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Vincent Chatellier

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PRICE VOLATILITY, MARKET REGULATION AND RISK MANAGEMENT: CHALLENGES FOR THE FUTURE OF THE CAP

JEL classification: Q10, Q13, Q18

Vincent Chatellier*

Abstract. *This paper provides an analysis of the European Commission's proposals (18 Novembre 2010) regarding the next CAP reform. It proposes a reflection based, centered on the volatility of agricultural prices, the market regulation mechanisms and the risk management tools (the important question of direct payment to farmers is not included here). The first section deals with the factors underlying the volatility of agricultural prices, the effects of this on an international scale and ways of better managing it through enhanced international coordination of policies associated with agriculture. The*

second concerns the European tools that could be mobilised to accompany and support the envisaged strategies on a more global scale. Arguments are then developed around the following topics: customs duties, export refunds, safety nets, futures markets, fiscal policies and income stabilisation tools. As the agricultural markets are naturally unstable, some regulation instruments (public, but also private) need to be maintained.

Keywords: CAP; Agricultural markets; Price volatility; Risk management; Regulation instruments.

1. Introduction

On 18 November 2010 the European Commission presented a communication on the future of the common agricultural policy (CAP) towards 2020 (European Commission, 2010-a). The communication was placed under the authority of the Commissioner responsible for Agriculture and Rural Development (Dacian Ciolos) and was addressed to the European Parliament (Adinolfi, Little and Massot, 2010), the Council, the Economic and Social Committee and the Committee of the Regions. Prior to the publication of the text, the Commissioner organised a broad public consultation to gather together the thoughts expressed by European citizens and

* Vincent Chatellier is a Research Engineer in INRA (Institut National de la Recherche Agronomique) and Director of the Research Unit 1134 (LERECO). This article has been written following a communication for the European Parliament's Directorate for Structural and Cohesion Policies. It was presented to the Committee on Agriculture and Rural Development of the European Parliament at a workshop held on 7 February 2011 in Brussels.

various organisations (European Commission, 2010-b Bureau, 2010). These new proposals, which are part of the continuing reforms that have taken place over the two previous decades (Burell, 2009 ; Matthews, 2010; Daugberg and Swinbank, 2011), convey the European Commission's strategic vision on the development of agriculture and its place in society. According to the European Commission, the future CAP must satisfy the following three objectives at the same time: promoting healthy and adequate food production for European consumers in a context of growth in global demand, economic crisis and high price volatility; contributing to sustainable management of natural resources, while taking into account the problems associated with climate change; encouraging the maintenance of territorial balances by accepting the idea that agriculture is a crucial factor in invigorating the rural environment.

The communication is a policy guidance document. The proposals made are therefore not, at least at this stage, a precise regulatory text which could form the subject of a detailed analysis of the impact in terms of reorienting support between Member States, the sensitivity of the incomes of the different categories of farms or incentives for changes in production. Once the institutional debate has been completed (De Castro et al, 2011), regulatory texts will be adopted to implement a reform of the CAP from 2014. It is important to point out that this communication was drawn up with the intention of, firstly, taking into account the commitments made in the context of the World Trade Organization (WTO) multilateral negotiations (Blandford et al, 2010; Swinbank, 2008) and, secondly, orienting the future CAP towards the priorities set out by the President of the European Commission in his communication of 3 March 2010 entitled 'Europe 2020' (European Commission, 2010-c). Seeking to make the future CAP consistent with the Europe 2020 strategy is naturally a priority in so far as the latter will have a significant influence on the choices that will be made regarding the future keys to allocating EU budgetary resources in the financial framework for 2014-2020.

In this context, this article is divided in two sections: the first deals with the volatility of agricultural prices, considering that the future CAP instruments, however innovative they are, will have to be in line with an internationally agreed strategy; the second discusses the proposals made regarding the future tools that could be mobilised internally in order to regulate the agricultural markets and deal with risk and crisis situations as well as possible.

2. Price volatility and international coordination

In its text of 18 November 2010, the European Commission highlights the extent to which growing price volatility of agricultural products and inputs (Gilbert and Morgan, 2010) is currently a problem for European farmers (Capitanio, 2010). It causes major variations in income and contributes to a growing concern that does not in any way favour making the necessary long-term commitments (establishment and investment) that this activity requires. Alongside the measures that will be adopted specifically in the context of the CAP (cf. section 3), the EU authorities will also have to be actively involved in better international coordination of this issue; the work undertaken in the G20 (under the French Presidency) is also intended to contribute to this.

2.1. Price volatility accentuates the hunger problem

The research conducted by the Food and Agricultural Organization of the United Nations shows that the phenomenon of international food price volatility has worsened, particularly over the last four years. The FAO combined food price index, which is calculated on the basis of the

prices of 55 products, rose to 118 in January 2006 (it was an average of 100 in 2002-2004), and 213 in June 2008, then dropped to 139 in March 2009, and finally rose again to 232 in April 2011. Not only is price volatility serious, but the higher levels are reaching peaks that have never before been seen on the international markets.

This high level of price volatility is expressed in contrasting ways by different products: in the case of sugar, the changes are spectacular: the index increased from 131 in June 2007 to 348 in April 2011; in the case of cereals, it dropped from 274 in April 2008 to 157 in September 2009, then rose to 265 in April 2011 (Wright, 2011); in the case of milk, it peaked at 268 in November 2007, dropped to 117 in March 2009, then rose to 229 in April 2011; in the meat sector, the range is smaller: from 137 in September 2008 to 114 in April 2009, then to 173 in April 2011. Another approach to price volatility, taken from the perspective of the situation observed in the different European agricultural markets, leads to a quite similar diagnosis: the price of wheat has more than doubled in three years; the price of milk has fluctuated in an almost identical proportion to wheat; the price of beef has dropped compared with 2006, with smaller variations than in other sectors. For meat, the current problem mainly relates to the increase in production costs (feed) as a result of the rise in prices of crops.

In addition to its effects on the financial situations of European farmers, the price volatility of food products is even more problematic given that it enhances the situation of food insecurity in many developing countries where food expenditure often represents a very large proportion of the household budget (Galtier, 2009 ; FAO, 2009). It is occurring in a context in which, firstly, several dozen countries are already facing a recurring food crisis situation (sometimes with high social tensions or 'food riots') and, secondly, there are already nearly a billion humans on the planet facing malnutrition (63% of whom are in Asia and the Pacific, 26% in sub-Saharan Africa, 5% in South America and the Caribbean, 4% in the Middle East and North Africa and 1% in developed countries). Under-nourishment particularly affects rural populations in developing countries and two thirds of it is found in only seven countries (in descending order): India, China, the Democratic Republic of Congo, Bangladesh, Indonesia, Pakistan and Ethiopia.

The battle against price volatility cannot be limited to a single continent or a single economic area, even an agriculturally powerful one such as the EU (the leading global importer and exporter of agricultural and food products). It must be a collective ambition shared by the main big players in the production of, consumption of and trade in agricultural products (USA, EU, Oceania, South America, China, India and Africa).

2.2. The factors underlying the volatility of agricultural prices

It is not possible to reflect on the high level of volatility of agricultural prices without going back to the specific characteristics of the sector, as is widely discussed in the work of economists (Boussard, 2010; Gérard, 2008): i) due to the rather lengthy production cycle, agricultural supply is quite inflexible in the short term; this means that farmers cannot react immediately to market signals; ii) agricultural and food products are largely perishable; that means that it is more difficult to store them (in the medium and long term) than in the industrial goods sector, where the practice is common; iii) the agricultural produce available at year $n+1$, in a country or on the international market, is difficult to predict during year n inasmuch as its level still depends (despite technical progress) largely on climate conditions (drought, flood, hail, etc.); iv) the demand for food products is relatively inflexible in relation to price: a slight surplus of supply compared with demand results in a more than proportional drop in prices.

In addition to recognising these specific characteristics, international decision-makers need to agree fully on the fact that price volatility in agriculture is the result of a complex interplay of climate, demographic, political, economic and/or logistical factors (Timmer, 2010; Munier, 2010; Jamet 2011). Several of these factors play a dominant role, which needs to be taken on board before working together to plan how to curb the volatility:

- The growth of the world population and the change in diets are placing major pressure on demand for agricultural commodities. As the UN forecasts show, the global population is expected to reach 9.1 billion people by 2050, which is an increase of 2.3 billion people compared with the current situation; this expected population growth, which is already at a rate of 220 000 people per day, will mainly be due to African countries (+1 billion people) and Asian countries (+1 billion). This rapid increase in the number of consumers is in addition to a change in their dietary preferences (especially in emerging countries where it is economically possible) towards an increase in individual consumption of animal proteins. For example, annual consumption of meat products in China increased from 13 kg per inhabitant in 1980 to just under 60 kg in 2010.
- The vagaries of the climate sometimes have severe effects on the production of particular goods. The impact on international agricultural prices is even greater when the countries affected play an active role in the international flow of trade in the goods. For example, the climate problems (drought) encountered in Australia certainly contributed to the sharp rise in the price of dairy products in so far as it supplies nearly 12% of the global market; in the cereals sector, the 2010 supply was disrupted by fires in Russia (which led to an embargo on cereal exports), a heat wave in Ukraine and Kazakhstan and heavy rain in Canada. While climate factors are likely to be accentuated by global warming, global warming needs to be the subject of an international strategy that goes far beyond the ambitions of the CAP in this area.
- The increase in energy prices (oil, gas, etc.) interferes with the price of agricultural products through three main channels: it causes a rise in the production costs of agricultural goods, although the level varies for different categories of products; in the same way, for a given agricultural product, the use of inputs fluctuates depending on the production methods and techniques used; it influences domestic and international transport costs for agricultural products; it economically supports exporting countries, which are then inclined to import agricultural products at higher prices.
- A growing proportion of crop production being diverted from its prime function (human and animal food) towards biofuels is accentuating the pressure on crop product markets (Banse et al, 2010; Baffes, 2011). Biofuels are not, however, solely responsible for the rise in food prices. Two arguments back up this statement: the price of cereals declined sharply in 2009 compared with 2007-2008, while global production of biofuels continued to rise; the price of certain food products (including rice) increased (particularly in 2007-2008), despite having no immediate link with the development of ethanol and/or biodiesel. The land used to produce biofuels represents 2% of the cultivable land on the planet.
- International agricultural prices are determined mainly on the basis of the quantities of goods traded rather than the goods produced. In the case of a product for which trade represents a small proportion of global production and exports come from a small number of countries, the pressure can sometimes be high, mainly in the following two cases: where the countries supplying the global market experience a sudden contraction in their supply (climate problem, health crisis, etc.); where the consumption of the item varies suddenly, or at least more rapidly than anticipated at the time production was started. In a context characterised by a

growing integration of economies, the balances are now increasingly fragile as the purchasing countries generally assume that the global market will be able to satisfy domestic demand without the need to establish and finance reserve stocks (for products for which that is technically possible).

- The influence of financial speculation on changes in the prices of agricultural commodities (level and volatility) is the subject of rich and sometimes fierce technical debates (Sanders et al, 2010; Irwin et al, 2011). At least until now it was generally accepted that speculation was not the prime cause of rises or falls in agricultural prices (Guyomard 2008); the imbalance between supply and demand was still the main explanation, according to the majority of experts. It was also accepted that speculation had more effect on short-term price fluctuations than on long-term price trends. In addition, many experts agree that the existence of a derivatives market (as a place for exchanging promises to buy and sell in the long term) is necessary (within certain frameworks) in so far as it allows operators to protect themselves from excessive volatility. The main challenge then lies in regulating these markets so that the signals coming from them are clear and the derivative markets retain a degree of proximity to the real economy. In this respect, the development of commodity index funds could lead to a risk of speculative bubbles if they move too far from the reality of the balance of the markets or stocks. The following example illustrates this reasoning: when investment funds speculate up (especially if they are large), purchasers rush to buy while sellers delay their sales, all of which is based on a shared conviction that the speculator is making its decisions with a full knowledge of the facts. The question is, therefore, whether that is really still the case. Since summer 2010, and in the light of recent experiences, the debates on speculation are becoming more polarised. For example, the UN Special Rapporteur on the Right to Food considers that a significant proportion of the rise in prices of agricultural products since 2010 is explained by the emergence of a speculative bubble (De Schutter, 2010). In a context in which wheat harvests allowed stocks to be rebuilt to quite a high level, he considers that the current developments are quite directly influenced by the entry onto the market of powerful institutional investors such as speculative funds, pension funds and investment banks. The United Nations therefore consider that the recent sharp rise in food prices (which, incidentally, affects rice less than wheat and sugar), is more attributable to a panic movement on the agricultural markets (enhanced by a fear that prices will be increasing) than to an established serious imbalance between supply and demand.

In a long-term strategy on the subject of managing agricultural price volatility, the EU authorities must aim not only to work internally through the CAP tools (cf. section 3), but also (and perhaps most importantly) externally, in close cooperation with the other big powers, mainly those that are part of the G20 or the WTO. It would be futile to seek to confine this issue solely to the geographical area of the EU, as the risks are so high and the international interdependence is so strong.

2.3. A priority: the agricultural development of developing countries

Due to the expected population growth in many developing countries that are net importers of agricultural products, the low level of buying power of the populations concerned and the existing social tensions, it is essential that these countries, especially those on the African continent, are given the resources to develop their own agriculture while being shielded from international competition. The reverse strategy, which would involve favouring the systematic channel of low-price imports on the global market is quite simply perilous in the medium and long term, for

two reasons: some countries that are currently exporters of agricultural goods will not necessarily be exporters in the future due to the growth of their populations (such as some Asian countries that export rice), more difficult soil and climate conditions (global warming, erosion, etc.), the use of agricultural produce for other purposes (biofuels, biomaterials, etc.) or the rise in oil prices (which contributes to a rise in transport costs); the increase in agricultural commodity prices could then shut out the most economically fragile countries. That increase could, for example, be stimulated by China, where the reserves of American dollars are as great as resources in terms of water and cultivable land are limited. In order to take early action to prevent this phenomenon, it would seem that the EU authorities need to act with other international players in the following two directions:

- I) Giving the opportunity to a specific list of countries, which does not necessarily correspond to the WTO list of Least Developed Countries (LDCs), to apply customs duties that are sufficiently dissuasive for the development of food-producing farms to become economically profitable again (WFP, 2009; Pisani and Chatellier, 2010). They are not (or are no longer) profitable due to the substantial gaps in productivity (of work and production factors) between those countries and developed countries. Such a choice can only be made, however, through transition phases, because it will result in a brief increase in food prices (which will surely require the adoption of consumption support policies).
- II) Encouraging investments in the agricultural sectors in those countries, so that productivity can increase significantly. Many experts consider that the public funds allocated to agriculture have often been the victim of structural adjustment policies imposed by the International Monetary Fund (IMF). In the same way, a decreasing proportion of the funds from public development aid is directed towards agriculture. The issue of the appropriateness of direct investments in developing countries in Africa is an important point, which must be considered on a case-by-case basis: investment projects that positively involve local populations can have beneficial long-term effects on the local productive dynamics; investments based on the monopolisation of agricultural land by Asian or Persian Gulf countries for purely commercial ends are more debatable.

2.4. Supply, trade, biofuel and stocks

In an international framework, which does not, however exclude initiatives specific to the CAP, several actions could be useful for limiting the effects of excessive price volatility:

- Developing the agriculture of the country or economic area concerned, while ensuring that it is environmentally friendly (in order to be sustainable), less sensitive to the vagaries of the climate (which raises the question as to the potential future role of genetically modified plants) and less dependent on fossil fuels (to prevent the risk of a major future increase in production costs). While European consumers can take the risk of being in lasting deficit for some exotic products (coffee, tea, cocoa, etc.) or little-consumed products (mutton), the situation is very different for key products. In fact this strategy carries the risk that the expectations of the EU market will not always be fully satisfied: a health crisis, a poor harvest, an increase in consumption, currency disruptions or an exacerbated increase in competition could affect the expected flows of imports; this is especially true in cases where the number of suppliers is limited, such as in the beef sector.
- Promoting flows of trade between countries in deficit and countries in surplus, but without contradicting the points mentioned previously regarding African countries (Diaaz-Bonilla and Ron, 2010). The idea needs to be accepted that some countries will not always easily be

able to develop their agricultural production so that it is perfectly in line with demand. Over the coming decades, this situation could be aggravated in some Asian countries that are experiencing high demographic and economic growth while their land availability is poor. The inequality between the world's countries (in terms of population, land, climate, etc.) has thus resulted in growth in agricultural and food trade at an annual average rate of 3% since the creation of GATT (General Agreement on Tariffs and Trade) in 1947 (WTO, 2010); this rate is higher than the growth of global agriculture production (Josling et al, 2010). In the same way, the FAO and OECD forecasts show that these flows of agricultural products will increase over the next decade (OECD-FAO, 2010), firstly towards developing countries. For developing countries, imports of wheat in 2019 are expected to 25% higher than in 2007-2009; this growth will be particularly strong (+60%) for protein meal (exports of soya beans from South American to Asia) and vegetable oils (+40%). Without predicting currency parities trends, the EU should be in a position to develop its exports in some agricultural sectors (European Commission, 2010-d); these exports are expected to be more limited than trade flows within the EU.

- Introducing a degree of flexibility into the annual production of biofuels that takes into account the real situation of the markets for human and animal food. This possibility is particularly relevant to the production of grain maize in the United States and production of cereals and oil seeds in the EU. Due to the industrial investments in this sector, such an approach is not, however, simple to envisage, at least not without the support of the public authorities.
- Promoting, as far as possible, a dietary model that, is less resource-hungry. The rapid increase in consumption of animal proteins, particularly in emerging countries and some developing countries (with the notable exception of India), is accentuating the pressure on the agricultural markets; what is more, this would become quite untenable if the United States model became widespread (127 kg of meat products per inhabitant). In the EU, individual consumption of meat products is declining in several countries and increasing in others (mainly the new Member States) so that the overall trend is only marginally increasing. Based on similar reasoning, particular attention must be paid, on an international (but also European) scale, to the wastage of part of agricultural production all along the chain from producer to consumer.
- Creating international food security stocks for certain agricultural products (including cereals) where that is possible from a technical and budgetary point of view. Due to the controversies that the concept of 'stocks' create, both within circles of economists and among public decision-makers, it is important to make it clear what meaning is being attached to that concept here. The creation of stocks must be envisaged mainly for the benefit of the countries where there are regular food shortages and where the conditions for access to agricultural products are difficult for a variety of reasons, including logistical ones. The conditions for access to food in some poor countries are often very detrimental to local populations even if there is not really a global shortage of supply; the challenge is then essentially the geographical distribution of food commodities. Such stocks, which must be considered to be compatible with the WTO rules, could be co-financed by the countries and the international monetary and financial institutions; the stocks would be used, according to well-established rules, at the request of the governments of the countries concerned and, if necessary, with the technical support of the appropriate local organisations. As establishing public stocks is expensive and trade in agricultural products has a role to play in regulating the balance between supply and demand, the aim should not be to create massive public stocks to help support

international agricultural prices. Various past experiences have shown that this approach was not only difficult to implement on an international scale (in so far as not all countries have the same definition of risk), but ineffective from a strictly economic point of view (Cordier and Gohin, 2011).

2.5. The governance of the agricultural markets and speculation

The main question here is how international decision-makers can act collectively to prevent and manage the instability of the agricultural markets. This supposes, firstly, that they can and, secondly, that they want to, with as much cooperation as possible between countries or large economic areas. During the current decade, many ambitions should be pursued and upheld by the EU authorities.

The first ambition must be to tackle in more detail the issue of the conditions for better global governance of agriculture and food. International organisations that work in these two fields, whether in a specialised way or not, are diverse and pursue their own objectives (FAO, WTO, World Bank, World Food Programme (WFP), etc.). One of the main limitations of the system is that, at least currently, there is no competent political body with powers to coordinate the actions of these different players in the best way. Interesting proposals have been made in this respect in a recent report produced under the authority of the President of the French Financial Markets Authority (Jouyet et al, 2010).

The second ambition must be to establish that the WTO analytical frameworks as decided at the URAA (Uruguay Round Agreements Act) (1995) are no longer necessarily relevant fifteen years later. Without questioning the benefit to consumers in numerous countries of an increased opening up of the agricultural markets, and while accepting the idea that the WTO will have to play a role in regulating the agricultural markets, we must improve many imperfections in the multilateral trade system:

- I) Developing countries that are net importers of agricultural products (especially in Africa) must be able to increase their commercial protection in order to develop their own agricultural production (and not rely on increasingly large imports).
- II) The positive environmental contributions of agriculture, particularly of herbivore rearing (land maintenance, carbon storage in pastures, landscape creation, biodiversity maintenance, etc.), should be taken into greater account at the WTO so that the expected positive effects of liberalisation (lowering prices for consumers, etc.) are not cancelled out by future environmental deterioration, which will certainly generate costs to the community. This highlights the extent to which the WTO's trade concerns are insufficiently interlinked with other aims, which are nevertheless just as important for the future of humanity, and addressed with so much conviction in other international bodies (combating climate change, etc.). This also means that seeking optimum allocation of resources in the agricultural sector, however attractive it may be to the economist responsible for calculating the resulting benefits, also has serious limitations (Kroll, 2007). It could result in such a high geographical concentration of supply that the environmental effects could be globally appalling for the planet (pollution and soil erosion, abandonment of agricultural land); in the same way, a very high concentration accentuates the potential sensitivity of agricultural supply to the vagaries of the climate and health risks, which has a *de facto* negative influence on price volatility.
- III) Given the intensity of the food crisis and the expected increase in global population, the future WTO agricultural agreement must of course continue to work to achieve increased fluidity of trade (Brockmeier and Pelikan, 2008), but also, and most importantly, towards

alleviating the price volatility of agricultural commodities. However innovative the future CAP is in terms of regulating the markets, the efforts made in the EU will be even more successful if they are consistent with the future WTO guidelines; these guidelines must give increasing space to so-called 'non-commercial' concerns such as food security, health security and the environment.

The third ambition, which is at the heart of the current G20 objectives, must be to arrive at a stricter framework for speculation on agricultural commodities (while not calling into question what is working well). The aim is to restore confidence to the various operators and prevent the creation of speculative bubbles. While a number of possibilities considered are heading in the right direction, their future impact will depend a great deal on their specific methods of application and on the level of support from the countries concerned. The following are among the possibilities raised: improving the quality of the statistics available (past data and forecasts) on the agricultural markets (production, consumption, trade, stocks, climate, etc.) so that those involved are acting with the benefit of the most reliable information possible; providing a political warning system for risk situations, distinguishing the physical markets from the financial markets (so that the warnings are quickly followed by actions); making over-the-counter derivatives operations more transparent; limiting the number of forward positions that an institutional investor may hold on a single commodity, in order to prevent orders for that commodity from having a decisive influence on whether the international price rises or falls.

3. Agricultural market regulation and risk management

The European Commission's proposals regarding the CAP towards 2020 were drawn up after noting that it would be useful to maintain certain market support mechanisms. The proposals also specify that the future reform must be an opportunity to streamline and simplify existing tools (Grant, 2010) and also to establish new rules concerning the functioning of the agricultural and food chain. To contribute to these debates, this section offers a reflection on the four following points: customs duties and protection at the borders; export refunds; intervention tools and safety nets; risk management instruments.

3.1. Customs duties and protection at the borders

At this stage of the multilateral negotiations in the (delayed) Doha Round it has been agreed that the future reduction in customs duties on agricultural and food products would be applied according to what is called a 'tiered' formula. This means that, at least for developed countries, a 50% reduction in customs duties is foreseen (compared with a past reference period) for products whose final consolidated tariff or the equivalent *ad valorem* would be below 20%; this reduction would be 57% for the bracket between 20% and 50%; 64% for the bracket between 50% and 75%; and 70% for the bracket exceeding 70%. For developing countries, the reductions would be lower. The sensitivity of different European agricultural products to this possible future reduction in customs duties is not standard, as the difference between the EU price and the international price varies from one product to another. While consolidated duty on agricultural and food products stands at an EU average of just under 20%, it surpasses the 80% threshold for products such as sugar, beef and butter. Focusing on a selection of three agricultural products (beef, milk and cereals) will help to gain a better understanding of what is at stake.

In the beef sector, the EU price is generally significantly higher than that of the large exporting countries, including Brazil (which alone represents nearly 40% of international trade); the most recent observations show, however, that the price of beef has increased rapidly in Brazil, where economic growth is pushing consumption up. In this sector, customs duties applied at the EU borders are still substantial: 12.8% of the value and 3 euro per kg for boned, chilled and frozen meat. With the exception of the possible (justified) classification of the 'beef' tariff headings as 'sensitive products' (products benefiting, by way of exception, from a lower reduction in customs duties), a large reduction in tariff protection prompts the fear of downward pressure on the price of EU beef. The EU has been in deficit for beef since 2003 (imports represent 6% of domestic consumption), and is expected to experience a further deterioration in its trade balance over the next decade (due especially to a decrease in the number of dairy cows). This situation is expected to lead the EU authorities to increase imports (through quotas negotiated at the WTO or a bilateral agreement with the Mercosur countries).

In the European dairy sector, imports from third countries represent less than 2% of EU consumption; this is mainly as part of tariff quotas that are only partially used. There are still quite high customs duties at the EU borders: 1 900 €/t for butter; 950 €/t for skimmed milk powder, 1 500 €/t for cheese. For convenience products (milk desserts, cheese, etc.), the risks of imports rising are quite low for at least three reasons: the products are perishable and difficult to transport; European companies have a great deal of technological know-how; and European consumers are quite attached to local products. While the risks of an increase in imports are more significant for industrial dairy products, many factors could limit the extent of those risks: difficult climate conditions make it more improbable for Australian exports to increase; the high demand for dairy products in Asian countries should monopolise the New Zealand market to a significant extent, with New Zealand's hopes for the growth of milk production now being more limited; the removal of milk quotas will probably result in a drop in the EU price of industrial dairy products, while, at the same time, forecasting bodes are anticipating an increase in the international price (FAPRI, 2010).

In the European cereals sector, imports are at a low level in proportion to the volumes produced (around 2%). Over recent years, international competitors have not increased their trade pressure on the EU, in a global market in which demand is growing and the development of biofuels is having a negative impact on exportable quantities (in particular for American grain maize). In this sector, a combination of several factors means that any future reduction in customs duties would not be very problematic (especially in comparison with the situation at the beginning of the 1990s): the reduction in guaranteed prices has brought the European price closer to the international price so that the duties applied have now become low or zero; consolidated historical duties have been set at a high level; aside from some major fluctuations, the underlying international price of cereals is on an upwards trend.

With 23% of global agricultural and food imports (excluding intra-EU trade), the EU is not the 'fortress' that some competitor countries sometimes say it is. It is the leading importer, ahead of the three NAFTA countries (14%), Japan (10%) and China (7%). Moreover, European imports of agricultural and food products are constantly growing (in volume and value) as the years go by. As well as tropical products, soya and sheep products, for which imports are historically high, the EU is also slightly in deficit in poultry, beef and grain maize. While a further reduction in customs tariffs would not necessarily change the level of European cereal or milk imports, the risk is, however, higher in the meat sector. Rather than a further general reduction in tariff protection, the WTO negotiators should focus their efforts on the following

two points: taking more account of non-commercial concerns; seeking a better balance between the objective of high fluidity of trade and the long-term preservation, for each economic area, of balances that are helpful to all societies: the quality of the environment, maintaining the land and food security.

3.2. Export refunds

According to the notification reports presented to the WTO, the EU is the economic area that has used export refunds the most over the last decade; this budgetary support from the CAP is allocated to European businesses to encourage them to export agricultural and food products to third countries (mainly benefiting dairy products, sugar, pork and poultry); without this support, they were not competitive, given the significant price difference between the EU market and the global market. Since the CAP reform in 1992, the level of export refunds has been significantly reduced in the EU: it has fallen from EUR 10 billion in 1990 to less than EUR 1 billion since 2009. Three factors explain this drastic reduction: the drop in institutional prices; the reduction in export volumes (beef, poultry, etc.); the stricter framework for the rules for granting this support as part of the URAA.

As the commitments made as part of the Doha Round currently stand, the WTO Member States must eliminate all forms of export subsidies by the end of 2013. This change will result in the EU being without a tool that, particularly in a crisis period, enabled surplus supply to be released onto the international market and thus to help stabilise its markets. This tool proved to be useful when the guaranteed prices were fixed at a high level, but expensive in that it encouraged producers to constantly produce more, even if the internal market was already saturated. The abandonment of this tool justifies intervention prices being fixed at quite a low level.

This future removal of refunds should not, however, threaten the EU's dominant position on the international agricultural and food markets. The EU-27 has 20% of global export trade, despite unfavourable currency parity with the U.S. dollar. It is therefore ahead of NAFTA (17%) and Mercosur (16%). All these areas are seeing an increase in their exports (but for the countries of South America the rise is more spectacular). The future growth of European exports will depend on the following main factors: economic growth in the emerging countries where land is scarce; the gradual slowing down of exporting by competing countries (climate factors, rise in internal consumption, development of biofuels, etc.); the degree of competitiveness and the differentiation of European products.

3.3. Intervention tools and safety nets

The European Commission's proposals mention a possible adaptation of the intervention rules. This adaptation could include the extension of the intervention period; the application of the market disruption clause and private storage to other products. It is nevertheless clearly reaffirmed that the intervention instrument should only be used as a safety net to be deployed in the event of a price crisis or disruption of the market. The public authorities may store certain agricultural products when their market price falls below thresholds established in advance. The stocks resulting from these purchases are then released onto the international or EU market, sometimes under the food aid to the most deprived person's scheme (European Council, 2007). Fixed-price purchases are now applied only in the case of certain products (common wheat, butter and milk powder) and to quantities determined in advance. Beyond these quantities, the purchase price and quantities offered for intervention are established by the European Commission under the 'tendering' procedure. The EU authorities also have the option of encouraging private

storage, through targeted aid. By focusing the analysis on a selection of agricultural products, it is possible to discuss about the intervention system in more precise detail.

For beef, public intervention is opened if, for a period of two consecutive weeks, the average market price is less than 1 560 €/t in a country or region (for an R3 calf or steer). Private storage aid is also possible if the prices are below 2 300 €/t. These thresholds are at such a low level that the use of the intervention mechanism is becoming less and less probable, especially in a context where there is an EU beef deficit, a decline in Brazilian exports over the recent period and an increase in the price of beef in several exporting countries. Due to the increase in production costs in this sector and the already low level of income, it is to be hoped that beef cattle farmers will not have to benefit from this scheme.

For sheep meat and goat meat, private storage aid may be granted under particularly difficult market conditions. The EU's deficit situation means using imports mainly from New Zealand, as part of annual quotas agreed by the WTO. The future income of sheep and goat farmers will depend more on changes in the way the support is granted and the technical performance of farms than on the intervention system.

For pigmeat, public intervention was recently abandoned, in so far as it was no longer used. Consumption, production and exports of pigmeat continue to rise in the EU, although the pace varies widely between countries. This sector will be sensitive to the future abandonment of export refunds, which sometimes gave European exporters the opportunity to conquer markets (Russia, Japan, Hong Kong or South Korea) against American opponents favoured by their currency's parity with the euro.

In the dairy sector, intervention is restricted to 30 000 tons annually for butter (at a price of 2 218 €/t) and to 109 000 tonnes for skimmed milk powder (at a price of 1 700 €/t). The European Commission may, if necessary, make these purchases by tender; in this case, the maximum price cannot exceed the intervention price. In 2009, private storage aid for butter was maintained (but not for cheese) while processing aid for butter was abolished. Two categories of processing aid (skimmed milk powder for animal feed and skimmed milk made into casein or caseinate) are still allocated, but only when the market is in surplus and according to an amount established in advance or by tender. Following the crisis affecting the dairy sector in 2009, the EU authorities made use of all the possibilities offered by these remaining regulation mechanisms. Exceptional measures were also agreed, such as bringing forward the disbursement period for direct payments and the implementation of a programme to promote dairy products. In this sector, one of the key questions is the extent to which the contractual relations mechanism that will soon be put in place to replace the current system of milk quotas will be effective in maintaining an optimum balance between supply and demand.

In cereals, public intervention potentially concerns common wheat, durum wheat, corn, barley, rice and sorghum; it is authorised between 1 November and 31 May for all the Member States. The latter five crops will, however, no longer be eligible for intervention measures, as the rate has been reduced to 0%. For common wheat, the intervention price is 101.31 €/t, within a limit of 3 million tons. Given the level of prices at the beginning of 2011 and the trends forecast for the next financial year (position of buyers), it seems quite clear that public intervention will not be very useful in this sector in the short and medium term. The intervention price is set at a level that provides so little incentive that it only has a small impact on supply.

As the reforms of the CAP have taken place, the intervention instruments have been significantly changed. The budgetary cost of these tools has also become extremely low in comparison to the direct aid allocated to European farmers. Preserving these instruments is definitely useful

for tackling any crises that arise, but the low thresholds lead us to consider that the less these 'safety nets' are used, the better farmers will be. The objective must be to avoid using them by better adapting supply to demand.

3.4. Risk management instruments

In agriculture, the risks can be classified into three groups: a) risks associated with fluctuations in the prices of goods sold or inputs; b) risks attributable to the production cycle, such as the vagaries of the climate (drought, frost, hail, etc.), incidents (fire, water damage, theft, etc.), disease (plant and animal) or life events (illness, disability, death); c) risks related to the industry, i.e. the capacity of farmers to market their produce. In order to limit or better manage these risks, farmers can adopt tailored strategies (diversification, multiannual investment management, etc.) or leave it to the various existing tools (fiscal policy, insurance markets, financial markets).

Risk management instruments, which are more developed in the United States or Canada than in the EU (Capitanio, 2010), may have their origin in the public sphere, private entities or professional organisations. In the typologies used to class and rank these instruments, particular attention is paid to the correlation between the occurrence of an event (or hazard) within a population, on the one hand, and its frequency and intensity, on the other. The risk is described as systemic when a large section of the population is affected; it is classified as independent when only one or a few individuals are affected.

In order to deal with the inherent risks of agriculture, the development of private risk management instruments (insurance, derivative risk management products) must be encouraged. The public authorities can contribute to this by making a clear distinction between what responsibility the public and private sectors have in dealing with agricultural risks, by stabilising their political guidelines for intervention in the agricultural markets and by encouraging an increasing proportion of farmers to educate themselves on these issues. By publicly awarding contracts, they can also promote the development of insurance.

The development of these private risk management instruments does not in any way mean that public authorities will no longer have a role to play in agriculture in future. The idea is not to set the players (public/private) against each other, but to find the best possible interaction between them to serve the desired objectives. With this in mind, the public authorities should maintain the safety nets (through public storage and private storage aid); strengthen the powers of the market (producer, processor and distributor), ensure that there is increased transparency on prices and margins; help to establish contractual relations between producers and companies, so that supply can be brought in line with demand; promote agriculture that is in tune with the environment and product quality (through the method of allocation of direct aid); and promote balanced development of European land. In the possible event of sudden mass imports of agricultural products from third countries, the public authorities must also use appropriate mechanisms (safeguard clause) to avoid the risk of damaging destabilisation of the existing agricultural industries.

Without going into too much detail here as to the content and the diversity of the tools that farmers could use to manage risk in their businesses (Femenia et Gohin, 2010; Kimura et al, 2010), some thoughts follow dealing with several points that are important to add to the CAP debate.

The diversification of agricultural and non-agricultural activities

The diversification of activities (agricultural and non-agricultural) is often a way for farmers to reduce their exposure to risk (particularly the risk of price volatility). The same applies to strategies of marketing in short distribution channels in which prices are set more by farmers than

by the interplay of competition on national and international markets. Exposure to the volatility of prices of agricultural products and inputs is not, therefore, the same for all farms. Over recent decades, agricultural development has, however, clearly oriented European agriculture towards increased specialisation, with a drastic decline in the number of mixed crops-livestock units: this was considered to be beneficial in terms of technical expertise and economic efficiency. Certain measures under the second pillar of the CAP are certainly likely to encourage diversification, and therefore lesser sensitivity to price volatility, but the expected overall impact will probably remain modest, as there are so many concomitant forces acting on specialisation.

The inter-annual flexibility of the CAP budget

The issue of the inter-annual flexibility of the CAP budget should be considered carefully in so far as it could enable part of the budget allocated to European agriculture to be adapted according to actual needs. The aim is not to question the principle of the multiannual financial framework (2014-2020), but to have some freedom ('security budgetary reserve') to tackle any crisis situations in the best possible way. This recommendation is particularly important given that the current system for allocating the single farm payment (SFP) is excessively inflexible; for example, it leads the public authorities to allocate direct aid to farmers benefiting from favourable and profitable prices, while at the same time there is a lack of funds to support producers affected by a major decline in prices or a sudden increase in costs.

Precautionary savings through adapted fiscal policies

In response to the increased volatility of agricultural sale prices, it seems essential that new fiscal policies be constructed in each country. We need to move from annual management of performance in farming to multi-annual management. The current system is, at least in some EU countries (like in France), still too inflexible. When the price situation is satisfactory, and income from farming is good, too often it encourages farmers to invest immediately in order to avoid compulsory levies. This reasoning, which is sometimes counter-productive in terms of long-term competitiveness, was not too problematic in a context in which prices and income were quite stable; it is becoming problematic in a situation of major fluctuations.

The issue is therefore now about finding the technical means to implement a system that would foster the creation of precautionary savings. This mechanism would give farmers whose income is high in the current year the opportunity to transfer part of their profit, exempt from social insurance contributions and tax, to the profit for the following year. If the income for the following year had declined due to the price situation becoming unfavourable, the amounts transferred could be incorporated into the income calculation so that the farmer would then pay his taxes and contributions. These amounts could also be used for investment, but on what would become a more multiannual basis. This precautionary saving could then be described, for example, as an 'investment savings plan'. With this in mind, would it not be a simple system to start with the possibility of transferring all or part of the direct aid potentially due for the current year to the following financial year?

Futures markets

Public authorities must encourage the development of futures markets, while bearing in mind the fact that, firstly, this financial instrument cannot be used for all agricultural products, and that, secondly, it does not in any way remove price volatility; in fact it needs price volatility in order to function. It is therefore not a tool for regulating the agricultural markets that could af-

fect price trends, but rather an instrument that enables farmers to react to the potential effect of a deregulation. Aside from these two significant limitations, and in the event of high price volatility, futures markets are useful for enabling those involved in a market to cover themselves. They give the farmers concerned the opportunity to anticipate the future margin that they will have by having advance knowledge of the sale price of their products; it allows farmers to decide to start production, optimise cash-flow management and focus their investment strategy.

The futures markets are still under-developed in the EU (they were only authorised in 1993 in France), at least in comparison with the situation in the USA. They essentially relate to crops; they are more difficult to apply to animal farms in so far as the instrument requires a high level of standardisation of products. In a strict budgetary context, this instrument also has the advantage of being inexpensive to public authorities. The potential development of these tools is also dependent on the quality of training that can be given to farmers, many of whom are not experts in these instruments.

Multi-risk climate insurance

The public authorities can encourage farmers to take out multi-risk climate insurance policies; these are to cover the risks to production associated with the vagaries of the climate (drought, hail, frost, floods and storms). In France, for example, a budget of EUR 133 million was used to fund this particular form of support in 2010. The aid takes the form of partial payment of eligible insurance premiums up to a limit of 65%.

Income stabilisation tools

Due to high prices volatility and the European Commission's proposals, it is interesting to question the conditions for implementing an income stabilisation tool under the second pillar of the CAP. Given the broad diversity of farms and of situations in the EU Member States, it is surely preferable for this mechanism to be constructed, at least for those who want it, within each country (through a common EU framework). Placing this instrument under the second pillar of the CAP gives it flexibility and allows co-financing by Member States and subsidiarity; it is nevertheless true that this choice could raise some questions among those who consider that this instrument falls first and foremost under regulation (and therefore under the first pillar). In any case, this ambiguity shows the extent to which it is not necessarily easy to build a new CAP structure while keeping the initial framework of the two historic pillars.

To enhance this reflection on income insurance, it would seem appropriate to consider the way in which the Canadian authorities recently structured their 'AgriStability' programme (which replaced the former Canadian Agricultural Income Stabilisation Programme). The programme compares the farm's profit for the current year to the reference profit calculated for the previous five years (excluding the highest and the lowest). If the profit is less than 85% of the calculated average, a payment is triggered. This programme works in a similar way to any insurance scheme. A premium, which is payable in advance, is used to cover the coming period. The fee is 0.45% of 85% of the reference profit (plus administration costs). There is no compensation if the decline in profit is between 0% and 15%; it is 70% if profits drop by between 15% and 30%; it is 80% when profits drop by between 30% and 100%; there are particular rules to cover losses and start-up farmers. As well as this Canadian example, the ACRE programme (Average Crop Revenue Election) introduced in the United States as part of the 2008 Farm Bill is interesting.

Creating such a mechanism in the EU must be envisaged under two main constraints. The first relates to its expected budgetary cost. The indicators used as a reference point need to

be well selected, then the thresholds and rates need to be set so that the budget that has been earmarked is kept to. This requires that statistical studies be conducted, such as those published by the European Commission. The second constraint is for the envisaged mechanism to be compatible with the commitments made under paragraph 7 of Annex 2 to the URAA. This paragraph includes the following two points: the right to receive payments on this basis shall be subject to a loss of (agricultural) income exceeds 30% of annual income for the three previous years or on a three-year average based on the five previous years (excluding the highest and lowest values); the amount of these payments shall compensate less than 70% of the producer's loss of income.

4. Conclusion

On 18 November 2010, the European Commissioner responsible for agriculture and rural development proposed a new phase in the long process of reforming the CAP. By taking the precaution of not entering too quickly into a precise definition of the criteria, indicators or thresholds that will ultimately be agreed and which will give shape to the real content of the future reform, the Commissioner is first seeking to give it a direction, in a particular context: i) the result of the negotiations on the EU financial framework for the 2014-2020 period is uncertain; therefore, it is difficult to predict what the future EU budget will be for agriculture and rural development; ii) the modification of the support instruments and regulation tools must be designed in such a way that the CAP remains compatible with the commitments made at the WTO as part of the Doha Round; iii) the European Commission must now work in close cooperation with the European Parliament, whose powers have recently been enhanced (Massot, 2010).

These European Commission proposals were accompanied in December 2010 by additional contributions targeting the dairy sector and the quality of agricultural products. While these different texts must be considered at the same time, their aim is not to cover all of the issues raised today by the development of European farming and the changes in agricultural and trade policies. They therefore do not discuss the position that the EU intends to adopt in international negotiations on subjects that are important for agriculture such as changes in currency parity; the need for international coordination of agricultural policies in order to combat agricultural price volatility; the trade strategy to be adopted towards developing countries that are net importers of agricultural products; the best way of taking into account, in future WTO agreements, non-commercial concerns (social rules, environmental standards, animal welfare); the future development of new technologies (second-generation biofuels, genetically modified crops, etc.). Likewise, these texts do not tackle the issue of harmonising rules between the Member States of an EU that is heterogeneous and in which there are still distortions of competition between countries.

To enrich the European Commission proposals, it seems important to keep in mind two ambitions: agriculture must become capable, in all the countries of the world, of better feeding the population (in terms of quantity and quality); it is essential for the balance of European society to maintain an agriculture that is both economically effective, environmentally friendly and mindful of its relationship to the land. The European authorities must be driven by the desire to implement a CAP that is fairer, more sustainable and more preventive. In order to do this, they must play close attention to the specific way in which the redistribution of support and targeting it better towards non-commercial goods will be implemented. This change in the way that public support is granted is particularly justified in that price volatility is increasing and the residual

tools for intervention on the agricultural markets will have quite a small influence on income levels. It is also important to maintain safety nets, to better manage speculation on the agricultural markets, to defend the right to minimal customs protection and to encourage farmers who are conducting innovative projects.

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