Development of biofuels:

What role does trade policy play?

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Abstract

This paper highlights the importance trade policy has for the development of the biofuel industry, particularly in developing countries, together with energy and agricultural policy measures. It describes differences between the actions that developed and developing countries might take, considering their negotiating power and their capacity to use international rules currently in force, and to influence trade negotiations. It also shows the extent to which a small country can profit from WTO rules and Doha Round negotiations so as to limit developed countries' discretion and enhance their opportunities to access these large, expanding markets.

The strategic importance attached to the development of biofuels (BF)[3] in the major energy producing and consuming countries is based on several grounds, the most relevant being economic, political, environmental, and energy supply security reasons.

The increase in fossil fuel prices, the geopolitical tensions in some oil producing areas, the likelihood of scarcities arising in the medium-run, and the need to reduce emissions of polluting and greenhouse gases have generated a strong interest in the development of alternative energy sources, in the developed world as well as in the developing.

Over the last few years, BF have attracted growing interest in the United States (US) and the European Union (EU), which have based their development on similar foundations. While in the US the objective is to reduce dependence on imported fuel, and therefore, the economic vulnerability of national security, the EU aims at a three-pronged goal: to reduce greenhouse gas emissions, to achieve security in terms of energy supply, and to reduce their dependence on fuel imported from conflictive geopolitical areas.

As many countries currently have rules that mandate the use of BF, either pure or blended with oil derivatives, this product has a demand guaranteed by law. In the case of developed countries, these legal requirements create a significant consumer market, which can be supplied by either domestic or imported production.

From the economic point of view, the best-known policies that encourage the development of BF are those relating to energy and agriculture, especially subsidies for the production of raw materials and end products, fiscal incentives to BF demand, promotion of vehicles that can run on BF, and support for research and development.

Trade policy measures are gradually being incorporated into these measures. Example of these are trade barriers to the access of imported BF so as to foster domestic development, market preferences for raw materials of certain origin in particular, and technical rules that end up discriminating some of these raw materials.

Trade policy also plays a key role from the point of view of the exporter: it helps them decide whether developing countries, which are important producers of the raw material required by biofuels, will export either the end product or the raw material for the industrialization process to take place in the northern hemisphere.

Likewise, BF have given rise to a considerable new source of demand for agricultural raw materials that, apart from triggering an increase in prices and thus in the cost of food production, is causing energy to

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[3] By biofuels we mean bioethanol, biodiesel, and biogas produced using organic wastes, agricultural or agro-industrial raw materials.

play a different role in future trade negotiations, joining agriculture and industrial products in the central role they currently play, and making energy issues appear more closely intertwined with these two areas. Hence some questions arise:

(i) How will this affect trade negotiations on cuts in import duties and agricultural subsidies?;

(ii) Conversely, to what extent do current multilateral rules limit the ability of countries to encourage BF development?;

(iii) Can countries that efficiently produce agricultural goods make use of multilateral rules to develop their BF industry and, at the same time, reduce market access barriers in place in developed countries with a growing domestic market for BF?;

(iv) What impact will tariff preferences have on the direction of foreign direct investment flows?

This paper seeks to analyse the role of agricultural policies in the development of BF and answer the preceding questions. With this aim, the analytical framework that will be used throughout the rest of the paper is presented in the first two sections. This framework combines two approaches traditionally used to understand trade policy—though not always taken together: the economic analysis of the interrelation between different policy instruments, and the neo-institutionalism of international relations theory. The third and fourth sections describe the policies applied by the EU and the US, which are the two main BF consumers in the developed world. The fifth section includes an analysis of the relationship between measures to promote BF development, current World Trade Organization (WTO) rules, and the Doha Round negotiation. Conclusions are drawn at the end of the paper.

1. Biofuel support instruments: an economic analysis

Policies to foster the development of BF usually combine a set of policy instruments, the most relevant of which are: (i) domestic subsidies for the end product (ethanol and biodiesel); (ii) domestic subsidies for agricultural raw materials (sugar, maize, soya, rapeseed, among the most important crops); (iii) the modification of tariffs and other barriers to the import of the end product and of agricultural raw materials.

These instruments impact differently on resource allocation decisions. In the first place, direct subsidies to BF make it possible to reduce their prices and thus make them competitive against fossil fuels. At the same time, these subsidies can also entail a fall in imports by favouring less efficient domestic producers.

On the other hand, support for the production of agricultural raw materials may aim at two different objectives: either explicitly reducing the price of inputs used only in the production of BF, or helping farmers as part of agricultural policy objectives. The latter, however, would indirectly favour those who demand BF inputs.

Lastly, market access barriers, either by means of tariffs or non-tariff barriers, make imported BF more expensive and buttress the demand for domestic production. The same is true of barriers to the import of raw materials.

These three are some of the instruments that have historically been used to help the so-called infant industries, adducing strategic, geopolitical, and self-sufficiency reasons similar to those put forward in the case of BF.

The interrelationship between these measures is necessary: the demand for domestic output would fall if domestic subsidies were not supplemented by barriers to imports of the end product. Moreover, and depending on how incentives are designed, production subsidies might eventually be taken by local producers that use imported raw materials, which adds one more reason to raise trade barriers to inputs. On the other hand, subsidies for BF consumption could be diverted to the demand for the imported end product if there were neither aid for local producers nor tariffs nor other barriers to trade.

These measures might give rise to an increase in prices of agricultural raw materials and land, as well as a possible displacement of other agricultural productions. As a result, on the one hand, the network of sectors that benefit from these BF support measures grows and their future amendment thus becomes politically difficult; on the other hand, as farmers' income increases, the agricultural policy support they

need decreases, since part of this is inversely related to price: the higher the price, the lower the support. Therefore, an energy policy measure could act as a substitute for traditional agricultural subsidies —at least, partially— so as to meet the objective of sustaining farmers' incomes.

The link between agricultural and energy policies is also evident in what could be called the two-pronged channel of crossed impact of subsidies for end products and raw materials. A good example is the case of ethanol in the United States, where, by reason of its energy policy, the blender—that is, the one who mixes gasoline with ethanol—is subsidised.[4] Although this subsidy initially benefits blenders, it might then favour ethanol producers, and thirdly, producers of maize purchased by ethanol producers. At the other end of the chain, agricultural support to producers of maize favours its supply, but it can indirectly benefit the first demander (the producer of ethanol, in this case) and then also the second demander (the blender).

What conditions should be met for this transference of benefits between the different links of the chain to take place? To put it another way, what is the distributive impact of subsidies collected by producers at both ends of the chain?

In the case starting with the subsidy to the blender, based on a tax impact-approach, Taheripour and Tyner (2007) explain it in the following way:

1. Subsidies to the blender increase their demand for ethanol and gasoline.

2. The greater the percentage of ethanol to be used in the blend, and the more inelastic the supply of ethanol, the greater the proportion of this benefit to be received by the producer of ethanol. The more inelastic the supply of ethanol, the greater the rise in its price in response to the blender's demand. With a free blend standard, this increase in price would induce a reduction in demand; if the blend standard is mandatory, the transfer to the producer of ethanol cannot fall.

3. In turn, the producer of ethanol demands maize. The more inelastic the supply of maize, the sharper the rise in its price and the greater the benefit transferred to the farmer. Moreover, as the production of ethanol expands, its participation as a destination of maize will increase and so will the price of maize.

At the other end of the chain, the analysis is the following:

1. Subsidies for producers of maize increase its supply and reduce its price. The more elastic the supply of maize, the greater the reduction in its price.

2. Lower prices of maize reduce ethanol production costs. The transfer of benefits will be greater, the greater the yield of maize as an ethanol input is.

3. Lower production costs of ethanol will induce an increase in its supply and a fall in its price, which will benefit the blender.

Therefore, energy policy subsidies might benefit farmers and thus add to or substitute the support given by agricultural policy measures. If the proportion of this subsidy transferred to the farmer is proved to be an agricultural subsidy, it will then be subject to the multilateral trade regulations that govern agricultural support. At the same time, if agricultural subsidies entail benefits for the biofuel producer, its control at the multilateral level will imply reducing the amount of subsidies for the production of ethanol. These two aspects are resumed in section 5, after analysing the policies applied in the EU and the US.

2. Biofuel support instruments: an analysis based on the theory of international relations

At present, institutions have acquired crucial importance both domestically and internationally. From a neo-institutionalist point of view[5], in the interstate system, states must adjust their domestic policies to international rules, since these are the framework within which their actions are set. In the field of international relations, World Trade Organization (WTO) rules entail a limit to governments' room for

[4] This type of support is thoroughly described in Section 4.
[5] For an introduction to the neo-institutionalist theory, see Keohane and Nye (1988).

manoeuvre. In any case, national commitment to international rules and willingness to comply with them depend, in may cases, on the size of the economy, the specific weight of states within the international community, and the ability of international agencies to ensure their enforcement.

The mutual impact of domestic trade policies and international trade rules, especially since the beginning of the GATT, enables the use of the "intermestic" concept[6], which refers, on the one hand, to the way domestic policies impact on the development of foreign policies and on multilateral institutions. And on the other, it shows how international rules limit the states' room for manoeuvre, due to which governments will be under the pressure exerted by both domestic agents—as producers or consumers associations, etc.—and international agencies.

Compliance with rules, or the need to resort to them, will be affected by the size of the domestic economy. By way of example, we will refer to "big country" as that which can influence the international market and multilateral trade negotiations, and to "small country" as that which lacks said power.

In both cases, the decisions that should be revised are, on the one hand, those related to domestic production and support to industry—which imply deciding which BF to produce and which inputs to use—and, on the other hand, those referred to foreign trade, where the assumptions involve a "small" country that is an efficient agricultural producer and can compete in the BF market, and a "big" country which, regardless of its relative efficiency as agricultural producer, needs imports to supplement the supplies initially provided by its domestic production.

1. The case of the "small" country

In relation to the international context, this country has two options available:

a) to consider it useful information to choose one of the following alternatives at the domestic level:

i) if there is an intention to export part of the biofuel output, in order to decide which biofuel is produced—ethanol, biodiesel—and which input is used—maize, sugar, soya, rapeseed or sunflower oil—the possibilities to access the main markets should be taken into account, as well as those measures that have an impact on domestic and external demand (such as domestic support), import duties, technical rules, trade agreements currently in place, and each state's domestic needs.

ii) if there is no intention to export, other actors' decisions will inevitably have an impact on prices of raw materials used in production and on the relative profitability of alternative products. Moreover, it will be possible to take advantage of the gap left in the raw material market by current exporters moving to biofuels—e.g., maize in the United States;[7]

b) to try to modify the scenario:

In this case, three possible courses can be taken, which are not necessarily exclusive:

i) to seek or maintain preferences to access the main markets.

ii) to take advantage of other countries' access preferences in order to invest in them and thus sell BF.

iii) to discuss in the multilateral sphere the legality of measures used to encourage the development of BF, for example: the possible discrimination in market access by means of tariffs and non-tariff barriers, the improper use of subsidies, and non-registered subsidies according to WTO regulations.

2. The case of the "big" country

In contrast with the case of the "small" country, its policies depend less on what happens in other markets, and at the same time, have an impact on them. They also influence other states' decisions, and at the domestic level, the decisions made by other sectors within its own economy. For example, choosing which product and input will be subsidised can affect the international price of the end product and of its inputs.

[6] The "intermestic" concept stems from a combination of domestic and international. Although it is not part of any school of thought, it approaches neo-institutionalism because, within the international context, institutions play a key role by developing rules to be enforced by states. For a more thorough development of this concept, see Rosenau (1969) and Putnam (1988).

[7] As will be seen in section 4, in the US, the main biofuel is ethanol produced from maize. In this regard, Elobeid *et al*. (2006) present a simulation of the impact of ethanol production growth in the United States, and they conclude that, as 70% of the production of maize would be devoted to ethanol, the US would abandon a significant share of its maize export markets, while the growth of areas sown with maize would reduce soya production and exports. Since the US is the main maize exporter, the void left in the international market would be very important.

Likewise, the size of its market enables a "big" country to choose its sources of supply by granting trade preferences to certain countries, either based on raw material costs or geopolitical reasons.

Nevertheless, to the big country can either consider the context as a given or try to modify it. On the one hand, WTO rules restrict what can be done in terms of granting subsidies and applying trade measures. On the other hand, domestic decisions are used as limits to what is being negotiated in the multilateral arena.

The importance of multilateral institutions is thus worth noting, since they play a crucial role in enabling "small" countries to reach their objectives. Without them, it would be extremely difficult for "small" countries to alter the trade policies applied by "big" countries and, thus, offset international trade distortions.

Since the introduction of the interdependence theory (Keohane and Nye, 1988), according to which states are mutually dependent, while they also depend on the WTO, it can be stated that the importance of multilateralism is not the same to all actors. "Big" countries do not define the focus of their trade policies on the basis of multilateralism, and neither does it replace unilateralism in terms of establishing national policies of domestic support—in this case, for biofuels. "Small" countries, by contrast, find in multilateralism the only way to advance in the elimination of distortions to international trade. Nevertheless, the possibility that "small" states could question domestic support policies applied by "big" countries within the framework of the WTO, makes it possible to envisage a balanced scenario in which consensus could be reached. In the fifth section, reference will be made to how public policies applied by the major countries determine the course of trade negotiations, and how they can limit those countries' actions as a consequence.

3. BF in the European Union

To the EU, the development of bioenergy is a priority. In terms of the Commission (European Commission, 2007), a greater share of biofuels in its energy balance will strengthen economic sustainability by reducing its dependence on imported fuel, which is currently 50% (with prospects of growing by 70% if no measures are adopted). On the other hand, they consider that the development of this new industry will also play a key role in job creation in the small and medium-sized enterprise sector and in the reduction of carbon dioxide emissions pursuant to the commitments made under the Kyoto Protocol.

The axis of its policy was set forth in its White Paper of 1997 (European Commission, 1997) as part of the promotion of renewable energy development. It thereby set as a key objective that the share of renewable energy should reach 12% by 2010, twice the share existing at that time (6%). Said document included a schedule of tasks that comprises regulatory and fiscal measures, the reinforcement of community policies, the strengthening of cooperation between member states and the support to research and dissemination of information on bioenergy matters.

This plan was reinforced in the year 2000 when it adopted a Green Paper on energy supply security (European Commission, 2000). In this document, reference is made to the current weakness of the EU arising from its growing dependence on foreign supplies of energy.

In order to meet these objectives, in May 2003 the EU approved Directive 2003/30 on the promotion of the use of biofuels and other renewable fuel sources for transport. Member states are free to set national objectives regarding the minimum proportion of BF to be used, but taking an indicative reference value of 2% for December 2005, and 5.75% for 2010. In order to reach them, it also gives each state freedom to decide the necessary policy measures. Therefore, measures and goals are heterogeneous.

Out of all BF produced in the EU, 80% is biodiesel; Germany, France, and Italy are the major producers, and rapeseed is the main raw material (Schnepf, 2006). More than one fourth of the rapeseed produced in the Community is devoted to biodiesel. Bioethanol accounts for the remaining 20% of BF; the main producers are Spain, France, and Sweden, and the raw materials used are wheat and sugar beet. Less than 1% of the production of wheat and sugar beet is devoted to bioethanol.

In order to meet the 5.75% biofuel share target by 2010 only with Community output, the EU should use over 80% of its current oilseed area to produce biodiesel and increase oilseed imports for consumption,

making food production depend on imported grain by around 80% (Kutas *et al*., 2007). The EU will also increase imports of oils that substitute rapeseed oil devoted to biodiesel plants.

3.1. Policy instruments

The EU employs various instruments to promote BF. This analysis focuses on the three main instruments: energy policy, agricultural policy, and trade policy.

As part of the energy policy, the main incentive instrument is applied; namely, the tax reduction on biofuel consumption, which is based on the authorization stipulated in a directive on energy taxation,[8] whereby each member is entitled to set a tax reduction percentage as well as the term of said exemption.

Table 1 shows the different policies applied by some member states as regards BF blend mandates for 2010[9] as well as the tax incentive and its expiration date. It can be seen that Germany is the country which has offered the most significant tax incentive, which in part explains its preponderance as a producer within the community. Apart from these incentives, direct subsidies are given for the construction of facilities.

Table 1
Biofuel goals and tax incentive for biodiesel in some EU countries

Member State	BF share goal by 2010	Tax incentive [1]	
		Reduction by 2006 (in %)	Expiry
Germany	6.75% in energy content	81% (0.09 euros / litre for BD vs. 0.47 euros / litre for diesel)	2012
Belgium	5.75%	up to 3.37%	2010
Spain	2% (by 2005)	100%	2012
France	7%	60% limited to a maximum quantity of BD	2015

Note: BF: biofuels; BD: biodiesel.

1. Reduction of the specific tax on fuels.

Source: CEI based on USDA - FAS (2007).

Within the framework of agricultural policy, production of crops for energy is supported by direct subsidies for BF production. The 2003 Common Agricultural Policy (CAP) introduced a new type of support to promote these crops, which comprises two systems: i) direct support of 45 euros/ha for up to 2 million hectares, as long as the soils sown are not those withdrawn from regular production (set-aside regime), and that they are devoted to BF processing; ii) the possibility of sowing oil seeds for biodiesel in soils set aside from production without losing the corresponding set-aside payment. To this are added direct payments granted by the CAP for several crops, that is, support to favour an increase in the domestic supply of raw materials for BF and which constitute indirect subsidies for biofuel production, as was described in Section 1.

Community trade policy resorts to three types of instruments to foster domestic development of biofuels:

i) *Customs duties*. There are differences between ethanol and biodiesel. For example, the most favoured nation (MFN) tariff on non-denatured ethanol is 0.192 euros/litre (*ad valorem* equivalent of 63%), while it is

[8] Directive 2003/96 approved in October 2003.

[9] The year 2010 has been taken as a target because all the member states agreed on said year. Nevertheless, some establish higher blend levels up to 2012.

0.102 euros/litre (*ad valorem* equivalent of 39%) on denatured ethanol (Kutas *et al*., 2007).[10] The tariff on biodiesel is at 6.5%. These differences are also evident in tariffs on raw materials. In the case of crops suitable for the production of ethanol, tariffs are higher than those on biodiesel: while it is 95 euros/ton on wheat, (*ad valorem* equivalent around 50%), and 3.39 euros/ton on sugar (*ad valorem* equivalent around 100%), it does not exceed 9% on vegetable oils, and oil seeds are duty free.

ii) *Tariff preferences*. Several tariff preference schemes are applied on tariffs, also discriminating, in some cases, between raw materials for ethanol and biodiesel. In the case of least developed countries,[11] and with the aim of encouraging them to reduce areas sown with drug-related crops, the tariff is at 0%; for countries joining the Generalized System of Preferences, the tariff on ethanol was reduced by 15% until December 2005, but they were excluded from this regime as from December 2006. Nevertheless, beneficiary countries can import biodiesel duty free under said regime. Major exporters such as Brazil are not granted preferences for sugar, while the free trade agreements signed by the EU with Mexico and South Africa exclude ethanol from tariff exemptions.

iii) *Technical standards*. When bioethanol and biodiesel—either pure or blended—are used on vehicles, they must meet certain quality standards in order to guarantee optimal engine performance. In the case of biodiesel, the standard applied is EN 14214, established by the European Committee for Standardization (ECS). The iodine limit therein permitted acts as a barrier to exports of biodiesel produced from soya oil. Standard EN 14214 is currently under revision, and some of its parameters will probably be modified. By way of example, the iodine index will probably be modified so as to enable widespread use of oils other than rapeseed oil.

These differences in subsidies and trade barriers are also reflected in those between ethanol and biodiesel imports in value as well as in volume (Table 2).

Table 2
EU: biofuel imports

Tariff position	Product	2005		2006	
		value (thousands of euros)	volume tonnes	value (thousands of euros)	volume tonnes
220710	Non-denatured ethanol	177,265	432,530	256,921	479,933
220720	Denatured ethanol	37,550	113,640	39,792	81,213
382490 (99)	Biodiesel	1,016,800	1,109,196	968,236	1,239,774

Source: CEI based on Eurostat.

[10] The calculations of *ad valorem* equivalents made by the EU in its 2005 notification to the WTO Committee on Agriculture in Special Session are lower than those in Kutas *et al.* (2007): 43% for non-denatured ethanol, and 23% for denatured ethanol.
[11] In the framework of the Everything but Arms Initiative and of the Cotonou Agreement, applicable to African, Caribbean and Pacific countries.

Table 3 includes a summary of the different instruments available.

Table 3
Biofuels in the European Union:
support granted by the energy and agricultural policy and trade policy measures

Biofuel	Direct support	Support granted by agricultural programmes	Import duty	Trade preferences
Bioethanol Tariff position 220720: denatured alcohol 220710: non-denatured alcohol	1. Energy policy: each Member State establishes the extent of the tax exemption for biofuel consumption. 2. Agricultural policy: 0.45 euros per hectare for energy crops; maximum of 2 million hectares = 90 million euros.	Utilization of support for food crops: wheat, maize, barley and sugar beet.	MFN tariff: i) non-denatured ethanol: 0.192 euros per litre (*ad valorem* equivalent of 63%); ii) denatured ethanol: 0.102 euros per litre (*ad valorem* equivalent of 39%).	GSP: excluded since January 2006 GSP Plus: duty free for 14 countries Cotonou: duty free for ACP countries Everything but Arms: duty free for LDCs
Biodiesel Tariff position: 38249099	1. Energy policy: each Member State establishes the extent of the tax exemption for biofuel consumption. 2. Agricultural policy: 0.45 euros per hectare for energy crops; maximum of 2 millon hectares = 90 millon euros.	Utilization of support for food crops: soya oil, sunflower and rapeseed.	MFN tariff: 6.5 %	GSP: duty free GSP Plus: duty free for 14 countries Cotonou: duty free for ACP countries Everything but Arms: duty free for LDCs

Source: CEI based on Kutas *et al.* (2007), USDA-FAS (2007) and European Commission (2006).

4. Biofuels in the United States

The US government has implemented a set of measures—both at the federal and at state level—to develop alternative sources of energy, mainly ethanol. Its motives were the increase in international prices of fossil fuels and dependence on imported oil.

Consequently, energy security and supply are the first key drivers of development in this industry, followed by environmental objectives.

Ethanol accounts for almost all BF output, 95% of which is produced from maize, while the remaining 5% is produced from sorghum, barley, wheat, and potato. According to estimates of the Department of Agriculture (USDA), included in Yacobucci (2007 a), nearly 2,200 million bushels[12] of wheat should have been used to produce 6,000 million gallons of bioethanol during the 2006/2007 wheat marketing season. This implies using almost 20% of the wheat output estimated for this cycle. As ethanol accounts for 2.4% of gasoline for automobiles (measured in equivalent energy), using the entire wheat output to produce ethanol would be scarcely enough to replace slightly over 10% of consumed gasolines and around 20% of imported oil (Yacobucci and Schnepf, 2007).

This dependence on maize makes US ethanol vulnerable to problems in this cereal supply, such as droughts or plagues. Moreover, as maize accounts for nearly 80% of ethanol production costs (Schnepf, 2007)[13], its profitability is extremely sensitive to fluctuations in the price of maize. It is precisely the

[12] A bushel of wheat equals 25.40 kilograms.
[13] If sales of maize by-products obtained from ethanol distillation are deducted, its share in the cost drops to 57%.

demand arising from the ethanol industry—among other factors—what exerts pressure on the price of maize.[14]

4.1. Policy instruments

The initial stimulus to ethanol production appeared in the mid 70s as a result of the 1973 and 1979 oil crises. Ethanol production was encouraged by tax benefits for blended gasolines. Afterward, its use was promoted by the 1990 Clean Air Act, which requires that oxygenated or reformed gasolines be used. Lastly, the 2005 Energy Policy Act established renewable energy standards, including the obligation to blend gasolines with ethanol. Section 101 of the Act requires that at least 4 billion gallons of renewable energy be used in 2006, and reach 7.5 billion gallons by 2012.

The federal energy policy encourages ethanol development by means of three main instruments: i) the abovementioned renewable energy standard; ii) a reduction in ethanol consumption tax for the blender of gasoline with ethanol by 51 cents per gallon of pure ethanol;[15] iii) a tax reduction for small producers of ethanol by 10 cents per gallon for the first 15 million gallons produced, as long as their annual production does not exceed 60 million gallons (Yacobucci, 2007 b).

In the medium run, and bearing in mind the objective of blending 7.5 billion gallons of ethanol by 2012, the subsidy to the blender would amount to slightly over USD 3.8 billion. Nevertheless, amounts of support would be much higher if the real output capacity were taken into account: current projections are 11.7 billion gallons per year. If these levels of production were subsidized, the amount of support could climb to USD 5.9 billion.

Table 4 shows another element: ethanol and gasoline prices are similar when the tax credit is included. However, as the energy content of a gallon of ethanol is lower than that of a gallon of gasoline by around one third, ethanol is more expensive than gasoline if we measure them on the basis of energy equivalence.

Table 4
Wholesale price of ethanol in relation to gasoline price in the United States

Values in October - December 2006, in USD cents

		Price	Price based on equivalent energy [1]
(a)	Wholesale price of ethanol	170 - 250 cents / gallon	258 - 379 cents / gallon
(b)	Tax incentive for ethanol	51 cents / gallon	77 cents / gallon
(c = a-b)	Effective price of ethanol	119 - 199 cents / gallon	181 - 302 cents / gallon
(d)	Wholesale price of gasoline	148 - 179 cents / gallon	148 - 179 cents / gallon
(e = c-d)	Price difference	-29 - +20 cents / gallon	+33 - +123 cents / gallon

1. The energy performance of one gallon of gasoline equals that of 1.51 gallons of ethanol.
Source: Yacobucci (2007 a).

Considering the current difference between gasoline and bioethanol prices and their energy outputs, the level of subsidy should be raised in order to improve the relative price of ethanol. This higher support per gallon, in addition to an expected increase in output, might trigger complaints from exporting countries at the multilateral level, as was described in Section 5.

[14] In OECD-FAO (2006), maize price projections for 2014 are estimated to increase by 4% driven by additional demand to produce ethanol. In OECD-FAO (2007), the price of maize is expected to fall by 2016, but less than it would without the demand driven by ethanol. It is therein affirmed that the main determinant of price rises in 2006 was a fall in production due to climatic factors, followed by the demand for biofuels.
[15] In spite of being an instrument of energy policy, its origin was the *American Jobs Creation Act* of 2004, in force since 2005.

As regards biodiesel, energy policy resorts to: i) tax credit of USD 1 per gallon of biodiesel produced from vegetable oil or animal fat, and of 50 cents per gallon of blended non-agricultural biodiesel (yellow grease); both benefits expire at the end of 2008; ii) a tax reduction for small producers of biodiesel by 10 cents per gallon for the first 15 million gallons produced, as long as their annual production does not exceed 60 million gallons (Yacobucci, 2007 b).

The support granted for the production of crops for energy within the framework of the agricultural policy constitutes direct and indirect subsidies for the production of BF. The first include subsidies, loans, and loan guarantees to finance renewable energy development projects, such as biofuel plants.

The chapter on Energy of the 2007 Farm Bill, tabled by the USDA on 31 January this year, presents a proposal to expand federal research programmes focused on renewable energy and bioenergy, and to reauthorize and also expand those programmes that serve as tools to further production and marketing of said energies. Overall support is expected to total USD 1.6 billion over the next ten years.

The Farm Bill establishes that support should be granted for the production of ethanol from cellulose as a way of reducing the pressure on maize, since increases in maize prices affect industries using this cereal as input, especially in the meat sector.

Among indirect subsidies are support programmes for the production of grains included in the Farm Bill commodity programmes. Support granted under these programmes entails an annual expenditure of USD 13.10 billion. Maize accounts for around 34% of this figure (USD 4.7 billion). Since nearly 20% of the 2006 maize production was devoted to ethanol, bioethanol benefited from the USD 940 million subsidy that the commodity programme granted to maize producers.

In line with the amounts of support provided under the 2002 Farm Bill, the House-passed 2007 Farm Bill of last July increased target prices for counter-cyclical payments and marketing loans for several commodities, among them, maize. For this reason, the value of the indirect subsidy received by ethanol producers, and transferred by them to blenders, will be higher.

Trade policy employs two different instruments to promote BF:

i) *Tariffs:* The most favoured nation tariff on bioethanol is at 2.5% plus 54 cents per imported gallon (or 14 cents per litre);[16] supposedly, this has been established as a mechanism to prevent imported ethanol from benefiting from the 51-cent fiscal credit granted to the blender per gallon of ethanol blended with gasoline. As the *ad valorem* equivalent of this specific component is 46% (Kutas *et al*., 2007), this tariff would offset lower production costs in other countries, such as Brazil, where costs would be between 40% and 50% lower (Kutas *et al*., 2007; Yacobucci, 2006). The tariff on biodiesel is at 4.6%, and free access is granted to countries with which free trade agreements have been signed.

ii) *Tariff preferences*. The US has negotiated preferential trade agreements with Central American and Caribbean countries (*Caribbean Basin Initiative – CBI*) mostly aimed at promoting political stability and development in the region. Pursuant to these agreements, the ethanol produced in the region can enter the US duty free as long as 50% of its content is domestic or, if this condition is not met, as long as its share in the US market does not exceed 7%.

In any case, hydrated ethanol produced in other countries could be sent to a dehydration plant in a CBI country to be reprocessed and then exported to the US market duty free, even if most of the production process took place in other countries, which implies that what counts is only the last stage in the production chain, i.e., dehydration of distilled alcohol to remove any remaining water.[17] At present, the share of Central American ethanol is below 3% (Yacobucci, 2006).

Duty-free imports of ethanol, especially from Costa Rica and El Salvador, have played a key role in the DR-CAFTA (Dominican Republic-Central America Free Trade Agreement) negotiations[18], passed by Congress in 2005 (Yacobucci, 2006).

[16] The specific component is taxed if ethanol is used as fuel.

[17] This sort of triangulation of Brazilian and European exports to the US is already taking place (Koplow, 2006). Moreover, some Brazilian companies are now investing in ethanol production plants located in CBI beneficiary countries.

[18] Free Trade Agreement signed by the US, Central America (Costa Rica, Nicaragua, El Salvador, Honduras, Guatemala) and Dominican Republic.

In an *a priori* analysis, some estimates of the effect of these measures on prices show the expected signs. Koplow (2006) summarizes several studies which prove that biofuel minimum blend standards would increase the wholesale price of ethanol, but also, on the other hand, that federal- and state-government subsidies for industry would prevent any impact on consumer prices. He also presents another study that, by means of a partial equilibrium model, simulates the impact of liberalization of ethanol imports from Brazil; the result indicates that the price of ethanol would drop by 13% on average and domestic production would fall by 7% on average.

Koplow (2006) made his own estimations of the overall measure of support for ethanol and biodiesel production, granted by means of direct payments, tax reductions, and barriers that increase the end price—e.g., blend standards and import duties—similar to the agricultural support estimate annually carried out by the OECD. Consequently, he combined support given within the framework of different policies. According to his calculations (Table 5), overall support for ethanol amounts to almost USD 8.7 billion on average, nearly four times that given for biodiesel. In the case of ethanol, most of the support arises from the consumption tax reduction granted to the blender, followed by the impact of the blend standard, the tariff, and the support that the agricultural policy grants for maize production. As for biodiesel, almost 90% of the support is explained by the consumption tax reduction that benefits the producer of biodiesel.

Table 5
Overall support for the production of biofuels in the US

Annual average with an expected average output in the medium run

	ethanol		biodiesel	
	millions of USD	%	millions of USD	%
Price support [1]	1,620	19	0	0
Reduction in consumption tax	4,365	50	2,049	89
Support for the producer of maize	1,368	16	0	0
Support for the producer of soya	0	0	33	1
Others	1,326	15	224	10
Total	8,679	100	2,306	100

1. It includes biofuel blend standards and barriers to imports

Source: CEI based on Koplow (2006).

In contrast to what happens in the EU, differences in ethanol and biodiesel subsidies and trade barriers are not reflected in the relative magnitude of ethanol and biodiesel imports (Table 6). The fact that ethanol is the predominant biofuel is thought to be the reason why its imports are higher. Nevertheless, the tariff level could in part explain why the share of imports in the domestic consumption of ethanol does not exceed 10%.

Table 6
US: biofuel imports

Tariff position	Product	2005		2006	
		value	volume	value	volume
		(thousands of USD)	(thousands of litres / tonne)[1]	(thousands of USD)	(thousands of litres / tonne)[1]
22071060	Non-denatured ethanol	309,432	729,954	1,477,661	2,478,609
22072000	Denatured ethanol	27,416	73,437	117,883	238,391
38249040	Biodiesel	73,721	49,140	176,621	175,234

1. Ethanol in thousands of litres; biodiesel in tonnes.

Source: CEI based on USITC.

Table 7 includes a summary of the different instruments available.

Table 7
Biofuels in the United States:
support granted by the energy and agricultural policy and trade policy measures

Biofuel	Direct support	Support granted by agricultural programmes	Import duty	Trade preferences
Bioethanol Tariff position: 22071060	1. Energy policy: a) federal: i) USD 0.51 per gallon of blended ethanol. In 2006, overall support amounted to USD 2.5 billion. ii) Tax credit for small producers of ethanol (USD 0.10 per gallon). b) state: research, development and facility building programmes. 2. Agricultural policy: Subsidies for R&D and proposed support for the production of cellulosic ethanol.	Support for ethanol granted by the commodity programme for maize. In 2006, 20% of the maize production was devoted to ethanol. As overall support for maize amounted to USD 4.7 billion, ethanol production benefited from the USD 940 million of indirect support.	MFN tariff: 2.5% + USD 0.54 per gallon (14,27 cents per litre) (*ad valorem* equivalent of 46%). The specific component is taxed if ethanol is used as fuel. The aim of this component is to prevent imported ethanol from capitalizing on the tax exemption benefit.	Free access: Central American and Caribbean countries, Israel and Mexico. For Central American and Caribbean countries, as long as it contains 50% of domestic raw materials o its share in the US market does not exceed 7%.
Biodiesel Tariff position: 38249040	1. Energy policy: USD 1 per gallon of biodiesel blended with diesel. Estimated output for 2005: 75 million gallons. 2 Agricultural policy: Subsidies for R&D.	Support for biodiesel granted by the commodity programme for soya. In 2004, 6.3% of the soybean oil production was devoted to biodiesel.	MFN tariff: 4.6%.	Free access: Australia, Bahrain, Central America and the Caribbean, Chile, Ecuador, Israel, Jordan, Malaysia, Mexico, Peru, Singapore.

Source: CEI based on Kutas *et al.* (2007) and Yacobucci (2006 and 2007 b).

5. Multilateral negotiations and rules

No global debate on trade in biofuels and on the adjustment of trade policies and levels of support to WTO rules has taken place so far. However, this is very likely to change since support to biofuels will be raised, especially in the US, as was described in the previous sections.

Subsidies originating from energy and agricultural policies will tend to increase as more gallons of ethanol are blended with the fossil fuel, and larger volumes of maize are devoted to ethanol production. Part of the funds corresponding to Farm Bill commodity programmes will be transferred to ethanol and biodiesel, and their classification as distorting subsidies will necessarily be on the agenda for forthcoming agricultural negotiations in the WTO Doha Round.

The current development of the US bioethanol industry is, to a great extent, the result of official incentives, which were essential to enhance this sector's growth and competitiveness. The wholesale price of biofuel is currently higher than that of gasoline, and it is the aim of subsidies to eliminate said difference. Nevertheless, as was seen in section 4, for ethanol to be able to compete with gasoline, support for bioenergy should be raised. On the other hand, as the goal of the Executive is to reach greater volumes of blend, the aggregate measurement of support through tax exemptions will progressively increase, and unlike what has been established in some European Union states, regulations on tax incentives to ethanol blend have no expiry date in the US.

Delays and difficulties to reach an agreement in multilateral negotiations make federal states defer their commitments to reduce domestic support and export subsidies. In this scenario, governments are very likely to devote higher levels of domestic support to biofuel production, especially taking into account the difference in costs compared with conventional gasolines as well as the fact that the development of bioenergy is among US and the EU energy policy priorities.

However, domestic support for the production of ethanol in the US has recently been called into question in the multilateral sphere. Therefore, during the consultations held by the Doha Round Committee on Agriculture in Special Session (CoASS) on 24 May 2007, Argentina and Canada pointed out that subsidies granted by the US for ethanol production have an impact on domestic support for maize. The US Aggregate Measurement of Support (AMS)—a measurement of Amber Box levels of support—will be reduced by a percentage to be determined by the current Doha Round. Hence the importance of determining the impact of subsidies for ethanol on the level of the Aggregate Measurement of Support (AMS) given by the US.[19]

On the other hand, last July Brazil requested consultations with the US within the framework of the WTO Dispute Settlement System in relation to domestic support measures for agricultural products (1999-2005) (WTO, 2007 c),[20] making specific reference to subsidies for the production of biofuels (labelled as "energy subsidies") given between 2002 and 2005.[21]

In both cases, there are two questions relating to distorting support for bioethanol that are worth clarifying. The first one is whether it is an agricultural product or not, and therefore, whether it is within the scope of the Agreement on Agriculture (AoA). The second one is the extent to which subsidies applied to bioethanol constitute an agricultural subsidy.

As regards the first question, the AoA does not define what an "agricultural product" is, but it just indicates, in a non-exhaustive manner, its scope of application, listing "agricultural products" in Annex 1.[22] In the current classification, ethanol appears in chapter 22, and is therefore an agricultural product, unlike biodiesel, which is included within chemicals under chapter 38.

However, with the aim of identifying the AMS given to agricultural producers, the AoA states that it shall be calculated "as close as practicable to the point of first sale of the basic agricultural product concerned"

[19] According to Hart and Babcock (2007), the US applied AMS is estimated to have reached USD 7.43 billion in 2006. Including the part corresponding to subsidies for ethanol would increase the AMS amount and commit the US to higher cuts in its applied level.
[20] Canada had previously requested consultations with the US in relation to the granting of subsidies and other domestic support measures for maize and other agricultural products (WTO, 2007 a). By document WT/DS357/11 dated 8 July 2007, it requested the establishment of a "special group" (WTO, 2007 b).
[21] Annex I, page 5 of WTO (2007 c).
[22] Chapters 1 to 24, except for chapter 3 of the Tariff Nomenclature, with some tariff lines included in other chapters.

(Paragraph 7 of Annex 3 to the AoA). Likewise, the same paragraph of the AoA points out that the AMS will also include measures directed at agricultural processors "to the extent that such measures benefit the producers of the basic agricultural products".

Therefore, as regards the second question, whether bioethanol is an agricultural product or not is irrelevant to the calculation of the AMS. What is decisive is that, even if said subsidies are provided for processed products other than those included in Annex 1 to the AoA, they will benefit agricultural producers.

In this regard, some authors (Blandford and Josling, 2007; Orden, 2007) claim that, although the tax exemption for ethanol in the US is not part of the Farm Bill, it is in itself a policy instrument closely tied to production and marketing decisions—and it is therefore, a distorting instrument. Said instrument is reinforced by high import duties. This is why they claim that there are grounds to sustain that the net cost of tax exemptions should be included in the Amber Box. Orden (2007) considers that ethanol markets have evaded several WTO disciplines and states that it is not clear how they will withstand closer WTO scrutiny.

At present, the World Customs Organization (WCO) is considering a "possible amendment to the Nomenclature for biodiesel".[23] Pure biodiesel is classified under Chapter 38 (Miscellaneous Chemical Products), and its regrouping under Chapter 27 (Mineral Fuels, Mineral Oils and Products of their Distillation, Bituminous Substances, and Mineral Waxes) is currently under consideration. Meanwhile, in March 2005, the WCO agreed[24] on tariff classification 382490 for the case of ethanol.[25] At present, the WCO Secretariat proposes a categorization into six groups which would include ethanol within the AoA scope of application.[26]

Leaving aside the trade impact of these changes and the underlying national interests, it is worth wondering what the eventual consequences of binding BF tariffs outside the scope of the AoA would be. On the one hand, the US seems to currently justify its failure to include biofuels in the AMS on the grounds that they are not listed in Annex I to the AoA. However, the Agreement is clear as regards how the AMS is calculated: subsidies for biodiesel, as well as subsidies for ethanol, should be included in the AMS as far as they entail benefits for agricultural producers. In this sense, another issue should be addressed: how to calculate the benefit percentage transferred to the agricultural producer, which was not contemplated in the AoA.[27]

However, should a controversy arise in the WTO in the future, the application of the AoA in relation to subsidies for biodiesel and bioethanol production could be called into question on the grounds that, due to their tariff position, they are beyond the scope of application of said agreement. If this argument were to prevail, the rules applicable to said subsidies would be circumscribed to the Agreement on Subsidies and Countervailing Measures. In this regard, said Agreement establishes that tax credits are subsidies and can be appellable if they are proved to cause serious damage to another producing country; for example, if they reduce the market for imported products or if they favour exports. This should also be demonstrated if the effects of agricultural subsidies for energy crops classified as green box—those that supposedly cause a minimal distortion or none—were questioned. Therefore, a change in tariff classification could make it more difficult to challenge support for BF.

The future development of this question, both in the sphere of underway agricultural negotiations and within the scope of the Dispute Settlement Body, will have a very strong impact on the new rules that will govern international agricultural trade.

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[23] 35th Session of the Harmonized System Review Sub-Committee of the World Customs Organization (WCO), 11–17 May, 2007. Document NR0677E1a of the WCO. Brazil proposed the creation of a new heading— 12.17—so as to cover biofuels including alcohol fuels and biodiesel.

[24] 35th Session of the Harmonized System Committee (14-24/3/05), chaired by the US: "After further discussion, when the issue was put to a vote, the Committee decided, by 20 votes to 1, to classify biodiesel in heading 38.24 (subheading 3824.90) by application of GIRs 1 and 6" (Paragraph 5 of Annex H/2 to the Report on Item VIII.2 of the Agenda).

[25] "Other Prepared binders for foundry moulds or cores; chemical products and preparations of the chemical or allied industries (including those consisting of mixtures of natural products), not elsewhere specified or included."

[26] The WCO put forth the following classifications: 1) 22.07: anhydride denatured ethanol (99,6%); 2) 22.07: hydrated denatured ethanol (95.1%); 3) 22.07 or 38.24: anhydride ethanol blended with less than 50% per weight unit of petroleum oil; 4) 22.07 or 38.24: anhydride ethanol blended with 50% per weight unit of petroleum oil; 5) 22.07 or 38.24: anhydride ethanol blended with more than 50% but less than 70% per weight unit of petroleum oil; 6) 22.07 or 27.10: anhydride ethanol blended with 70% or more per weight unit of petroleum oil.

[27] A first theoretical approach was presented in Section 1 of this paper.

On the other hand, Doha Round negotiations may affect, through two simultaneous channels, the US and EU biofuel promotion policies. In the first place, one of the questions under discussion is the level of reduction in agricultural domestic support. Depending on the magnitude of the cut, effective support for maize—in the US—and for sugar—in the EU—could be lowered, by reducing an indirect subsidy for biofuel production.

In the second place, negotiations on import duty reductions are underway. In this case, ethanol and biodiesel tariff reductions are negotiated in different spheres: the former, in the Committee on Agriculture in Special Session; and the latter, in the Negotiating Group on Market Access. The sharpest reduction is expected to be applied in non-agricultural products, where, in turn, developed countries would not be entitled to apply a lower tariff cut, which, on the contrary, could be done in agriculture by designating a product as "sensitive".

Likewise, if the EU does not modify the technical rules that hinder market access to biofuels produced from soya oil, consultations with the WTO Committee on Technical Barriers to Trade may be initiated and, afterwards, complaints can be brought before the Dispute Settlement Body.

6. Conclusion

This paper has analysed the current situation of biofuel development in the United States and in the European Union, since these are now the main driving forces behind BF production through fiscal incentives and direct support for agricultural production.

Although biofuels are currently regarded as an alternative to prevent dependence on fossil fuels, it is generally agreed that they do not constitute a solution for the energy sector since this would require a far greater volume of maize and vegetable oil production. As was pointed out in sections 3 and 4, even devoting the entire maize and oil production to biofuels, only a small proportion of the overall demand for fuels would be met. For this reason, biofuels will be a supplement rather than a substitute for fossil energy.

This paper also presented a preliminary approach to the link between domestic support for production and multilateral negotiations, especially within a context of progressive growth of support levels on the basis of an increasing blend of biofuels with conventional gasolines, mainly in the United States.

With geopolitical, economic, and environmental objectives, both the EU and the US have established ambitious action and incentive plans for this new industry, since biofuels would not be competitive without them because their production costs are higher than those of fossil fuels. Official support created an artificial background for the development of bioethanol and biodiesel, and, with the aim of protecting infant industries from the competition posed by third states, it established high import duties, especially on bioethanol.[28] If to this we add the need to comply with high quality standards, the possibility of exporting BF to these markets is seriously restricted.

In terms of production, ethanol will demand increasing volumes of maize in the US, consequently diverting domestic support for commodities under the current Farm Bill, which, though aimed at adjusting to multilateral rules, provides for an increase in funds for the commodity programme. If the level of production taken as a historical basis for the calculation of direct payments were also modified—within a context of increasing maize production—monetary outlays would also increase. Moreover, as was stated in this paper, part of these would be transferred to ethanol producers and blenders. With the aim of assessing the levels of support granted for biofuel production, the US should inform the WTO what type of support these are, in which box they classify them, and their total amounts. Although this country is likely to be willing to classify them as green box subsidies, it was demonstrated throughout this paper that, due to their distorting character, they should be considered amber box subsidies.

As for domestic support levels, next decade national objectives in relation to blends will entail an increase. In the case of the US, government and private prospective estimates indicate an increase in ethanol blend

[28] This higher levels of protection for ethanol in the US and the EU coincide with higher levels of support and/or barriers to trade in the relevant raw materials, such as maize in the US, and wheat and sugar in the EU. There is an economic explanation for this: protection for ethanol favours its domestic production to the detriment of imports, and guarantees the demand for domestic raw materials. This is potentiated within a framework where biofuel minimal consumption levels are established by law.

levels significantly higher than the set goal, and it is therefore worth wondering whether the tax exemption will involve the entire blended production or just the one set as mandatory. If only the mandatory ethanol blend were subsidised, support in the form of tax exemptions would amount to almost USD 6 billion by 2012, to which indirect domestic support under the Farm Bill commodity programme should be added— around USD 1 billion. On the other hand, there are research programmes at state and other levels, as well as facility enlargement programmes and support for producers of less than 60 million gallons a year. If the new Farm Bill included an increase in support under the commodity programme, and at the same time subsidized all blended ethanol, US domestic support could reach a minimum of USD 7 billion.

In the EU, agricultural direct payments to energy crops would not exceed 90 million euros[29] and tax exemptions vary among Member States. Not all Member States have set levels of indirect support through tax exemptions. Unlike the United States, EU country members are planning to gradually eliminate tax benefits until they equal taxes on gasolines.

As regards prices, the demand for BF will be a factor increasing maize prices, since the ethanol industry will use increasing quantities of maize and its supply is not very elastic, at least in the short-run. This increase will have a similar effect on the price of ethanol, since maize accounts for an important part of its cost. On the other hand, food prices will also rise because maize is a raw material for several industries, among them, poultry, bovine and pork meat. Although they could turn to other grains, the expansion of maize sown areas will reduce available land for other crops, such as oilseeds.[30]

As for international trade, traded volumes are still insignificant, and so is the number of actors involved. At present, Brazil, the US, the European Union and some developing countries take part in this trade. Central American countries and some of South East Asia (Malaysia, Indonesia, Thailand), of Latin America (Argentina, Colombia), and South Africa have productive and export potentials.

The type of support given by developed countries can generate further North-South differences within the framework of trade negotiations. If developed countries continue to protect their biofuel industries through high subsidies and tariffs as well as dubiously justifiable quality standards, the only way out for developing countries will probably be either to export raw materials to be processed in developed countries, or to resort to the WTO so that multilateral rules are effectively enforced.

In this regard, and in line with what has been expressed in this paper, Liboreiro and Ibáñez (2007) point out some requirements which policy instruments should fulfil in order to comply with WTO rules: that compulsory blend standards pursue a legitimate goal and do not discriminate between domestic and imported products; that subsidies do not discriminate between domestic and imported products and do not cause market displacement, and that applied tariffs do not exceed the WTO bound level.

The United States and European Union bioenergy policies are clear examples of the current interdependence between states and of the need to reduce— from the point of view of the republican Administration and of the European Commission— dependence on imported fuel. At the same time, they show the relationship between domestic policy decisions and international trade institutions, whose results are mutually affected. On the one hand, bioenergy policies are limited by WTO rules, while "major" countries try to influence international negotiations in order to change these rules so that they limit their room for manoeuvre to the least possible extent. On the other hand, countries with little negotiating power will have to strive for the fulfilment of what was agreed upon at the multilateral level and prevent changes in several multilateral rules from reducing the possibility of challenging support for BF. This means that the "intermestic" will determine the future of agri-energy negotiations in the WTO, and will, at the same time, determine the position of domestic actors in the international scenario.

A country that efficiently produces raw materials, such as Argentina, but where the biofuel industry is incipient, has an opportunity to gain access to important growing markets. Within this framework, one of the decisions that domestic producers should make is whether to export biodiesel or ethanol. Taking the current situation of tariff structures as a given, it would be more convenient to export biodiesel, since it faces less access barriers and has competitive advantages due to the efficiency of our country *vis-à-vis* its

[29] Corresponding to 45 euros/ha for up to 2 million hectares.

[30] The increase in prices of grains and food will also have a negative impact on countries that are net importers of food and on the nutritional status of the poorest. For further reading on this issue, see Ford Runge and Senauer (2007).

competitors. Still pending is the solution of the issue relating EU technical rules on iodine content, which favour BF production from rapeseed oil to the detriment of soya oil.

Argentina could also take advantage of the trade negotiation environment to diversify its production and export ethanol. For example, in order to export to the US market, it should:

i) obtain tariff preferences for the end product;

ii) export raw materials to Central America and/or invest there to profit from duty-free access;

iii) act through the WTO so that US incentives to ethanol production are reduced, either by reducing the bound support for specific products in the Doha Round agricultural negotiation, or by discussing the consistency of currently effective measures with commitments on Agriculture. In this regard, it would be worth proving that ethanol subsidies have not been included in the amber box, and that maize subsidies have been wrongly notified as green box subsidies instead of amber box ones. This would demonstrate the current violation of the bound level of the Uruguay Round Aggregate Measurement of Support.

As for the EU market for ethanol, a way of obtaining access preferences is by means of the MERCOSUR-EU negotiation, where, as far back as in 2004, the Community offered MERCOSUR an ethanol tariff-rate quota for biofuels with a 50% tariff preference, as well as the elimination of tariffs on biofuels over a 7-year period.

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