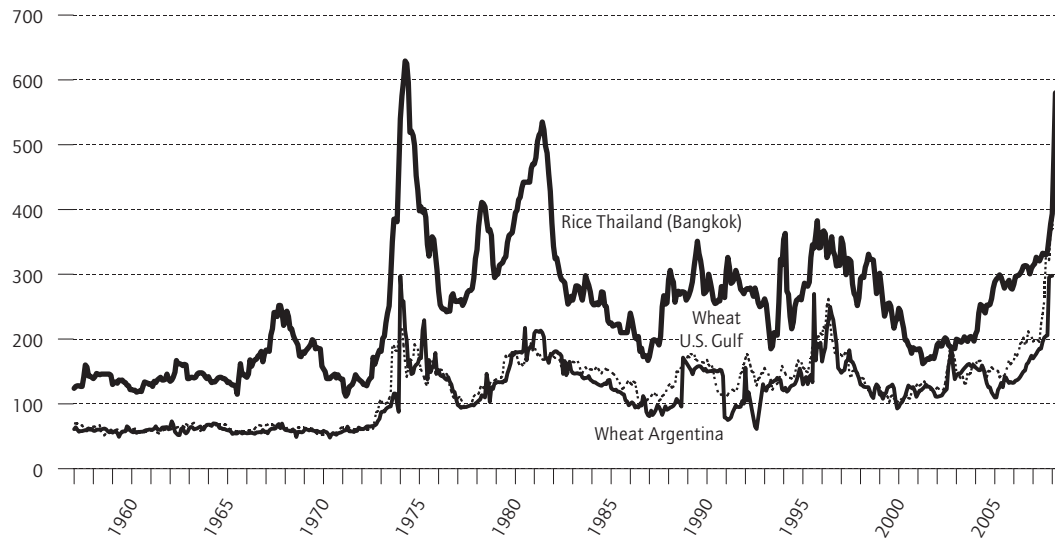
JEL Classification:
D84, L4, Q11, Q17

Keywords:
Agricultural prices,
Noisetraders, Trade liberalization,
Vertical relations

Figure 1

Prices of internationally traded wheat and rice varieties

Monthly value in US Dollars per metric ton



Source: International Financial Statistics (IFS).

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cultural value chain is also necessary as increased prices often do not reach the small producers in developing countries.

Unequal partners in the global agricultural market

In developing countries great importance is often attached to agriculture. On the one hand the prices of agricultural products are kept artificially low by export duties and state marketing organizations to ensure that the domestic population is supplied with cheap food. On the other hand export products, the so-called “cash-crops“ such as cotton, peanuts, cocoa or coffee are a welcome source of tax revenue. By contrast, in the industrial countries the importance of the agricultural sector continues to decline. The political aim of cushioning social hardship, of structural change, and the farmers’ high degree of political organization, has meant that agriculture in these countries has become a major net recipient of state subsidies. Some examples of this are the European sugar beet producers, American cotton farmers and Japanese rice farmers. For years they have all been profiting from the segmentation of the global market and from a shortage of supplies because of national production quotas.³

Price-fixing in the global agricultural markets is strongly influenced by the policy measures taken by individual trading partners: in developing countries prices were too low to provide additional production incentives for the local farmers, while for years and years they have been too high in the industrial countries. This has placed a burden on consumers and tax payers and delayed the unavoidable structural adjustments necessary in the agricultural sectors. Correspondingly, the global market has become a shrunken “surplus market“ in which, for example, fluctuations in supply caused by the weather have a considerably harsher effect than in free trade regimes. Rising production costs caused by high energy prices or changes in consumer habits in emerging markets are also becoming particularly noticeable globally in international agricultural trade.

Current price increases

Global population growth and the emergence of a financially strong middle class in emerging countries such as China and India has created together with the demand for higher-value foods such as meat will necessitate in the long-term more agricultural production for commodities such as corn, wheat or rice. The increasing use of these foods

³ Cf. OECD: Agricultural Policies in OECD Countries, Monitoring and Evaluation. Paris 2007.

as energy sources—especially if one considers the price rises in crude oil and natural gas—fuels the demand for agricultural commodities. Agricultural areas are consequently increasingly being used for the production of bioenergy products.⁴ Moreover urbanization increases the pressure on cultivable land, especially in the regions where it is scarce such as in China or Egypt since more and more agricultural land is being used for other purposes such as streets, housing and industry.

The long-term development tendencies listed here certainly point to a shortage of supply but do not seem to completely explain the dramatic price rise in the first half of this year. Thus a comparison of the production and consumption of rice and wheat in the years 1986/87 to 2006/07 shows that yearly fluctuations in production due to climatic conditions are completely normal. It is also apparent that up to now fluctuations in consumption have been relatively quickly offset by corresponding adaptation of production (Figure 2).

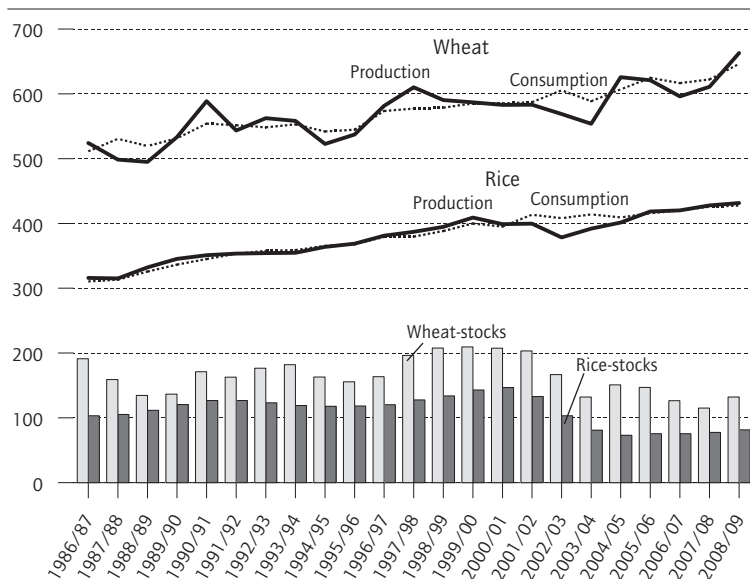
Moreover, during the last two decades, food production has been successfully expanded, especially in the developing countries including the least developed countries. At the same time the industrial countries have to a large extent stabilized their production at a level similar to that at the beginning of the 1990s. With regard to existing production potential, it is interesting that a production slump in the development countries in 1993 was more than offset by a rise in production in the industrial countries in the same year (Figure 3). However overall there has been a downward trend in productivity increases in the last few years.⁵

The most recent crop yield estimates for the current year from the FAO forecast a conspicuous rise in cereal production of 2.6 percent to a record level of 2,164 million tons.⁶ At the same time the increase in wheat production turns out to be conspicuously higher than that of other cereal varieties, with the result that the FAO expects the situation of the wheat market to normalize.⁷ A similar development has recently been observed in the dairy market: the milk shortage on global markets in the last year has led to a price increase. This price incentive, together with the increase in milk quotas within the EU, has

Figure 2

Consumption and production of wheat and rice according to crop years

In millions metric tons



2008/2009 estimation.

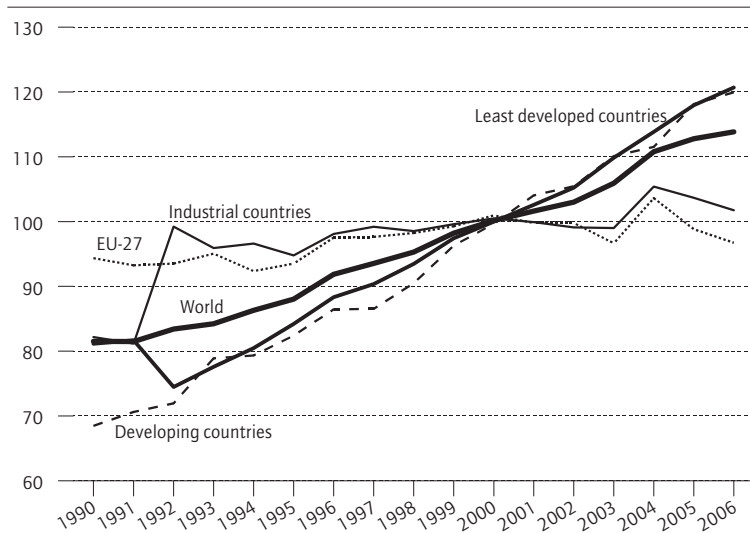
Source: US Department of Agriculture.

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Figure 3

Food production according to country groups

Index 2001 = 100



Source: FAO.

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led to an expansion in production that has in turn caused a downward pressure on prices.

Caution is therefore advisable when interpreting the present price increases in agricultural commodities. Looking at the global production processes depicted,

⁴ It remains to be seen if the optimistic scenarios presently being discussed materialize. For this cf. OECD: Biofuels: Linking Support to Performance. Roundtable 138, OECD, Paris 2008.

⁵ Cf. Braun, J. von: Poverty, Climate Change, Rising Food Prices, and the Small Farmers. Presentation at the International Fund for Agricultural Development (2008).

⁶ Similar predictions are currently being made for this year's rice crops in Thailand, India and other important Asian rice producers.

⁷ FAO: Crop Prospects and Food Situation. No. 2, April 2008, 1.

Box 1

Speculation in the agricultural markets

A large part of global agricultural trade is transacted via the commodities exchanges of Chicago (CME - Chicago Mercantile Exchange) and New York (NIMEX - New York Mercantile Exchange).¹ The futures trading carried out in these exchanges is a safeguard instrument against price fluctuations. The producer profits from fixed selling prices just as much as the purchaser. The so-called hedging comes from the purchase or sale of future delivery commitments at a current market rate. Provided that futures markets serve to attenuate actual uncertainties that arise from exogenous risks they do not fundamentally pose any risk potential to the stability of agricultural markets. In fact trade in futures contracts is an important means of stabilizing commodity markets.

However the position changes when investors in commodity futures, the so-called "noise traders",² want to achieve short-term gains through uncontrolled price fluctuations. They only enter the market in order to use their financial power to drive it in a direction they have determined in advance.³ This can have an extremely detrimental effect on normal market activities. The lite-

ature of economic theory shows that this produces price trends based on behavior anomalies that correspond to a speculation bubble. So if powerful market traders enter the commodity futures markets with the strategic goal of setting a price trend and aligning their contracts to this trend, then rising market prices can no longer be interpreted as a shortage signal. The consequence can be that a speculative bubble forms which then collapses when the trader withdraws after a short time. It is very difficult to recognize such market manipulations and to identify their perpetrators at an early stage.

¹ Both exchanges merged this March when the NYMEX was taken over by the CME-Group.

² Dow, J., Gorton, G.: Noise traders. In: Durlauf, S. N., Blume, L. E. (Hrsg.): *The New Palgrave: A Dictionary of Economics*. 2nd Edition, Upcoming.

³ Capuano, C.: Strategic Noise traders and Liquidity Pressure with a Physically Deliverable Futures Contract. *International Review of Economics & Finance*, Volume 15, Issue 1, 2006, 1-14; Johnson, J., Tellis, G.J.: Blowing Bubbles: Heuristics and Biases in the Run-Up of Stock Prices. *Journal of the Academy of Marketing Science*, 33 (2005), 486-503.

one concludes that the recent extreme upward price movements are in part speculative exaggerations (Box 1).

Trade liberalization to safeguard an adequate food supply

Short-acting supporting measures by the international community, for example through food supplies or income transfer, are inevitable in view of the present price shocks.⁸ In the mid- and long-term it is necessary to develop effective networks of social security and to enhance agricultural infrastructures such as agricultural-based research and technology in order to improve the supply situation. Secure property rights for producers, greater scope in policy making, and more efficient administration at a local level are also required. Increased efficiency in global agricultural production ultimately requires basic reforms in international agricultural policy.

For many years agricultural policy has played a major part in the negotiating rounds at the World Trade Organization (WTO). The central demand was always that industrial countries should give predo-

minantly agricultural development countries access to their markets by dropping their trade barriers and with it open up additional income opportunities. The completion of the Uruguay Round at the beginning of the 1990s actually resulted in numerous reform steps, especially in the European Union's agricultural policy (CAP). Production subsidies were gradually replaced by direct income transfers to European farmers, that is the payments were "decoupled" from the production price. Many developing countries received unilateral trade preferences in selected agricultural markets, that is they can export to the EU at lower tariff rates. For example such preferences exist for sugar and bananas. However export subsidies and indirect measures taken by the industrial countries that aid the separation of national markets continue to cause immense distortions in global agricultural markets.⁹ It is impossible to predict if the current Doha Round will result in further liberalization. A conspicuous contrast to this is the Farm Bill (289 billion US dollars for five years) passed by the US Congress in May 2008¹⁰ and with it an extension of US American subsidy policy for

⁹ Cf. Braun, J. von, Gulati, A., Orden, D.: Theses on development-oriented reforms of agricultural policy in the context of WTO negotiations from a global perspective. *International Food Policy Research Institute*, Washington D.C. 2006.

¹⁰ Cf. US Congress: Congress Passes Farm Bill. Press announcement by US Congress; and USDA: 2007 Farm Bill Proposals. United States Department of Agriculture, Status 21. May 2008.

⁸ Cf. Braun, J. von: High Food Prices: The What, Who, and How of Proposed Policy Actions. *International Food Policy Research Institute (IFPRI) Policy Brief* May 2008, Washington, D.C. 2008.

a further five years. In addition, increasing state promotion of bioenergy has led to renewed market distortions.

There is broad agreement that liberalization will increase the efficiency of global agricultural markets.¹¹ It is however arguable whether this will actually benefit those countries that are hardest hit by the current rise in food prices. There are three important factors in this:

- the net trade position,
- existing trade preferences¹² such as
- vertical structures of the agricultural value chain.

Net trade position

A reduction in agricultural protection in industrial countries reduces production incentives for the producers in those countries and offers consumers better access to the global market. For these reasons further liberalization will probably cause global market prices to rise (Figure 4). As far as products that are also produced in the poorest countries are concerned, this will result in additional revenues for those countries, e. g. in cotton or oilseeds. These revenues could be used to purchase staple foods such as rice and other cereal crops for which most of the predominantly agricultural development countries are net importers. It is anticipated that there will be positive combined effects from liberalization in the cereal importing countries of Benin, Burkina Faso, Mali, Chad and Sudan for example, which at the same time obtain an important part of their export revenues from cotton or oilseeds. However the situation is different in countries such as Burundi, Kenya, Niger or Ruanda which possess few such advantages in the agricultural sector and are reliant on investments that increase productivity to produce staple foods.¹³ It should nevertheless be born in mind that state-controlled prices for basic foods in developing countries provide local producers with few incentives for such rises in productivity. Cautious liberalization of national markets could eliminate these distortions if accompanied by social security measures.

¹¹ Modell based estimates assume that continuation of the present tariff and subsidy policies in the agricultural sector to 2015 will incur annual costs of 100 to 300 billion US dollars per year. World Bank: World Development Report 2008: Agriculture for Development. Washington D.C. 2008,103.

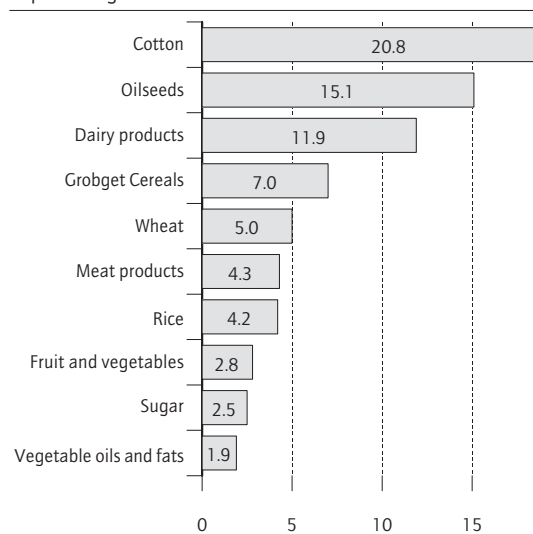
¹² Cf. I. Tangermann, S.: Organisation for Economic Co-operation and Development Area Agricultural Policies and the Interests of Developing Countries. American Journal of Agricultural Economics,87, 2005,1128-1144; Anderson, K., Martin, W. (Hrsg.): Agricultural Trade Reform & the Doha Development Agenda. Washington D.C. 2006.

¹³ World Bank, Lc., 106 f.

Figure 4

Real price rises in agricultural markets through global free trade

In percentages



Source: Anderson, K., Martin, W., van der Mensbrugge, D.: Distortions to World Trade: Impacts on Agricultural Markets and Farm Incomes. Review of Agricultural Economics 28, 168–194.

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Trade preferences

If the actual tariff rates of industrial countries could be lowered, this would bring relative disadvantage to those countries that have up to now benefited from trade preferences. This “preference erosion” reduces the advantage that favored developing countries should have been able to benefit indirectly from the agricultural protection of industrial countries. How far preferences really carry any weight depends in each case on the realized profit margin and this differs sharply from product to product. According to a IWF study, 42 percent of the revenues from trade preferences for exports to the EU, Japan, Canada, and the United States came from sugar and 19 percent from bananas.¹⁴

Vertical structures

The extent to which trade liberalization has had a positive effect depends ultimately on the structure of the value chain. Producers seldom sell agricultural commodities directly to final consumers. Instead they are bought up by traders or the manufacturing industry and pass through a transformation process before they eventually reach the final consumer via the retail trade. Because of the relative strong homogeneity of agricultural products and the large

¹⁴ Alexandraki, K., Lankes, H. P.:The Impact of Preference Erosion on Middle-income Developing Countries. IMF Working Paper WP/04/169. Washington D.C., 2004.

number of buyers and sellers, it was assumed for a long time that perfect competition existed at each individual stage of the agricultural value chain. The structure of these markets has meanwhile changed considerably. Strong concentration processes can be observed on the part of both upstream suppliers (fertilizer, pest management and seeds) and downstream wholesalers or traders.¹⁵ Correspondingly, market performance is often influenced by strategic behavior at the expense of the primary producers.

It can be seen that exporters from developing countries benefit relatively less from liberalized markets when they encounter oligopolistic vertical structures in industrial countries. This is because a high concentration on the demand side weakens their bargaining position.¹⁶ This in turn has a negative effect on producer prices and so reduces the benefits to be gained from trade liberalization. Overall it can be shown that the development of such modern value chains has increased the revenue of producers in some countries by 10 to 100 percent. During the internationalization of the agricultural value chain care should also be taken to ensure that standards of food safety and quality are not misused as new or supplementary (non-tariff) trade barriers to protect national markets from imports.¹⁷

Production incentives through organization of the value chain

In large parts of Africa, Asia and South America the production of exports such as coffee, tea, cocoa and cotton was state controlled up to the 1990s. State or half-state companies organized trade and export as well as the purchase of the means of production. This certainly overcame inefficiencies in input-markets and capital access. However the monopoly power of companies caused purchase prices and producer prices to drop and eventually led to decreased production.¹⁸ In 1980 the World Bank then called for the liberalization of state marketing with the aim of making the producers better off. If producers have more alternatives for the sale or export of their goods, they are less dependent on individual (wholesale) buyers and have less potential market power. Increasing competition in Asia and Africa following the liberalization of state buyers' monopolies consequently led to a rise in producer

¹⁵ Around 90 percent of the global cereal trade is controlled by three companies (Cargill, ADM and Bunge). An increasing concentration in retail can be observed globally.

¹⁶ Cf. Sexton, R., Sheldon, I., McCorrison, S., Wang, H. (2007): Agricultural Trade Liberalization and Economic Development: The Role of Downstream Market Power. *Agricultural Economics*, 36, 253-270.

¹⁷ Cf. Braun, J. et al., a.a.O.

¹⁸ Many studies point out shortfalls and ineffective state controlled value chains, cf. Swinnen, J. F. M., Rozelle, S.: From Marx and Mao to the Market. *The Economics and Politics of Agricultural Transition*, Oxford 2006.

prices.¹⁹ The example of cocoa market liberalization in Nigeria and the Ivory Coast confirmed this.²⁰ While liberalization in Nigeria brought about a very competitive structure in which multinational and national export firms co-existed, there was a strong concentration of the export market on the Ivory Coast. Meanwhile the five largest exporting trading concerns in the market—usually multinational companies—account for around 50 percent of the exports. According to estimates, stronger concentration of the cocoa market on the Ivory Coast favors the exercise of market power. Producer prices in Nigeria at 1,072 US dollars per ton are consequently higher than on the Ivory Coast which has 687 US dollars per ton.

However competition on the demand side can also have a negative effect by reducing the stability of credit programs for purchasing means of production. This is illustrated in the example of the Zambian cotton sector (Box 2).

Conclusion

Recently the drastic price increases in food in many countries have triggered a food crisis. At the present time it is not absolutely certain if present price rises in agricultural markets are merely an expression of relative shortages or also of speculative exaggerations. Speculative price eruptions should be checked by improved transparency in the futures markets. Population growth, the change in eating habits, increasing urbanization, and the increasing use of plants to extract bioenergy point however to the fact that there will be increasing supply shortfalls in the long run. This requires rises in productivity and expansion of cultivable land to counteract these developments. Long-term deployment of improved cultivation technology is therefore needed in addition to short-term supporting measures. This goal will not be achieved without investment in agricultural research and agricultural infrastructures. In particular smallholder production in the developing countries should be encouraged.

In addition trade barriers should be abolished, to reduce short-term price fluctuations and to increase production incentives for food producers globally. Especially vulnerable countries whose net imports are staple foods should be assisted through transfer payments and investment in local agriculture. However rises in productivity and ultimately higher

¹⁹ Swinnen, J. F. M., Vandeplas, A.: Contracting, Competition and Rent Distribution in Commodity Value Chains. In: Governance, coordination and distribution along commodity value chains, FAO Commodities and Trade proceedings, 2006.

²⁰ Wilcox, M. D., Abbot, P.C.: Market Power and Structural Adjustment: The Case of West African Cocoa Market Liberalization. Mimeo 2004.

Box 2

The Zambian cotton sector

Until 1994 both the means of production and the selling-on of cotton was controlled by a state company. Although there was some market entry by private firms during the course of market liberalization, regional monopolies developed, with the result that at first there was no competition. Individual buyers offered to supply the producers with the means of production on a credit basis. This led to a considerable increase in cotton production. The increasing attractiveness of the Zambian cotton market resulted in further market entry and led to increasing competition amongst the wholesale buyers for the raw material, cotton. Some firms which had no advance financing programs, offered higher prices,

so some producers switched over to these market newcomers despite the fact that they had already entered contracts and had locked-up credit. The consequence was an increase in loan defaults. The high loss rate led in turn to higher credit prices. This, together with a fall in producer prices due to lower global market prices, destroyed the trust between producers and buyers. The market collapsed. In this case the opportunistic behavior of the producers benefited from the increasing number of consumers and this ultimately led to the market failure that has been described.¹

¹ Brambilla, I., Porto, G.: MarketStructure, Outgrower Contracts and Farm Output. Evidence From Cotton Reforms in Zambia. Mimeo 2007.

production incentives for agricultural producers require operational capability in the markets along the value chain to safeguard competition. Consequently manufacturers of the means of production (fertilizer, seeds etc.) and wholesalers must be prevented from abusing their existing market power over the agricultural producers through international regulatory authorities.

DIW Berlin
Mohrenstraße 58
10117 Berlin

Tel. +49-30-897 89-0
Fax +49-30-897 89-200

ISSN 1860-3343
Price: Euro 10.–
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