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The **E15** Initiative

# STRENGTHENING THE GLOBAL TRADE SYSTEM



## Has the Treadmill Changed Direction? WTO Negotiations in the Light of a Potential New Global Agricultural Market Environment

Josef Schmidhuber and Seth Meyer

July 2014

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7 Chemin de Balexert, 1219 Geneva, Switzerland  
Tel: +41 22 917 8492 – E-mail: [ictsd@ictsd.ch](mailto:ictsd@ictsd.ch) – Website: [www.ictsd.org](http://www.ictsd.org)  
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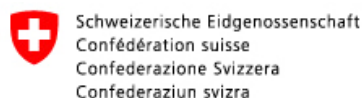
World Economic Forum  
91-93 route de la Capite, 1223 Cologny/Geneva, Switzerland  
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# ABSTRACT

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For decades technological progress had shifted supply in agricultural commodity markets outward against an inelastic demand, resulting in a trend of declining real crop prices and a falling share of undernourished people globally. However, high energy prices and the use of agricultural products for biofuel production have established new dynamics in traditionally slow-growing food markets. Agricultural output has increased since 1970, but future sustainable gains will be more difficult to achieve. The size of the energy market and a highly elastic long-term demand will lead to energy markets absorbing any "excess" production, keeping markets tight and prices elevated. The shift from a demand-constrained to a supply-constrained market environment has changed the emphasis in the food security debate.

A shift to a supply-constrained market, one where energy markets provide a large and elastic source of demand for agricultural output, has important implications for the policy process. Trade negotiations, which emphasize market access for exporters in the context of low prices, may need to be buttressed by discussions on how to address the concerns of import-dependent developing countries and those affected by export constraints, should high and volatile prices persist. The implications of a shift in the dynamics of supply and demand in agricultural markets extend to other policy arenas, including research and development policy and resource management policy.

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# CONTENTS

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<b>The traditional paradigm: agriculture in a demand-constrained environment</b>	<b>1</b>
Agricultural policy response to the traditional paradigm	1
<b>A new paradigm? Lifting the demand constraints?</b>	<b>1</b>
The rise of biofuels: new, potentially high demand from the energy sector	2
From an energy user to an energy producer	2
How could bioenergy change the traditional market outlook?	2
<b>Linking the new market environment to changes in trade negotiations</b>	<b>3</b>
The "Old Normal": policies in a demand-constrained market environment	3
The "New Normal": trade negotiations and food security	7
<b>Conclusions</b>	<b>8</b>
<b>References</b>	<b>9</b>

# LIST OF ABBREVIATIONS

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AoA	Agreement on Agriculture
DDA	Doha Development Agenda
FAO	Food and Agricultural Organization
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
GHG	Greenhouse Gas
LCFS	Low Carbon Fuel Standard
SSM	Special Safeguard Mechanism
URAA	Uruguay Round Agreement on Agriculture

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# THE TRADITIONAL PARADIGM: AGRICULTURE IN A DEMAND-CONSTRAINED ENVIRONMENT

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For decades, agricultural commodity markets have been characterized by Cochrane's treadmill in which, with each advancement in technology, supplies shift out, pressing against an inelastic demand (Cochrane 1958). Food demand for crops shifted outward with population and income growth around the world, but not at a sufficient pace to keep up with the productivity growth of several primary agricultural commodities.

The result was a trend of declining real crop prices for nearly a century. Under such circumstances, the benefits of technological progress – through increased productivity and falling production costs – were passed on to domestic consumers as well as to trading partners through lower prices and abundant supplies. As a result of these productivity gains, per capita calorie consumption rose in all countries, while the percentage – and often even the absolute number of chronically hungry people – declined. The FAO State of Food Insecurity 2013 reports that the share of undernourished people in developing countries fell from 23.6 percent in 1990–92 to 14.3 percent in 2011–13 (SOFI 2013). Over the longer-term, the results are even more impressive with a decline from 36 percent in 1969–71 (Alexandratos 2000), even if longer time series do not provide fully comparable points in time.

The FAO outlook to 2050 suggests an unabated continuation of these trends. Growth in food demand is expected to slow further with growth falling from 170 percent over the last 45 years to 60 percent in the next 45 years, rising population, accelerating urbanization and further income growth notwithstanding. Slower growth in food demand also means slower growth in resource pressure. Total arable land in use, for instance, expanded by 0.28 percent p.a. from 1961 to 2007; land expansion is expected to slow to 0.10 percent p.a. by 2050. At the same time, irrigation water withdrawals are expected to rise from 2,761 cubic km to 2,926 cubic km by 2050. The outlook suggests that future food needs could be met with roughly the same number of hectares and only marginally more water pumped for irrigation.<sup>1</sup>

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## AGRICULTURAL POLICY RESPONSE TO THE TRADITIONAL PARADIGM

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Abundant supplies resulted in falling real prices for agricultural commodities and exerted downward pressure on farm incomes. Policy-makers in developed countries aimed to arrest this downward pressure on prices and incomes by enacting various forms of price support, buffer stock programmes, or acreage set-aside schemes. While these measures succeeded in accomplishing their objectives in domestic markets, they also induced surpluses that had to be disposed of in international markets, with the effect of further lowering world prices. Fear of a competing process of supporting, stocking and subsidized exports by a small number of developed countries eventually gave rise to the Uruguay Round Agreement on Agriculture and a continuation of these negotiations under the Doha Development Agenda (DDA). The main objective of these negotiations was to reduce export subsidies, enhance market access, and circumscribe domestic support. Naturally, little attention was paid to ensuring that export flows were given abundant supplies. With low prices and abundant world stocks, such contingencies seemed unwarranted.

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## A NEW PARADIGM? LIFTING THE DEMAND CONSTRAINTS?

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An inspection of actual demand growth over the past seven years, however, suggests that this analysis of food and feed demand alone is unlikely to capture the entire demand dynamics of future agricultural markets. Higher energy prices and policies to promote the use of agricultural products for biofuel production have established a new dynamic in the traditionally slow-growing food markets. These factors also pose the question as to whether a fundamental examination of the previous demand-constrained market paradigm is warranted.

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1 | In some regions, even modest increases in withdraws could put existing water resources under additional stress.

## THE RISE OF BIOFUELS: NEW, POTENTIALLY HIGH DEMAND FROM THE ENERGY SECTOR

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Modern biofuel policies originated in the oil shocks of the 1970, followed by the return to a steady decline in real commodity prices. Brazil supported the development of a domestic sugarcane-based ethanol production industry and encouraged the creation of the needed consumer infrastructure. In subsequent years, the decline in oil prices weighed heavily on its profitability. During this same period, the US used its most readily convertible feedstock – maize – to embark on a similar strategy. Historically, policy support in both countries has been substantial, with a gradual move from subsidization to mandates or use requirements, shifting the burden from taxpayers to motor fuel consumers. The liberalization of Brazil's ethanol market occurred towards the end of the 1990s, although some tax preferences remain along with the minimum blending requirement, currently 25 percent in all petrol and some effort by the Brazilian government to keep the petrol price in blending below its market value. The US instituted direct subsidies to fuel blenders in the 1980s, which only expired at the end of 2011,<sup>2</sup> leaving a system of mandates – established in 2005 and expanded in 2007 – as the most visible and “important” means of support (Thompson et al.).

## FROM AN ENERGY USER TO AN ENERGY PRODUCER

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Prior to the recent biofuel boom, the largest direct effect of energy markets on agriculture markets was through input costs, with the agricultural sector being a large energy user for both farm and supply chain operations, as well through the use of nitrogen fertilizers derived from natural gas. Demand from the energy market through the production of biofuels and biomass for electricity generation presents a fundamentally different potential market for agricultural commodities as the size of the world energy market dwarfs the current renewable energy production from agriculture. Of course, the use of agricultural commodities for energy production is not new. In various forms, crops and production residues have contributed to the energy sector from the simple direct burn of commodities and crop residues to their more recent large-scale conversion to liquid fuels for use in the transport sector.

The use of agricultural commodities in the production of biofuels, among other factors, has increased commodity prices in recent years (Abbott et al. 2008, 2009; Dewbre et al. 2008; EC 2008; ERS 2008; IFPRI 2007; Meyers and Meyer 2008; OECD-FAO 2008, 2010; World Bank 2008; Westhoff 2010), but the relative size of both markets and the extent to which current policy actually supports prices is key to understanding potential future demand. If demand

were purely policy-driven, such policies could be managed in the same way as historic buffer stock programmes that maintain commodity price stability to support and smooth farm income at the expense of higher commodity prices to consumers (for more on potential policy options, see Box 1). The elasticity of demand would be reduced, but stability would be achieved. Indeed, biofuel policies originally envisioned that biofuels would play that exact role through market demand.

The current situation, however, might offer a different picture of future demand than that seen historically and envisioned in the FAO's long-run outlook. With the expiration of the ethanol blender subsidy in the US and in the midst of the of one of the worst droughts in half a century, there were assertions that, at the time, a waiver of the existing use mandate would have had little immediate effect on reducing demand for ethanol and therefore ethanol prices.<sup>3</sup> To a point, biofuel production has grown and, given the size of the energy market, a long-run link has been established between the two markets, which potentially provides significant long-run demand elasticity to commodity markets (De Gorter and Just 2008, Balcombe and Rapsomanikis 2008).

In a scenario of large-scale market demand for energy production inputs from agriculture to produce liquid motor fuels, petroleum prices set a long-run floor under feedstock prices and bioenergy competes with stockholding as the regulating mechanism for prices, with notable differences. Depending on the underlying price of energy, biofuels can replace stockholding as the mechanism to establish a commodity floor price. In addition, depending on the long-run price of oil, they could also serve to keep agricultural commodity prices high. This would ensure the market was in a perpetual stock-out and exposed to short run supply crunches, relying on competitive bidding between food and energy markets to resolve the allocation of remaining stocks.

## HOW COULD BIOENERGY CHANGE THE TRADITIONAL MARKET OUTLOOK?

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With the infrastructure in place, the improvements in processing technology and the high oil prices, biofuels now appear to be far more competitive, even in the absence of subsidies. Should current petroleum – or, more broadly, energy prices – be a harbinger for the future, the downward pressure on agricultural commodity prices could be a matter of the past. Such linkages could see an increased elasticity of demand which, over a range, would show an increased sensitivity to prices and thus potentially stabilize commodity

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2 | The biodiesel blenders' credit of \$1.00 per gallon expired at the end of 2013, although reinstatement has been proposed.

3 | See Irwin and Good 2012.

prices. However, the agriculture sector would also inherit the volatility of the energy and petroleum markets, as the stabilized price range varies depending on the prevailing prices in the energy sector. This new setting poses a number of questions (see Box 1).

How elastic is the agricultural supply in the long run with respect to traditional commodity demand? With the potential addition of demand for renewable energy production, what are the prospects for agriculture to deliver additional output to return prices to a downward path? It has been suggested that the supply curve may become steeper and that shifts to the right (growth in area and yields) may be more constrained in the future while the size of the energy market and a potentially highly elastic long-run demand to produce energy would significantly change the supply and demand paradigm, moving away from Cochran (1958) towards Jevons (1865) where energy and bio product uses (paints, starch, detergents) absorb any “excess” production, keeping markets tight and prices elevated.

The impact of the increased elasticity of demand also has significant implications for agricultural land and input use as well as associated greenhouse gas (GHG) emissions. On a global scale, the low historical elasticity of demand for agricultural outputs meant that technological advancements were considered “land-saving”. Hertel (2012) further explores the issue in the context of technological change and land use (instead comparing Jevons (*op. cit.*) to Borlaug). The examination shows that regional differences in supply and demand elasticities, coupled with regional improvements in technology, lead to varying changes in agriculture land area. Coupled with local land emission efficiencies, technological improvements may not lead directly to reduced GHG emissions. While much effort has been made to examine technological improvements in supply, the implications both for land use and GHG emissions from an increase in demand elasticity through the coupling of energy and agricultural markets is apparent.

High energy and bio product prices may result in a general shift in the agricultural product paradigm (from Cochrane to Jevons). If energy prices were to continue to rise in the long run, the energy market would be large enough to create (perfectly) elastic demand for agricultural products and thus siphon off any additional surplus of agricultural products. This would happen as long as the price for biofuel feedstock remains below its parity price equivalent (break-even price) in the petroleum market. In this case, the energy price would function as a floor price for food and agricultural markets (Schmidhuber 2006). As a consequence, agricultural prices would follow energy prices, at least in the long run. When it comes to the use of natural resources, energy demand would exert additional pressure on the resources needed for food production. A potentially more problematic consequence is that technological progress would lose its resource-saving effect and become resource-destroying. With elastic demand, every reduction in production costs would mean that more hectares of land are economically viable for biofuel

production and add to cropland expansion. The expansion of cropland would also take an added toll on water, biodiversity and other natural resources.

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## LINKING THE NEW MARKET ENVIRONMENT TO CHANGES IN TRADE NEGOTIATIONS

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Any shift in the dynamics between demand-driven and supply-constrained markets, or even the exacerbation of regional differences that affects import dependency, will alter the motivations of partners in trade negotiations. While providing an overview of some of the principal shifts in the conditions of world food markets and subsequent trade orientation over the past 50 years in general, and the last decade in particular, further examination of the impact on trade of a shift towards increased energy production (or other shifts in demand) is warranted.

The basic question now is how this possible change in the basic market environment would affect the trade negotiations in the future and whether and how a shift from a Cochrane-type market environment towards a Jevons-type market environment could and should be reflected in current and perspective trade negotiations. Specifically, should the agenda negotiated under the DDA be revisited with a view to addressing not only trade distortions that put a downward pressure on international prices but also to introducing *binding* disciplines that help reduce international price hikes and excessive price volatility? Questions also arise as to whether there is enough, appropriate policy space in the DDA to ensure that domestic food security measures (e.g. domestic food subsidy schemes that can trigger inelastic purchases on international food markets) are being implemented without causing or exacerbating price hikes on these markets.

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### THE “OLD NORMAL”: POLICIES IN A DEMAND-CONSTRAINED MARKET ENVIRONMENT

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The policy environment during the negotiations and the implementation of the URAA was generally characterized by (a) high and production-coupled domestic support; (b) high and often prohibitively high border protection; and (c) export subsidies necessary to dispose of domestic surpluses onto international markets. Import protection and export subsidies



## BOX 1:

Policy options to reduce the adverse impacts of biofuels on food security

### 1. Biofuel support illustrates the need to include consumer protection in the DDA negotiations

The emergence of biofuels reflects a multitude of different factors, not least higher fossil fuel prices, rising import bills, and a strong political will to become less exposed to the vagaries of international oil markets and less dependent on fossil fuels imports from geopolitically sensitive regions. Many countries have responded to these challenges by supporting the production of biofuel feedstocks or by mandating biofuel use; some have also invested in the infrastructure to produce biofuels and in R&D to make biofuels economically viable and to bring them to the consumer.

The effect of these policies on food consumers is fundamentally different from the traditional production-coupled subsidies of the past. These traditional subsidies lifted domestic producer prices, spurred production, and created supplies in excess of domestic demand with the need to dispose of surpluses onto world markets. This excess supply caused downward pressure on world prices, compromised the interests of exporting countries, and ultimately shaped much of the policy agenda of the Uruguay Round Agreement on Agriculture (URAA) and early DDA negotiations. By contrast, the subsidies and policies to promote biofuels are subsidizing feedstock consumption in the energy markets, i.e. a large non-agricultural market that can siphon off commodity supplies from agriculture without depressing agricultural prices. Instead of distorting producer interests on world markets, these subsidies buttress world prices and open new market opportunities. These effects also explain why the pressure to circumscribe these subsidies in the DDA has so far been small.

While the impacts on crop producers were overall positive, the effects of these policies leave food consumers exposed to higher food prices and higher food price volatility. This gives rise to the question of whether policy options exist to minimize unintended and undesired impacts on producers and consumers, from international commodity markets all the way to smallholder farmers and local food markets. Two principle set of options are presented here. The first suggests options to establish greater flexibility in the use and production of biofuels, the second set deals with options to harness the potential of bioenergy for food production in food-insecure settings. The DDA could stimulate a discussion in both areas.

### 2. Options for greater flexibility

A number of countries have already developed and implemented policies to enhance the flexibility of their national biofuel markets. In the US, for instance, the Renewable Fuel Standard (RFS) requires blenders to submit “credits” to cover their annual biofuel supply obligations. These credits — Renewable Identification Numbers (RINs) — are just like commodities and can be traded as such. Currently, fuel blenders are limited to carrying forward a maximum of 20 percent of their obligations in reserve. Flexibility could be improved by allowing larger RIN stocks to be held and extending their tradability beyond one year. A similar system could make Brazil's mandates more flexible and allow refiners to reduce the 25 percent blending obligation as food prices rise while still meeting the objectives of the policy in the long run. Similarly, EU mandates could be made more flexible by adjusting volumes based on underlying feedstock price movements. In addition, annual mandates could be turned into obligations to be met over five or even ten years.

California is already exploring such safety valve options. The California Air Resources Board's (CARB) Low Carbon Fuel Standard (LCFS) includes a proposal for an extended or unlimited carry-over of credits. By selling an unlimited number of credits at a fixed price, it intends to lower biofuel use and to moderate feedstock prices in periods of tight obligation credit markets while maintaining incentives to meet the obligation in subsequent periods. Those credit receipts could then be used to expand the supply of E85 to invest in infrastructure, or to subsidize producers for the reduced volume of sales, thus transferring some risk from the underlying commodity markets to biofuel producers and ultimately to motor fuel consumers.

There is also room for greater flexibility at the “pump”. Promoting Flex Fuel Vehicle (FFV) technology would allow fuel blenders and consumers to adjust their choice between fossil and biofuels in response to changes in relative prices. However, there are also risks associated with this option. For one, such investments entrench the market for biofuels, and for another, they reinforce the dependency of food prices on volatile fossil fuel markets. There is additional room for flexibility in the biofuel supply structure. Having more plants that can produce both food and fuel – such as sugar and ethanol in Brazil – rather than just ethanol, would also bring more responsiveness to energy and food markets.

There is also space in harmonizing the basic principles of biofuel policies. The authors of this paper have demonstrated that uncoordinated biofuel policies in the US, the EU and Brazil can trigger large and largely unnecessary trade flows in ethanol. To avoid this “cross trade”, it may be sufficient to harmonize the assumed/assessed greenhouse gas (GHG) emission scores, which can vary considerably between countries for the same feedstock. While the main problem of cross trade is an inefficient use of resources, a side effect of these uncoordinated policies is that they reduce the ability of local markets to respond to feedstock prices. It could amount to added (reduced) demand for maize when world maize prices are already high (low) and cause thus more price volatility than in a more coordinated system.

It may also be useful to examine policy options that introduce greater flexibility in other resource markets. Water trading – i.e. the process of buying and selling water rights – may be one such option. Drought-prone areas of the US (California’s agriculture-to-urban water transfer scheme), Chile, Australia and the Canary Islands already have water-trading schemes. The basic case for such schemes rests on their potential to reallocate water from less to more economically productive activities, within a set of prior appropriations. Applied to biofuel markets on the national level, this would ensure that prior allocation is given to food markets rather than to energy.

An extension of the water-trading scheme would be to put the burden of reducing the impacts on food consumers on biofuel users. A fee on biofuel production or on the registration of obligation credits such as RINs could be used to purchase call options on key food commodities. The call options could be exercised by low-income food deficit countries (LIFDCs) in times of price hikes. The World Food Programme or national development agencies could help implement such schemes, ensuring purchasing power for food in these countries when feedstock prices – e.g. for maize – rise. In effect, this policy would cause fuel consumers to pay slightly more for their fuels at home to provide greater price stability for poor food consumers in countries abroad.

### **3. Improving energy access for food security, jobs and rural development**

In addition to creating more flexible feedstock markets, there are options to promote food security by harnessing the power of biofuels for energy security at the local level. In many developing countries, the lack of access to affordable and continuous energy supply is the single most important factor limiting agricultural productivity, sustainable food security, and ultimately economic development. Supporting the use of bioenergy in a way that enhances food production could help improve food security.

In addition to having potential for local food production, biofuels can be a vehicle to attract investment in agriculture, create jobs in rural areas, and improve energy access outside a local environment. Targeted investment in the sector would increase crop production by smallholders, boosting yields levels, which in turn would ensure that both food and energy market demands are met. The DDA process could help analyse the exact impact of these options and identify practical policy options to (a) promote biofuels for smallholders’ food security; and (b) protect the interests of food consumers in developing countries in general and LIFDCs in particular.

exerted downward pressure on international prices and made them more volatile. Low and volatile prices, in turn, provided disincentives to farmers in developing countries, resulting in lower domestic food production; in tandem, they provided incentives for consumers to shift consumption patterns towards less expensive, subsidized imported foods.

These policies generally helped net food-importing countries with limited domestic supply capacity, low foreign exchange availability and large urban populations (among them most countries in the Near East and North African region); however, they undermined the capacity of many countries with untapped food production potential – notably in sub-Saharan Africa – to feed their own populations and, over the long run, stifled domestic productivity growth.

The URAA aimed to address these distortions by proposing and implementing a three-pillar programme that introduced stricter disciplines on (a) domestic support; (b) import protection; and (c) export competition. It also tried to address, albeit much less prominently and much less effectively, the possible negative impact of rising prices for food consumers. The URAA also provided options to support farmers in developing countries whose livelihoods were undermined for decades by the trade policy measures of developed countries. Under the URAA's so-called Marrakesh Decision, considerable policy space was accorded to ("low income/resource poor") farmers in developing countries, particularly in the area of compensatory finance, food aid, stockholding, and support to investments in agricultural productivity (Art 6.2, AoA). More generally, almost all the disciplines of the URAA aimed at limiting, mitigating or coping with the impact of depressed international prices. With the exception of the weak disciplines of Art 12 AoA (and GATT 11.1), virtually no URAA measure tried to discipline trade measures that could induce price increases on international markets, such as export restrictions, export taxes or import subsidies.

The negotiations of the DDA started in the same market environment that had determined the architecture and the negotiating strategies of the URAA. In broad terms, the DDA negotiations sought to continue, deepen and broaden the URAA efforts to circumscribe domestic support, export competition and import protection. The negotiations aimed to strengthen the sometimes non-binding nature of URAA disciplines ("squeeze remaining water out of the tariffs"), further reduce/eliminate export subsidies, and reduce farm support. The negotiating groups that represented a large number of developing countries focused their interests on extending the privileges granted to developed countries in the URAA, thus reducing the real or perceived asymmetries in the existing URAA disciplines. The draft modalities reflect these efforts in various areas, notably in an evolution of an increasingly complicated set of proposals to reduce import protection, known as the "Banded approach",<sup>4</sup> the "Blended approach"<sup>5</sup> or the "Tiered Approach"<sup>6</sup> with additional exceptions for "Special Products".<sup>7</sup> It also resulted in proposals to grant them access to special protection

options such as the Special Safeguard Mechanism (SSM), a flexible tariff scheme that allows developing countries to raise tariffs temporarily to deal with import surges or abrupt price slumps. Measures to ensure food security were also strengthened through less distortive food aid provisions (Art 10.4) with proposals to ensure that food aid remained needs-driven and that it was fully in grant form, not tied to commercial exports, and linked to development objectives. Finally, the DDA modalities included the introduction of tighter export credit provisions with strengthened rules on repayment periods, commodity space (basic foodstuffs) and interest rates (self-financing).

Although these proposals added considerable complexity to URAA's existing trade policy framework, they did not change the fundamental policy orientation focusing on the problem of low international prices and structural surpluses. Essentially the URAA and DDA trade disciplines focused on protecting producers, not consumers. A similar argument could be made when examining subsidies for biofuel production. These subsidies affect agricultural markets in a different manner than the traditional subsidies given to agricultural producers. Unlike subsidies for food production, biofuel subsidies do not result in lower international prices or in surpluses that need to be disposed of on international markets. Instead, excess production is siphoned off by the energy market and, rather than depressing international prices, these subsidies actually support them.

The lack of protection provided to consumers became increasingly evident when the overall market environment started to change in the mid-2000s. In 2007–08, crop failures in the Ukraine and Australia in conjunction with mandated demand for growing amounts of biofuel feedstock triggered the first in a series of price hikes and revealed that the international market environment had shifted from one of low international prices, high food reserves, and large structural surpluses to one of high and volatile prices, dwindling food reserves, and structural deficits.

Notwithstanding these changes in the market environment, the negotiations continued to focus on disciplines that help avert low prices and protect producers. They were only effectively halted in 2008 without having reached a consensus on such trade disciplines; in fact, these disciplines

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- 4 | **Products categorized by the height of the starting tariff.** Higher bands = steeper cuts. In the March 2003 draft modalities, the formulas in each band use the Uruguay Round (UR) approach (average cuts subject to minimums).
  - 5 | Used in the Cancún draft frameworks, the approach "blends" three formulas. The Uruguay Round approach applies to one category, the Swiss formula to another, and a third is duty-free.
  - 6 | **Products categorized by the height of the starting tariff.** Higher tiers (or bands) = steeper cuts. In the August 2004 agreed framework, this is still to be negotiated.
  - 7 | Products for which developing countries have sought extra market access flexibility for food and livelihood security and rural development.

had already lost some of their importance due to the shift in the overall market environment.

## THE "NEW NORMAL": TRADE NEGOTIATIONS AND FOOD SECURITY

The shift from a demand-constrained market environment towards a supply-constrained one has also shifted the emphasis in the food security debate. While the low price environment focused on the need to ensure sustainable food production, the high price environment brought aspects of food access and affordability to the fore (Figure 7). As food expenditure accounts for high shares of total expenditures for the poor (sometimes in excess of 70 percent), there were growing concerns that high food prices would now become the driving force of hunger and malnutrition. The spikes in undernourishment reported in 2008 and 2010 corroborated these initial concerns, even if the impacts were smaller than initially feared.

In the area of trade negotiations, the same shift in policies has not yet taken place. By and large, the DDA negotiations still focus on protecting producers. Measures to protect consumers have not received the attention that the shift to the new market environment may warrant. If such a shift in the policy debate came to pass, this could instil a new sense of purpose into the negotiation process, help resume negotiations, and even help conclude the DDA. Preparing such discussions should be supported by a shift in the research agenda for trade. A **twin-track approach** could be pursued to (a) ensure that trade policy measures help protect consumers from the negative impacts of higher and more volatile prices; and (b) at the same time, enable small producers in developing countries to harness the benefits of higher prices. With respect to consumer protection, the

research agenda would try to identify practical proposals to limit the options for, and mitigate the impact of, supply controls, export restrictions and taxes. On the producer side, the new research agenda should explore practical proposals that ensure that small-scale producers have access to better infrastructure and that they can improve access to inputs, protect their resource base, and manage their production risks more effectively.

Ensuring consumer protection and assuring importing countries of open food markets without export restrictions or import subsidies would also address some of the environmental problems that may arise from a potential shift in the overall market environment. Many developing countries, including large markets such as China and India, have been pursuing food self-sufficiency and import substitution policies as world markets were deemed unreliable, particularly in episodes of high prices where traditional exporters limited or shut down their supplies. While these import substitution policies were often instituted after episodes of high prices and international supply constraints, they sometimes remained in place for decades. A case in point is China's "Governors Grain Responsibility Policy". These policies not only result in high economic costs, they also lead to high environmental costs and further resource scarcity. In China, for instance, the need to ensure grain self-sufficiency by province led to shifts in rice cultivation to Northern provinces and aggravated existing water scarcity problems in this region. Assuring importing countries of functioning world markets, e.g. through strict disciplines on export restrictions, would provide them with an important signal to rely more on international supplies. It would also help ensure that global agricultural production is allocated in line with the comparative advantage, i.e. making sure that the additional agricultural output is produced where natural resource constraints are least binding.

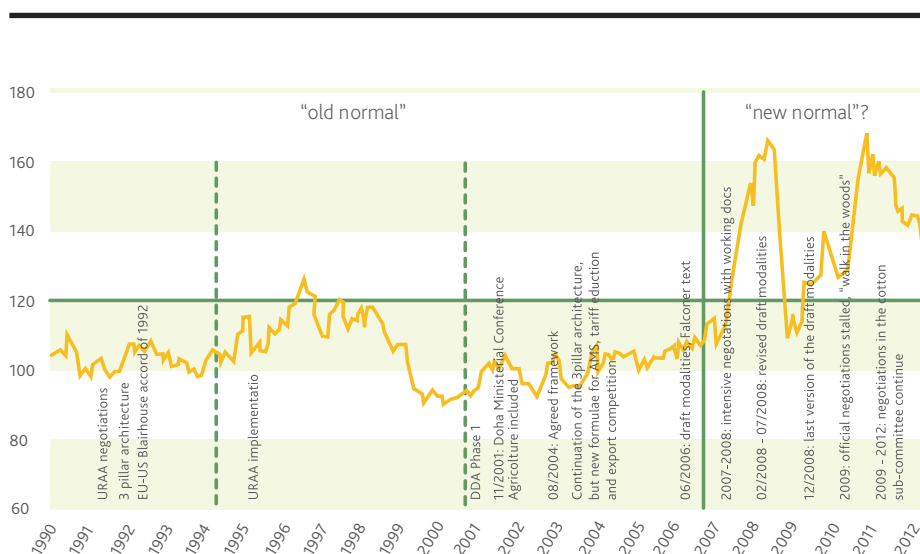


FIGURE 8:

WTO negotiation process and progress and the FAO Food Price Index (real 2002-2004=100)

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# CONCLUSION

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Several agricultural commodity prices surged in the summer of 2012, the third run-up in the last five years, and while agricultural commodity prices have moderated, they remain elevated compared to historical trends. It is unclear whether the recent price spikes are a result of transient factors, which would cause the long-run trend of declining prices to re-establish itself, or whether there has been a fundamental shift from a demand-constrained market to a supply-constrained one. A persistent shift to a supply-constrained market, perhaps one where energy markets provide a large and elastic source of demand for agricultural output, has important implications for the policy process. Trade negotiations that emphasize market access for exporters in the context of low prices may need to be supplemented by discussions on how to address the concerns of import-dependent developing countries and those affected by export constraints, should high and volatile prices persist. The implications of a shift in the dynamics of supply and demand in agricultural markets also extend to other policy arenas, including research and development policy as well as resource management policies and beyond. Under such conditions, a twin-track approach to further trade negotiations, one that ensures both producer and consumer protection, should be examined.

# REFERENCES

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- Abbott, Philip, Christopher Hurt, and Wallace Tyner. 2008. "What's Driving Food Prices?" Farm Foundation Issue Report.
- . 2009. "What's Driving Food Prices?" March 2009 Update. Farm Foundation Issue Report.
- Alexandratos, Nikos, and Jelle Bruinsma. 2012. "World agriculture towards 2030/2050: the 2012 revision." ESA working paper No. 12-03. Rome: FAO.
- Balcombe, Kevin, and George Rapsomanikis. 2008. "Bayesian Estimation and Selection of Nonlinear Vector Error Correction Models: The Case of the Sugar-Ethanol-Oil Nexus in Brazil." *American Journal of Agricultural Economics* 90: 658–68.
- Cochrane, Willard W. 1958. *Farm Prices: Myth and Reality*. St. Paul: University of Minnesota Press.
- De Gorter, Harry, and David R. Just. "Water in the U.S. Ethanol Tax Credit and Mandate: Implications for Rectangular Deadweight Costs and the Corn-Oil Price Relationship." *Applied Economic Perspectives and Policy*. Volume 30, Number 3, Fall: 397–410.
- Dewbre, Joe, Céline Giner, Wyarr Thompson, and Martin von Lampe. 2008. "High food commodity prices: Will they stay? Who will pay?" *Agricultural Economics*, 39:393–403.
- Economic Research Service (ERS), U.S. Department of Agriculture. 2008. *Global Agricultural Supply and Demand: Factors Contributing to the Recent Increase in Food Commodity Prices*. Washington, D.C.: WRS-0801.
- European Commission (EC) Directorate-General for Agriculture and Rural Development. 2008. *High prices on agricultural commodity markets: situation and prospects: a review of causes of high prices and outlook for world agricultural markets*. Brussels: Directorate L. Economic analysis, perspectives and evaluation. L5 Agricultural trade policy analysis.
- Fischer, Günther, Harrij van Velthuisen, Mahendra Shah, and Freddy Nachtergaele. 2002. "Global Agro-ecological Assessment for Agriculture in the 21st Century: Methodology and results." Rome: IIASA, Laxenburg and FAO, RR-02-002.
- Fischer, Günther, Eva Hisznyi, Sylvia Prieler, and David Wiberg. 2010. "Scarcity and abundance of land resources: competing land uses and the shrinking resource base." Thematic Report 2 prepared for SOLAW, FAO.
- Hertel, Thomas. 2012. "Implications of Agricultural Productivity for Global Cropland Use and GHG Emissions: Borlaug vs. Jevons." GTAP Working Paper No. 69, Center for Global Trade Analysis. Purdue University.
- Irwin Scott, and Darrel Good. 2012. "Ethanol – Does the RFS Matter?" *Farmdocdaily*. 2 August 2012. <http://farmdocdaily.illinois.edu/2012/08/ethanoldoes-the-rfs-matter.html>.
- International Food Policy Research Institute. 2007. *The World Food Situation – New Driving Forces and Required Actions*.
- Jevons, William Stanley. 1865/1965. In *The Coal Question: An Inquiry Concerning the Progress of the Nation, and the Probable Exhaustion of Our Coal-mines* edited by A.W. Flux 3rd edition 1905. New York: Augustus M. Kelley.
- Meyers, William, and Seth Meyer. 2008. "Causes and Implications of the Food Price Surge." FAPRI-MU Report 12-08.
- OECD-FAO. 2010. *OECD-FAO Agricultural Outlook 2010–2019*. Paris.
- . 2008. *OECD-FAO Agricultural Outlook 2008–2017*. Paris.
- Schmidhuber, Josef. 2006. "Impact of an increased biomass use on agricultural markets, prices and food security: A longer-term perspective." Rome: FAO.
- Thompson, Wyatt, Seth Meyer, and Pat Westhoff. 2009. "Renewable Identification Numbers Are the Tracking Instrument and Bellwether of US Biofuel Mandates." *Eurochoices* 8(3): 43–50.
- United Nations. 2011. *World Population Prospects: The 2010 Revision*.
- Westhoff, Pat, Wyatt Thompson, John Kruse, and Seth Meyer. 2007. "Ethanol Transforms Agricultural Markets in the USA." *Eurochoices* 6(1): 14–21.
- World Bank. 2008. *Rising Food Prices: Policy Options and World Bank Responses*.
- . 2010. *World development report 2010: Development and climate change*. Washington, D.C.

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