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INTERNATIONALES

No 2013 – 15
May

DOCUMENT DE TRAVAIL

Trade Liberalization in the Bio-Economy: Coping with a New Landscape

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TRADE LIBERALIZATION IN THE BIO-ECONOMY: COPING WITH A NEW LANDSCAPE

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HIGHLIGHTS

- New economic and political conditions, in particular the gaining influence of emerging countries, make a multilateral agreement more difficult.
- Remaining agricultural tariffs are not sufficient for extracting from emerging countries the concessions that would make an agreement possible
- Revising the agenda and the status of developing countries should be considered to revive the negotiation process.

ABSTRACT

Multilateral trade liberalization has made little progress over the last period, but preferential agreements have multiplied. Recent economic literature helps to understand the current negotiation game. New economic and political conditions, in particular the gaining influence of emerging countries, make a multilateral agreement more difficult. Developed countries have given up many of their bargaining chips in previous rounds of negotiation and their remaining agricultural tariffs are not sufficient for extracting the concessions from emerging countries on services, procurement, and intellectual property that would make an agreement possible. The risk of a more fragmented world calls for a revised negotiation agenda and a change in the status of developing countries. Research issues are outlined in order to help revitalize the Doha negotiation agenda.

JEL Classification: Q17, F10, F51

Key Words: Doha Round, World Trade Organization, Agricultural trade

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LIBERALISATION COMMERCIALE DANS LA « BIO-ECONOMIE » : UN CONTEXTE RENOUVELE

Jean-Christophe Bureau et Sébastien Jean

POINTS CLEFS

- Les nouvelles conditions économiques et politiques, en particulier l'influence croissante des pays émergents, rendent un accord multilatéral plus difficile.
- Les concessions proposées dans l'agriculture ne semblent pas suffisantes pour obtenir des pays émergents des concessions jugées suffisantes par les pays développés.
- Une révision de l'agenda et une modification du statut des pays en développement semblent nécessaires pour ranimer les négociations.

RESUME COURT

Les négociations commerciales multilatérales ont fait peu de progrès ces dernières années, tandis que les accords préférentiels se sont multipliés. La littérature économique récente aide à comprendre les enjeux actuels de négociations. Les nouvelles conditions économiques et politiques, en particulier l'influence croissante des pays émergents, rendent un accord multilatéral plus difficile. Les libéralisations des précédents cycles laissent aux pays développés peu d'atouts de négociation et les concessions proposées dans l'agriculture ne semblent pas suffisantes pour obtenir des pays émergents des concessions jugées suffisantes dans les services, les marchés publics ou les droits de propriété intellectuelle. Parer la menace d'un système commercial plus fragmenté nécessite une révision de l'agenda des négociations et une modification du statut des pays en développement. Les questions de recherche les plus pertinentes au regard des négociations du cycle de Doha sont passées en revue.

Classification JEL : Q17, F10, F51

Mots-clefs : Cycle de Doha, Organisation mondiale du commerce (OMC), commerce international, agriculture.

TRADE LIBERALIZATION IN THE BIO-ECONOMY: COPING WITH A NEW LANDSCAPE [1]

Jean-Christophe Bureau and Sébastien Jean

INTRODUCTION

The Doha Round of multilateral trade negotiation launched in 2001 has stalled. Since the beginning of the 2009 economic crisis, an increase in non-tariff barriers, export restrictions and other trade impediments has been reported, even though their actual impact on trade flows remains questionable. The proliferation of Preferential Trade Agreements (PTAs) is not only a response to the poor progress made in multilateral negotiations; it is also a way to include provisions that some countries find important, provisions which failed to be included in the World Trade Organisation (WTO) agenda due to lack of consensus. All of these developments take place at the expense of multilateral cooperation. Should the Doha Agreement be pronounced dead, the temptation for non-cooperative measures might prove particularly damaging to world trade and economic growth, given the possibilities left by the current WTO rules to erect considerable trade barriers, even without infringing on the current international discipline.

The lack of progress towards a multilateral agreement is rooted in many causes. One could cite the difficulty of conducting negotiations between 157 countries, the fact that there are now fewer benefits to expect from a new agreement, partly because previous GATT rounds and regional agreements exhausted some of the gains from liberalization, and the resulting negotiation-induced fatigue. We believe that the new position of emerging economies in world trade as well as the gap that has formed between their former and current statuses are

[1] The authors thank Antoine Bouët, Christophe Gouel and the participants of 28th IAAE Conference "The Global Bioeconomy" held in Foz do Iguaçu, Brazil, 18- 24 August 2012 for comments on an earlier version. The work was funded by the FOODSECURE project, 7th Framework Research program of the European Commission. The authors only are responsible for any omissions or deficiencies. The FoodSecure project, its partner organizations, the European Commission or any organization of the European Union are not accountable for the content of this research. This working paper is based upon a longer version, published as FOODSECURE Working Paper No. 8 under the title "International Agricultural Trade and Negotiations: Coping with a New Landscape", and available at http://www.foodsecure.eu/PublicationDetail.aspx?id=22.

key elements. The recent growth of China, Brazil, India, Russia and other countries has dramatically altered the playing field for negotiation. Emerging countries are now key players in international markets, no longer in the traditional position of developing countries. The resulting changes in the economic and political landscape have considerably affected the Doha Round, the articulation between multilateralism and regionalism and, more generally, the political economy of trade negotiations. This new situation has also changed the perception of trade liberalization in academic debates. New theories suggest that the asymmetry of potential gains considerably reduces the probability of a successful negotiation outcome. This recent literature provides a conceptual framework that explains both the stalling of multilateralism and the augmentation of PTAs. It also sheds new light on the rationale of non-reciprocal concessions and unilateral liberalization.

The increasing importance of emerging countries, the poor adequation of the multilateral framework to the new economic order, and the progression of regionalism have all had large consequences on both agricultural trade and agricultural negotiations. Even though agriculture is no longer the main stumbling block in the Doha negotiation, it plays a central role in the non-cooperative outcome currently developing. While developed countries are reluctant to give up remaining "bargaining chips" such as agricultural tariffs and subsidies without progress in other sectors, emerging countries are taking advantage of the caveats provided in the Agreement on Agriculture and the special and differentiated treatment provisions in order to expand their agricultural support and, in some cases, raise their applied tariffs or develop export restrictions. After financial services, agriculture is also the sector with the highest number of trade-impeding measures implemented during the last three years, and many of these measures have been implemented by emerging countries (Evenett, 2011).

1. A NEW ECONOMIC AND POLITICAL LANDSCAPE

The international environment no longer resembles that which prevailed at the end of the Uruguay Round. Developed countries no longer dominate global negotiations. Incentives to liberalize trade have also changed, with new economic realities, leading countries to seek regional alternatives to multilateral solutions and to implement unilateral trade measures. Perhaps more importantly, they are assign that the perception of protectionism is no longer as negative as it was before, and that faith in the benefits of global trade liberalization is fading. Even the prescriptive results derived from economic theory are not as certain as they used to be.

1.1. A change in the intellectual paradigm

The effect of increasing imports from emerging countries on those who are less mobile internationally is shifting the political balance in crisis-ridden developed countries. The benefits of globalisation are now questioned by a growing share of the population, which is no longer limited to the small fringe group that opposed trade negotiations in Seattle in 1999.

Concerns about the social costs of globalisation and increasing tensions about monetary issues translate into a mounting opposition to trade agreements in the EU parliaments and the US Congress. The topic of protectionism has reentered into electoral campaigns in many developed countries. A paradigm shift is also perceptible among economists. Academics with rather impeccable free trade credentials have expressed opinions that are less normative and prescriptive regarding trade liberalization. Some started to express doubts on their past statements regarding the role of globalisation in unemployment (Krugman, 2010). Others have emphasized the role of carefully managed trade liberalization in successful economic development, and have shown that the benefits of freer trade actually depend on institutions and on a complex set of initial conditions (Mukan and Rodrik, 2005; Pomfret 2011). The possible conflict between globalisation and national arrangements such as those permitting a social consensus in democratic countries is now a lively area of research. So are the distributive effects of trade, with the underlying idea that economists have excessively "fetishized" freer trade because it expands the economic pie (Rodrik, 2011, 2012). The desirability of freer trade used to be granted; it is now, at least, subject to caveats. The "reality check" delivered by economists such as Easterly, Hausman and Rodrik in many of their work, showed that those countries applying trade liberalization as a recipe, independently of local institutions and without identifying that such a policy addressed the proper bottlenecks, often performed more poorly than those that had chosen other paths (see Rodrik 2007, Chapter 3 for a remarkable synthesis).

Clearly, most of the fundamental results in international economics still hold and are worth being defended (as the authors quoted above do). But in the academic literature, the convergence of strategic interactions and the game theory apparatus introduced in the 1980s with the distributive and political economy aspects has led to a vision of trade negotiations based on reciprocity (Bagwell and Staiger, 2011; Raimondos-Moller and Woodland, 2011). Implicitly, this convergence explains the rationale for holding on to bargaining chips (e.g. tariffs, export subsidies) that can lead to mutual concessions in a second phase. The political economy literature also provided rational explanations for the strategic behaviour of governments, suggesting that unilateral reduction in tariffs, regardless of the behaviour of other parties, is not always a first-best optimum (Maggi and Rodriguez-Clare, 2007; Horn et al., 2010; Lang, 2011). Overall, the standard idea that a country's trade policy should not be influenced by the willingness of other countries to diminish their restraints on trade no longer appears as universal truth.

1.2. New macroeconomic conditions

The last period has been marked by increasing current account imbalances with mounting concerns about some countries using unfair practices. This issue is central to the idea that the gains from trade liberalization have been unbalanced. Economically, currency misalignments should be assessed with reference to an unobserved equilibrium real exchange rate, the estimation of which still remains controversial. Politically, the question is sensitive, most of all when dealing with such a large and influential country as China, accused of unfair

competition. Translating exchange rate concerns into trade policy terms is difficult and questionable (Staiger and Sykes, 2010). These macroeconomic issues are thus unlikely to be resolved in the international trade arena, since there is little scope for protection against currency "manipulation" in the WTO (Hufbauer et al., 2006). The issue is not simply a loophole in the WTO discipline, but rather an elucidation of deeper challenges: China resists an appreciation of its currency which would expose hundreds of millions of poor farmers to lower prices, fearing it might raise social unrest, for example. But as long as the feeling persists that important trading partners behave unfairly, it will undermine confidence in the multilateral trading system.

International supply chains have become one of the distinctive features of the ongoing process of globalisation. The international fragmentation of production processes is globalisation's "second unbundling", whereby production stages can be separated from one another (Baldwin, 2011). Developing countries can develop by joining a supply chain, which is far simpler than building a supply chain on their own. This means that industrialisation becomes easier, if also less meaningful. This trend, and more generally the example set by Asian countries in their success in export-led development strategies, has led a number of developing countries to focus on facilitating trade, exports as well as imports, since joining a supply chain means importing inputs. These policies involve changing tariffs, but also regulations, standards and infrastructure.

1.3. The rise of regionalism

A key development over the last 10 years has been the multiplication of PTAs. From 123 regional trade agreements reported to the WTO in 1995, the figure now exceeds 500, of which 233 are in force and roughly 100 are about to be (WTO figures), with a particular development in the most vibrant economic areas (Asia, South America). Concessions seen as unbalanced, along with the new strength of emerging countries, are among explanations for the success of these agreements. PTAs are cumulative and entities like the EU, which had played the multilateral card for decades and long resisted bilateralism, eventually engaged in trade-focused bilateral agreements, partly out of fear of being excluded from the network of agreements reached by their competitors.

PTAs are not only an alternative to the poor progress being made in the multilateral arena; they are also driven by a variety of factors including economic, political and security considerations. Negotiating access to large markets is sometimes seen as easier to engineer at the regional or bilateral level. For large countries, PTAs are a way to overcome the lack of consensus on some particular non-market issues in the WTO, or as vehicles for promoting deeper integration of their economies. In the case of the EU and the US, PTAs are used to promote common rules on investment, competition, trade in services, environment, and sometimes labour standards. Given the increasing importance of international supply chains, the potential benefits of such measures are highly regarded by many countries, especially those concerning manufacturing products. In agriculture, the main focus is on tariff

liberalisation and several beyond-the-border areas, such as patents, sanitary and phytosanitary measures, animal welfare standards, or mutual recognition of appellations of origin, leading to either 'WTO-plus' or 'WTO-extra' provisions (Horn et al., 2010).

This changing environment has particular consequences for the agricultural sector, which faces new demands, and whose specificity preserves its important role in the global negotiation game.

1.4. A new environment for international trade in agricultural products

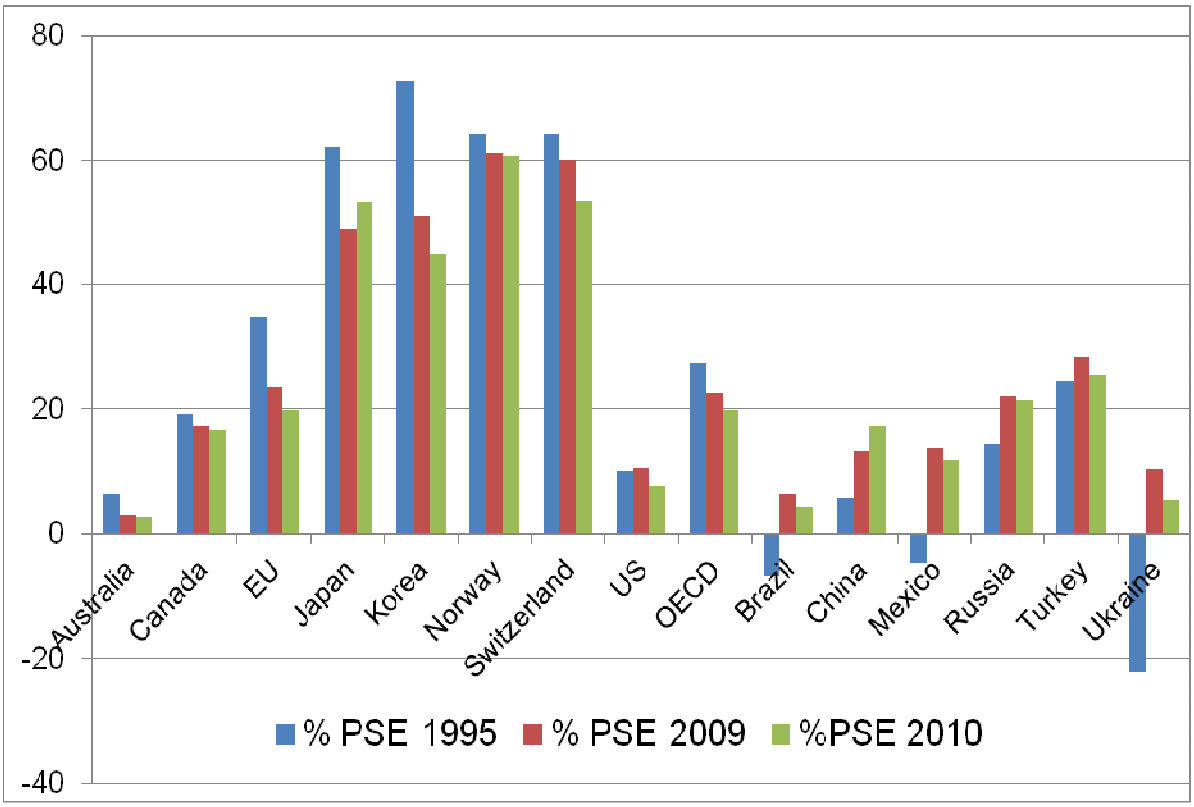
The recent succession of two food price crises raises questions regarding a possible change in context, after decades typically characterised by abundance. The possibility of entering an era of scarcity is debatable. Part of the recent demand increase was linked to the development of biofuels: almost 30% of the world's rapeseed oil and 20% of corn and sugar cane are now channelled into the production of energy. Public policies that increase the demand for energy now have considerable influence on agricultural markets, both directly and via an indirect effect linked to competition for land use. A growing population, changing diets in emerging countries, increasing use of agricultural commodities in transport fuel, global warming, and more frequent water shortages have all led to widespread expectations that changes in world market fundamentals are durable so that, from a policy point of view, the structural change is already confirmed. A correlative question concerns entry into a phase of increased world price volatility. Analysis of the data currently available on this topic does not suggest such a long term rise, despite recent episodes of volatility (Gilbert and Morgan, 2010). However, the perception of this increased volatility justifies further resistance to market liberalization.

Higher prices have made some of the policy instruments inactive, in particular the EU intervention system and some US and Canadian countercyclical instruments. They also create an environment in which third country exporters have less incentive to pressure their governments to challenge other countries' policies, at least the ones usually targeted by WTO disciplines like tariffs and domestic support. Export subsidies and credits were an important issue during the Uruguay Round, but are no longer used extensively. After the 1994 Marrakesh Agreement, many developed countries reduced the most distorting forms of agricultural support, including subsidies proportional to production level as well as price support. For the Organisation of Economic Cooperation and Development (OECD) as a whole, the ratio between domestic and border (i.e., world) prices decreased from 1.70 to 1.09 between 1986 and 2011 (Butault et al., 2012). Part of the convergence between world and domestic prices observed in developed countries was caused by the recovery of world markets at the end of the period. However, the narrowing gap between world and domestic prices also reflects less reliance on a system of guaranteed prices, particularly in the EU.

By contrast, some emerging countries have developed their subsidies to farmers very rapidly, and are using instruments that are largely coupled to production. The OECD reports a spectacular increase in support to agriculture in emerging countries, as measured by the

Producer Support Estimate (PSE): while some developed countries still support their farmers at a much higher level than emerging countries, the trend is opposite (Figure 1). Some emerging countries, including Russia and China, now support their farmers at levels that are similar to or higher than the OECD average. When expressed in real terms, i.e. in 2005 Purchasing Power Parities (PPP), the growth of support in emerging countries contrasts with the decline in developed economies (Table 1).

Figure 1. Producer Support Estimates, in percentage of production, 1995 and 2010



Source: Compiled using OECD data. Note that 2010 figures are still preliminary for some emerging countries

In particular, the real support granted to farmers in China doubled between 2007 and 2010. Many emerging countries have not yet notified their domestic support to the WTO for the most recent years, but unofficial calculations suggest that some countries (e.g., Costa Rica, India, Brazil, Thailand, Turkey) could currently be close to or above their WTO ceilings (DTB Associates, 2011). Considering total support to the sector, i.e. adding "General Services" (including research, food aid, education or infrastructure, in the OECD jargon), the picture becomes even clearer. Butault et al. (2012) show that at PPP exchange rates, the total support to farmers in China alone was almost equal to the sum of the OECD members' ones in 2010. Even at the current exchange rate, total Chinese support exceeded that of the EU and the US. As a percentage of GDP, the levels reached in Turkey (3.1%), China (3.0%), or even

Russia (1.4%), are unparalleled among developed countries, for which total support averages 0.7% of GDP. Domestic support can no longer be considered to exclusively, or even mainly, concern developed countries.

Table 1. Producer Support Estimate in nominal value, real value receipts, 2010 and percentage of farm

	PSE (NOMINAL) million euro 2010	PSE (REAL VALUE in 2005 PPP) million euro 2010	PSE, PERCENTAGE OF TOTAL RECEIPTS 2010	TSE, PERCENTAGE OF GDP 2010
New Zealand	57	51	1%	0.2%
South Africa*	300	443	2%	0.3%
Australia	719	521	2%	0.1%
Chile*	228	289	3%	0.3%
Brazil*	5,374	5,662	4%	0.5%
Ukraine*	1,298	2,943	5%	2.0%
USA	19,292	19,569	7%	0.9%
Israel*	534	545	10%	0.4%
Mexico*	4,695	7,182	12%	0.7%
China*	111,013	193,123	17%	3.0%
Canada	5,611	4,810	18%	0.7%
EU (OECD)	71,712	67,218	20%	0.7%
EU-27	76,535	-	20%	0.7%
Russia*	11,719	19,255	21%	1.4%
Turkey*	16,715	23,091	28%	3.1%
Korea*	13,184	19,366	45%	2.0%
Iceland	90	84	45%	1.0%
Japan	39,933	31,970	50%	1.1%
Switzerland	4,071	2,555	54%	1.1%
Norway	2,744	1,704	61%	1.0%

Source: Authors using OECD data and PPPs from Eurostat and the World Bank. Note that these figures for 2010 are still preliminary and might be subject to significant revisions in the future. TSE stands for Total Support Estimate, i.e. including subsidies to general services in addition to support to individual producers (see the OECD methodology). Star denotes an emerging country.

2. CHALLENGES FOR TRADE LIBERALIZATION PROSPECTS

This new landscape raises a number of challenges for trade liberalization prospects. This is particularly true for multilateral negotiations, since the Doha Agenda, set in 2001, largely echoes concerns which arose in the 1990s. Coping with the new economic and political status of emerging countries, facing the implications of past rounds and of new disciplines for

incentives to liberalize further, and updating the negotiation agenda to address concerns for the years to come are the main issues in this respect.

2.1. Adapting to the new status of emerging economies

The WTO framework includes a number of special provisions for developing countries. However, the division of Member States between the developing and developed countries has become an obstacle to negotiation, given the size and economic power of several emerging countries. Eligibility to Special and Differential Treatment (SDT) based on self-declaration by member countries is hardly selective. This categorisation is thus irrelevant and static. Bagwell and Staiger (2011) argue that SDT even prevented developing countries from benefiting from past liberalizations because they were excluded from a mutually beneficial exchange of concessions. Although this conclusion is arguable,[2] this situation certainly jeopardizes liberalization prospects by creating an asymmetry in the gains that an agreement would generate.

In the current Doha Round negotiations, emerging countries that have largely benefited from past tariff cuts for manufactured goods in developed countries seek a unilateral reduction of remaining tariffs in rich countries. Crisis-ridden developed countries are unlikely to comply as long as emerging countries continue to protect their service industries, discriminate in government procurement, and oppose tariff-free supply chain multinationals willing to access their markets rather than investing in them. More generally, the export-based growth strategy and exchange rate control of some of the major emerging countries appear at odds with the conditions for successful multilateral trade liberalization. For high-income countries, a round without much improvement in access to emerging markets is not attractive. They feel that they have already given up many bargaining chips and they are unwilling to offer the counterpart that might lead emerging countries to make adequate concessions.

In agriculture, the obstacles to obtaining the balanced set of reciprocal concessions needed to reach a multilateral agreement are numerous, as are the incentives to conclude PTAs. The 2008 draft modalities of a Doha agreement included a very significant tightening of the discipline for developed countries, but a more lenient one for developing countries, particularly in respect to domestic support, as well as lower tariff cuts. Emerging countries are still dissatisfied with it, arguing that developed countries started from higher references (support), often a higher level of tariffs, had bound some particular exemptions (such as special safeguards), and should therefore bear most of the effort. Developed countries are reluctant to grant large exemptions to the common discipline under the Development Box to countries whose agriculture has become very competitive. In the absence of an agreement, emerging countries are currently increasing their agricultural support. As a result of the

[2] Bagwell and Staiger assume that developing countries export products differ from rich countries' ones. While this used to be true, as exemplified by agricultural and textile-clothing products, the difference tends to vanish for many emerging countries, which export a large variety of manufactured products.

bargaining game, developed countries that still protect and support their agriculture tend to maintain their current policy as a leverage point for negotiation in other sectors (services, public procurement, intellectual property, etc.). Even when they no longer use particular instruments, they tend to preserve the mechanism and to make sure it can be reactivated (e.g., US export subsidies, EU public procurement).

Agriculture is also a sector of particular importance in the dynamics of regional and bilateral negotiations. Many emerging countries have strong interest in liberalizing agricultural trade. The EU and US bargaining power in bilateral negotiations has long make it possible for them to excluded some agricultural sectors they considered sensitive (e.g., sugar and dairy). In the current more balanced context, PTAs provide possibilities for reaching a compromise, with the possibility to seek to control potential trade impacts through quotas. The potential market of emerging countries nevertheless gives them more clout in regards to the PTAs that they sign, further reducing the appeal of a Doha agreement for them.

Part of the lack of incentive for further trade liberalization may paradoxically be attributed to the relative success of the WTO. The 1994 Agreement, as well as fifteen years of successful functioning of the Dispute Settlement Body have modified the gains that can be expected from a new agricultural agreement. At the same time, the multiplication of PTAs has induced a decrease in the average protection faced by the exports of the main agricultural producers. The impact of the WTO dispute settlement procedure goes far beyond actually resolving disputes; it also contributes to pre-emptive policy changes. The dispute settlement procedure of the WTO now appears so efficient that the risk is that one demand too much from it. If political solutions to disagreements among members cannot be agreed upon through negotiations and the completion of a Doha agreement, legal options will be used. Should entire policies such as agricultural subsidies or restrictions that are important for some countries (e.g., the use of genetically modified organisms) be further challenged, this might put excessive pressure on the dispute settlement procedure. Should non-elected experts and lawyers in Appellate Body panels rule too often against policies voted on by democratic parliaments, the WTO would lose legitimacy and its decisions would end up being ignored.

While the WTO has worked well, caveats to the 1994 multilateral discipline have become more apparent with the growth in domestic support in emerging countries and with the erection of new trade impediments. The Uruguay Round has left many doors open for a protectionist redux in agriculture. Special safeguard provisions are easier to trigger than in other sectors when prices fall or import volumes rise; many forms of state intervention that discriminate against foreign commercial interests are only lightly regulated by WTO rules. During the Uruguay Round, many countries were allowed to bind agricultural tariffs at very high levels that they have never and probably will never apply. The economic costs of not binding tariffs at their current level could prove much higher than the cost of not achieving further liberalisation, as illustrated by Bouët and Laborde (2010, 2012). There are large loopholes in the definition of the Aggregate Measure of Support, in particular the *de minimis* clause and the possibility to shelter large insurance payments from the discipline. In the new

market environment, the need for further trade liberalization through cuts in bound tariffs and lower AMS ceilings seems less acute than new matters of concern, such as export restraints and price volatility, currency manipulation, or issues such as the interaction between food and energy markets. The multilateral framework has not yet been able to regulate these new issues.

2.2. Updating the negotiation agenda

The new landscape described above implies that the scope of the negotiation agenda no longer responds to the most pressing needs. Several issues which now appear essential to paving the way to a deal are absent from, or neglected in, the Doha Development Agenda.

Concerns about trade liberalization and, more generally, opposition to globalisation have grown while the social costs of international displacement of activities have become increasingly apparent. In Europe, there is widespread resistance to liberalizing trade in those sectors that have suffered the most from foreign imports, such as poultry and sugar, as well as in the beef and sheep sector where social consequences of production displacement would be significant. In other countries, dependence from imports is seen as a potential social threat for consumers: Indian producers of staple food also played a significant role in the failure of the Doha negotiation in 2008. One reason for the apparent preference for PTAs is that controlling the flow of imports is made easier, either by applying smaller tariff cuts to specific products, or by managing their trade through tariff quotas or import ceilings. Allowing a list of "sensitive products" as was agreed upon in 2004, or allowing a large use of tariff rate quotas, might considerably reduce the benefits of a Doha agreement, as estimated by most modellers (Jean et al., 2011). It is nevertheless a condition for encouraging acceptance of trade liberalization by a large number of countries.

A successful negotiation agenda should address price volatility. Food price fluctuations have become a concern after the 2008 and 2011 spikes and after low farm incomes in 2009. Export taxes or bans undertaken by large countries or by many countries simultaneously result in increases in world prices. The policy of adjusting tariffs to the level of world market is also collectively damaging due to its consequences on world prices. An export restriction makes it more likely that importers will begin to panic and stockpile, thus adding to demand while other exporting countries also become more likely to restrict their exports, resulting in a multiplier effect. The WTO discipline does include provisions on export subsidies, but none on agricultural export restrictions. Discussions in the G20, and even the limited proposal to exclude humanitarian purchases by the World Food Program from such export restrictions, did not reach a consensus. Adjusting the quantities of feedstock used in biofuels could potentially play a role in the reduction of price volatility. However, given the US and Brazil's opposition to any international discipline on the limitation of biofuels, and considering the legal difficulty for regulating biofuel subsidies in the WTO (Josling et al., 2010), little is to be expected in this area.

Export restrictions not only affect prices; they also directly threaten the availability of food products. The difficulty to buy rice and wheat for a few weeks in 2008 acted as a warning for several governments. This is a crucial issue for trade negotiations. Indeed, net food importing countries tend to lose confidence in world markets as a reliable source of food supply, and, understandably, they are reluctant to liberalize imports and remove production subsidies. Export restrictions provide incentives against disarming unilaterally, but also reduces the scope for reciprocal concessions, making an agreement even more difficult. Part of the frustration over the asymmetric gains of the Uruguay Round is that Net Food Importing Countries have not been able to make their voice heard on the food security issue.

Some of the net food importing countries, emerging as well as developed, also worry about their supplies. They have engaged in long term contracts and are increasingly investing in production capacity abroad. The issue of "land grabbing", which remains outside the current multilateral discipline, also contributes to the unease of developing countries in regards to further trade liberalization. In principle, the meeting of financial capital and natural resources could be mutually beneficial, but in practice, both the NGOs and the World Bank conclude that the benefits are largely captured by investors and that local populations have much to lose (Deininger and Byerlee, 2010; Anseeuw et al., 2012). While there is little legitimacy and clearly many political obstacles to the involvement of the WTO in this issue, large scale investment in land could mean securing the investor's own supply at the expense of local populations. This can be seen as an infringement on market rules and it is thus worth negotiating an enforceable code of conduct in parallel to trade liberalization discussions.

There is a widespread concern in Northern Europe in particular, that trade liberalization will further threaten efforts made to protect the environment. This is particularly the case in climate change mitigation. The EU has introduced a very constraining cap and trade system, and there are fears of carbon leakage, in particular through the delocalisation of particular industries, mainly steel and cement. This fear is combined with anger against countries that promote the use of coal and the even more polluting tar sands, which are perceived as destroying the climate, a public good. There are growing calls for border mechanisms (e.g., the carbon tax) that prevent environmental dumping, but also provide incentives to participate in a global mechanism such as the Kyoto protocol. The consequences of these actions include frustration over a multilateral trade system that only allows limited measures in this area, and the risk of stretching the role of the WTO Dispute Settlement in global governance, should it be asked to clarify the compatibility of carbon-based border taxes with the GATT 1947 provisions. The legal international framework also creates obstacles against banning imports of unsustainable forestry products, palm oil, and livestock production that are seen as a cause of primary forest destruction. This motive of dissatisfaction with the process of trade liberalization should not be ignored. For the WTO to gain adhesion, environmental criteria should go beyond the weak provisions of Article XX of the 1947 Agreement.

3. HOW CAN RESEARCH HELP? TOP PRIORITY RESEARCH QUESTIONS ON AGRICULTURAL TRADE LIBERALIZATION

To cope with the new economic and political landscape described in Section 2, to overcome gridlock, and to address the new issues described in Section 3, bold innovations are needed. Before any well-suited answer can be devised, though, facts and mechanisms must be well understood. This is where research can be instrumental in this process, as soon as the important questions are addressed. Here, we list a few issues that deserve more attention (for a more detailed research agenda, see Bureau and Jean, 2013).

3.1. Do trade agreements generate large trade flows?

While multilateral negotiations have made little progress, many PTAs have been implemented and are here to stay. The question is not so much whether they are desirable, but how they change the debate over trade liberalization, and how the multilateral framework can adapt. Surprisingly, research on the empirical issue of whether PTAs incite trade or not has remained limited. Spatial model approaches à la Samuelson-Takayama-Judge, which have recently been the subject of a new interest in addressing this question, particularly with attempts to estimate multi-commodity spatial model reproducing quantities produced and consumed rather than traded (Paris et al., 2011). The gravity model nevertheless remains the workhorse for assessing the impact of trade liberalization on trade flows. While gravity models are consistent with a wide array of theoretical frameworks, the prolific literature that has used this approach to assess the average, aggregate trade impact of PTAs has led to highly variable results. Until recently, conceptual problems (e.g., the choice of deflator, flawed calculation of the mean across unidirectional trade flows) made the results untrustworthy (see Baldwin and Taglioni, 2006). Solutions have been proposed and better estimation techniques have been developed to cope with recurrent problems such as heteroskedasticity, the need to account for null flow, and the need to estimate the multiplicative form of the model (see Santos-Silva and Tenreyro, 2006). Two fundamental obstacles to obtaining proper estimations, i.e. Anderson and van Wincoop (2003)'s multilateral resistance factors and endogeneity biases, have been identified. While estimates of import elasticities under PTAs still vary a great deal across studies, recent assessment clearly suggests that PTAs have a positive and significant impact on trade flows (see Jean and Bureau, 2012 for a review). However, there is still a need for more extensive research, for the construction of datasets that include detailed products and progressive implementation of PTAs, and for reliable techniques to estimate the role of PTAs in the creation of new product flows, i.e. product flows that did not exist prior to the agreement.

3.2. What are the welfare and distributional consequences of trade liberalization?

The bottom line of trade liberalization assessment is the impact on welfare and income distribution. Most empirical assessments of the welfare impact of multilateral and preferential trade agreements have relied on computable general equilibrium (CGE) models. Over the last

ten years, the CGE models used to assess trade liberalization have improved in many respects (Hertel, 2012). New, more flexible and functional forms have allowed representations of consumer preferences that are more consistent with observed changes in the case of large income changes (Gohin, 2006). The reliability of key parameters like trade elasticities has improved as a result of recent empirical work (Hillberry and Hummels, 2012). New statistical methods and increased computing power have made it possible to perform extensive sensitivity analysis, a valuable step for making results more trustworthy and exploring their robustness. Most of the recent CGE models are dynamic or at least recursive, and distinguish between food and energy use in the production of agricultural products, an issue that has become central to agricultural markets (Bouët et al., 2010; Laborde, 2011). The most important improvements have perhaps taken place in data, rather than in theory, with improvements in the GTAP database and in the MAcMap-HS6 dataset, two essential steps in the quantification of the impact of trade liberalization (Guimbard et al., 2012). The World Bank's Global Income Distribution Dynamics (GIDD) project helped to couple CGE models and household survey data through post-simulation experiments or through microsimulations, an area that has experienced many new developments (Anderson et al., 2011).

However, a number of issues worth additional investigation remain. Despite their considerable budgets, the production impact (in particular through risk reduction effects and wealth effects) of programmes such as the decoupled payments (EU) and food aid (US) remains largely unknown. In agriculture, the issue of firm heterogeneity has not been treated as extensively as in the manufacturing sector, even though heterogeneity in agronomic conditions, for example, is important. Further work in this area would help calibrate the "productivity enhancement" effect of trade liberalization, a controversial issue in CGE models. Despite recent efforts to increase the scope and accuracy of information on non-tariff measures (notably through the Multi-Agency Support Team --MAST), the way in which these measures should be taken into account in global modelling exercises is still uncertain. The same remark applies to trade facilitation, despite the identification of administrative and regulatory barriers as considerable obstacles to trade (e.g., Djankov et al., 2010). The parametric structure of both CGE and PE models is such that simulations provide little information on those products when initial flows are zero. The supply side constraints are difficult to take into account even though they are important drivers of the impact of trade liberalization in agriculture, especially in developing countries. In particular, it is difficult to precisely estimate supply response under agronomic constraints, scattered water resources, and human capital limitations. In regard to the distributional and poverty impacts of trade liberalizations, the contrast is striking between the limited (sometimes "invisible") consequences identified through CGE simulations (Verma et al., 2011) and the sizeable effects estimated based on backward-looking methods (Goldberg and Pavnick, 2007). This discrepancy suggests that further work is needed to bridge the gap between these two pieces of literature, to the greatest possible extent.

3.3. Is trade liberalization a factor of food security?

International trade is often perceived as a destabilising force, as events external to local production and consumption conditions may, through trade intermediary have dramatic effects on domestic prices. It remains that trade allows for a diversification of yield risks, resulting in both a smaller variance and a smaller difference between mean and extreme events at the global scale as compared to the national scale (Wright, 2009, 2011). Overall, whether more globalised markets have contributed to reduced volatility or not remains unclear. A broader market dampens fluctuations, and there is indeed evidence that world prices are less volatile than those in countries that are isolated from the world market. However, a freer market also tends to concentrate production, often in areas with a continental climate, more prone to instability. In addition, globalized markets have made prices more exogenous, and the natural (local) hedging provided to farmers' income by the negative correlation between prices and quantities in a closed economy (as emphasized in Newbery and Stiglitz, 1984) is no longer effective.

Trade policy interventions are commonly used to stabilise domestic prices. However, the role of border measures on the evolution of world prices is still unclear (Anderson and Nelgen, 2012). If trade policy is a necessary complement to storage, in the case where a small open developing country aims at stabilising domestic prices, the drawbacks of such policies may be considerable (Gouel and Jean, 2012). Their stabilisation effects are obtained at the cost of proportionately huge distributional impacts. They may insulate producers from important market signals, give rise to fraud or avoidance, or they may be poorly designed or rely on imperfect information. The linkages between macroeconomic conditions, the energy market and a liberalized agricultural sector remain fuzzy. On all these issues, research has not yet provided sufficient compelling evidence to lift the concerns of those who fear the consequences of freer trade in terms of food security.

3.4. Does trade liberalization hurt the environment?

On this issue, important progress has been made on the environmental side by combining biophysical and environmental approaches. Recently, several integrated projects have linked different models to exploit their respective strengths, without creating mega-models with high maintenance and management costs (Britz and Heckelei, 2010). In particular, following the development of positive mathematical programming and entropy-based approaches, a new generation of hybrid models has combined non-parametric representations with econometric estimates of dual functions. Meanwhile, the development of comprehensive datasets on land use, carbon emissions, biophysical characteristics and water resources makes it possible to provide better assessments of the linkages between trade and environment (Copeland and Taylor, 2004, 2009). However, the impact of trade liberalization on environmental degradation remains difficult to disentangle from other determinants such as poor institutions, ill-defined property rights, and/or inadequate regulatory and fiscal policies.

Beyond polluting emissions, agricultural trade liberalization raises several environmental issues that are not yet well documented (e.g., the depletion of aquifers in countries that heavily export fruits, vegetables or cotton; the consequences of changes in land use following the price impact of freer trade on greenhouse gases emissions, the consequences of foreign market demand for products such as palm oil on biodiversity and deforestation, etc.; see Verburg et al. 2008; Hanley et al., 2008; Taylor, 2011). A particular difficulty with the approaches used for impact assessments is measuring the so-called 'technique' effect: the impact of trade liberalization is difficult to isolate in the progressive greening of a technology, or in the political pressure for higher domestic standards. The consequences and costs of particular externalities of trade, such as the dissemination of invasive species, a long and overlooked problem obscured by the focus on regulations as 'non-tariff barriers', still require some efforts. On all these issues, improving our understanding of the environmental impacts of trade liberalization would help in integrating more satisfactory rules in the multilateral negotiation agenda.

4. CONCLUSION

Part of the explanation for stalled multilateral negotiations lies in the gap between the negotiation framework and the new international landscape, characterized by the emergence of new economic heavyweights and a crisis in developed countries. As long as the current WTO, in particular its Dispute Settlement Body, works well, this is a lesser evil. However, without an agreement that would consolidate the current discipline, the fact that countries exploit the caveats of the Uruguay Round Agreement and increase tariffs or erect non-tariff measures, particularly in agriculture, cannot be ruled out. The uncertain legal status of agricultural subsidies, since the end of the Peace Clause in 2003, could open a Pandora's Box of recriminations, challenges, or even more "retaliations". Some emerging countries have recently legitimated trade barriers imposed on industrial products as a response to the "legal protectionism" of developed countries in agriculture. This could quickly initiate a dangerous blame game and create a temptation to increase use of the WTO dispute settlement mechanism to solve issues better suited to the political or diplomatic arena. This would expose decisions made by non-elected panellists and lawyers to increased risks of rejection, and would jeopardize the entire rule-based system.

PTAs have flourished and their attractiveness seems to be cumulative, subject to a kind of a domino effect. They are an alternative to the poor progress resulting from the Doha negotiations. They are also a way for developed countries to address issues that they find important (e.g., intellectual property, investment, public procurement, services, environmental and social protection) and that they were unable to impose within the WTO. In any case, the proliferation of PTAs bears the risk of a fragmented world, but also of preventing some countries from insertion in world trade.

Emerging countries, as latecomers, have benefited from decades of trade liberalization in the industrial sector, and they are now reluctant to agree with the demands of developed countries

in the areas of services, public procurement, and intellectual property and other non-trade issues. They also attempt to free-ride on the poorest countries to maintain a special treatment that no longer corresponds to their international status, arguing (rightly) that even their most competitive sectors are characterized by significant poverty.

Several authors have proposed ways to get out of the Doha gridlock (see for instance Baldwin and Evenett, 2011). However, the specific role of agriculture does not seem to be fully acknowledged. Agriculture plays an important role in the ongoing game. It is one of the last negotiating assets that developed countries have kept. It is hard to see the rationale of developed countries to dismantle their agricultural export pillar or their agricultural tariffs as a *bona fide* first move as in the "small package" option proposed by Schwab (2011), for example.

Following Bagwell and Staiger (2011) and Mattoo et al. (2011), others consider that the big emerging economies should now take the lead in negotiating further multilateral liberalisation and that they need to give up some of their advantages (such as the special and differential treatment) and take responsibility for their role in the negotiation by entering in a mutually beneficial game of reciprocal concessions with developed and poor countries. The poorest countries should be given guarantees in areas that matter most to them (e.g., that food exporters do not impose export barriers when prices rise, that rules of origin allow for greater ”cumulation” and that the SDT included in the Sanitary and Phytosanitary and Technical Barriers to Trade agreements eventually translates into real action). Developed countries should be granted more access to their services. Their concerns about environmental dumping, currency manipulation, and intellectual property should be addressed. And they should be requested to reduce the distortions generated by their tariffs and their agricultural support, as well as their current latitude in using safeguard clauses and *de minimis* exemptions. Recent academic work has provided a better vision of the benefits and costs of trade liberalization and clearer explanations of the causes of the current situation. Nevertheless, it has not provided us with solutions for moving away from the current non-cooperative situation in which some of the emerging countries are raising their farm support while others are erecting import barriers, in which developed countries refuse to make concessions that would leave them unarmed in future negotiations, and in which the multiplication of second-best solutions is leading to fragmented world trade.

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