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POLICY DEPARTMENT
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Agriculture and Rural Development

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**THE MECHANISMS OF THE SINGLE
CMO AND RISK MANAGEMENT
INSTRUMENTS UNDER THE NEW CAP**

NOTE



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AND COHESION POLICIES**

AGRICULTURE AND RURAL DEVELOPMENT

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OF THE SINGLE CMO AND RISK
MANAGEMENT INSTRUMENTS
UNDER THE NEW CAP**

NOTE

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Content:

This note analyses the European Commission's proposals for reform of the common agricultural policy for the period 2014–2020. The analysis focuses on measures intended to respond to the volatility of agricultural markets. After explaining the possible justifications for public action aimed at mitigating and managing risks in agriculture, we will examine the effectiveness of the new measures that have been proposed, which include a crisis reserve and mutual funds for economic losses, as well as the effectiveness of the measures that will be kept in place. Our recommendations include in particular the establishment of transparent and credible rules for public action in order to promote the development of risk management markets.

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CONTENTS

LIST OF ABBREVIATIONS	5
LIST OF FIGURES	7
EXECUTIVE SUMMARY	9
INTRODUCTION	13
1. PUBLIC ACTION IN AGRICULTURE IN RESPONSE TO VOLATILITY	15
1.1. Inadequacy of King's law	16
1.2. Market failures	23
1.3. Methods of public action	25
2. ANALYSIS OF ARGUMENTS	29
2.1. Arguments for an increased volatility of agricultural prices	29
2.2. Arguments in favour of European public action	33
3. ANALYSIS OF PROPOSED MEASURES	39
3.1. Public intervention and private storage aid schemes	39
3.2. Sector-specific aid	43
3.3. Rules on marketing and producer organisations	45
3.4. Trade with third countries	47
3.5. Exceptional measures and the crisis reserve	50
3.6. Production limitation systems	52
3.7. Direct payments	55
3.8. Second pillar measures	57
CONCLUSION	60
REFERENCES	65

LIST OF ABBREVIATIONS

AFI	Agri-Food Industries
AWU	Agricultural work unit
CAP	Common agricultural policy
CFTC	Commodity Futures Trading Commission
CMO	Common market organisation
EC	European Commission
FAO	Food and Agriculture Organisation
FAPRI	Food and Agricultural Policy Research Institute
G20	Group of 20 economic powers accounting for 90 % of global GDP
OECD	Organisation for Economic Co-operation and Development
PO	Producer organisation
USDA	United States Department of Agriculture
WTO	World Trade Organisation

LIST OF FIGURES

Figure 1 Coefficient of variation for wheat yield over the period 1960–2010	18
Figure 2 Registrations of new tractors in France	21
Figure 3 Changes in the implicit volatility of wheat, maize and soya prices	33
Figure 4 Changes in agricultural land prices in Europe	35
Figure 5 Changes in investment per non-salaried AWU in France and Germany	37

EXECUTIVE SUMMARY

Objective and structure of the note

In October 2011, the European Commission presented its proposals for a new CAP for 2014–2020. According to the Commission, the CAP should be reformed in response to several objectives and challenges, including the growing instability of agricultural producer prices. In addition to keeping in place some of the measures currently in force, new measures should be taken to help farmers respond to this increased price and income volatility. The objective of this note is to provide a critical analysis of the various measures proposed to manage risks and crises in agriculture.

In order to analyse these proposals, we firstly summarise the lessons learnt from the many economic analyses that have questioned the validity of public policy for managing risks and crises in agriculture. We then analyse the European Commission's arguments which justify in general terms its proposals for European public policy in this area. Finally, we analyse the various measures proposed and suggest improvements that would be economically advisable.

Intervention in response to agricultural market volatility – why and how?

There are many sources of risk for agricultural activities, and yet none are really specific to agriculture. An argument often made to justify public policy in this area is that the short-term inelasticity of agricultural supply and the low price elasticity of food demand mean that any unforeseeable marginal change in quantities results in major price variations. This price volatility is detrimental to the competitiveness and development of agricultural sectors. Although it appears intuitive, this argument, known as King's law, cannot justify the use of public policy to manage risks. It ignores the many mechanisms that exist for mitigating these risks, such as storage and trade between regions and countries, and the risk management strategies that can be adopted by farmers, such as upstream and downstream contracts, diversification, investment decisions or savings and credit decisions.

Instead, economic analyses provide justification for public action when these risk mitigation or management mechanisms fail. The principal failures identified in the literature stem from information problems, such as information asymmetry between economic operators, transaction costs resulting from the need to access information or a lack of information on uncertain situations. A public policy must therefore be put in place to respond to these information problems, in particular when the public authorities have access to such information or can generate and disseminate it to economic operators at a lower cost than the market.

Intervention in Europe – why?

In its impact assessment, which examines three possible scenarios for the development of the CAP, the European Commission sets out arguments which provide a broad justification for its proposals. No reference is made to possible failures of risk management markets, where such markets exist. Instead, the European Commission firstly endorses the idea that agricultural prices in Europe will be more volatile in future. Three factors will contribute to

this increased volatility: climate change, a greater correlation with energy prices due to the growth of biofuels and, finally, the increasing financialisation of agricultural markets. However, the European Commission fails to cite any research showing that these factors will have any real influence on the volatility of world agriculture prices between now and 2020. As far as we are aware, the overwhelming majority of economic analyses currently available show instead that this financialisation will not increase the level and volatility of agricultural prices.

The European Commission goes on to express its support for the idea that agricultural incomes are dropping ever further in relation to other sectors of economic activity and that they are also increasingly volatile. The low level of agricultural incomes is regularly debated in the context of CAP reforms, since statistical information only allows a partial understanding of the problem. This information relates to income for agricultural activities, rather than the income of agricultural households. In addition, it does not tell us whether farmers have adopted risk management strategies or not. Although this lack of data prevents an accurate assessment of the problem, we believe that this argument is incompatible with the fact that real prices for agricultural land have continued to rise for at least 15 years.

Analysis of the proposals and our recommendations by type of measure

Taken individually, many of the measures proposed for the new CAP are motivated by the desire to respond to the volatility of agricultural markets. From the point of view of risk management, our main comments and recommendations regarding these measures are as follows.

The European Commission is proposing marginal reforms to the public intervention and private storage aid schemes. Automatic public intervention is in place only for wheat as an agricultural product. There is a liquid futures market for wheat in Paris which allows agricultural stakeholders to hedge their price risk, and so the main idea underlying the scheme is to support prices. We recommend reforming this scheme to facilitate risky medium and long-term investment decisions by farmers. In particular, intervention prices must be flexible, and above all not linked to production costs. They could instead be pegged to historical developments in world prices.

The European Commission is proposing sector-specific aid schemes for the management of crises in the fruit and vegetable and wine sectors. These proposals are a confirmation of the measures adopted as part of the recent reforms of these CMOs, aimed at reducing direct intervention in markets (recalls) in favour of risk management tools (insurance or mutual funds). Since these reforms are relatively recent and transitional periods are always necessary, we are in favour of these proposals in the short term. Keeping these measures in place in the long term is more debatable, however, since private solutions for managing these risks (diversification, savings and credit) are after all available to economic operators.

The European Community's proposals include a Community framework for contractual relations and negotiations in the dairy sector, and the facilitation of producer organisations and inter-branch organisations in all agricultural sectors. Some measures have in fact already been voted through as part of the 'dairy package'. The objectives are to give negotiating power back to farmers within food chains, and to ensure better price transmission. We recommend that these measures should go further, by supporting inter-branch organisations which gather and disseminate information that is useful to all

economic stakeholders. We also recommend that possible market powers in the food chain be better identified so that, if they exist, they can be tackled directly rather than promoting a succession of market powers in production, processing and distribution.

The European Commission is proposing the continuation of its trade measures with third countries, in strict compliance with the WTO's current multilateral rules, at the same time as extending the scope for intervention of the Globalisation Adjustment Fund to include agriculture. These measures include additional customs duties, safeguard measures and export refunds. As noted by the G20 leaders, international markets for agricultural products must function properly and without obstacles in order to combat price volatility and ensure global food security. The EU has already greatly reduced the distortions caused by the CAP on international markets. We recommend adopting a somewhat more proactive position by at the very least stating more clearly in Commission proposals that export refunds will be conditionally abolished.

The European Commission is proposing that exceptional measures aimed at tackling loss of consumer confidence should be extended to cover all agricultural sectors, and that a crisis reserve should be introduced for agriculture. Public action is entirely justified in catastrophic situations, since economic operators cannot generally protect themselves against their consequences. We recommend that these provisions should be made clearer, in particular the trigger thresholds and the nature and value of measures, and that they should be extended to cover agri-food industries as well. By definition, the potential scale of catastrophic events cannot be determined before they happen. It is therefore economically inappropriate to set a budget for crises which is limited in advance.

The European Commission is proposing that supply limitation systems in the dairy, wine and sugar sectors should be abolished by 2015/2016. These proposals are a final confirmation of decisions already taken in the first two sectors. Conversely, the abolition of sugar quotas within this timeframe is a new proposal. We recommend adopting these proposals, which are very clear and useful to economic stakeholders when taking decisions. Even if adjustments should always be facilitated by means of a transitional period based on investment lifetimes, in recent years the sugar sector has benefited from favourable prices which have made it possible to secure a rapid return on these investments.

In the direct payments regulation, the European Commission is proposing the continuation of basic direct payments to support and stabilise agricultural incomes and coupled aid for certain sectors experiencing problems. However, it still gives the Member States the option of abolishing this coupled aid from 2017. There is much uncertainty surrounding the unitary level of basic direct payments. We recommend that a clear justification should be given for the relevance of these direct payments, since the fact that there is such uncertainty regarding their exact level gives rise to doubts about their relevance. If they are genuinely useful, there is no economic reason why they should not be funded unequivocally. Continuing coupled aid is economically unjustifiable from the point of view of risk management.

In the rural development regulation, the European Commission is proposing that financial support be kept in place for insurance premiums and mutual funds in the event of animal and plant diseases. The main innovation is financial support for mutual funds for economic losses. In the interests of transition and training, we recommend adopting the first two proposals, even if it should be acknowledged that support for insurance has no long-term future. Over the next few years, we also recommend adopting proposals on mutual funds

for income losses, since they promote the involvement of the farming community and make it more accountable.

Some general recommendations

In broader terms, we recommend that rules on public intervention be made significantly clearer and more transparent in order to avoid any ambiguity, and that the development of private risk management strategies should be promoted. We also recommend promoting the gathering of economic information and the dissemination of such information when it is non-confidential. Member States must be given a certain amount of flexibility when implementing these rules. There are vast differences between the land regulations and tax policies of the various Member States, and these can have a major impact on the consequences of risks borne by farmers.

INTRODUCTION

Over the past 20 years, the European Union has made continuous reforms to its common agricultural policy (CAP), whether by means of multi-sectoral reforms (McSharry reform in 1992, Agenda 2000 reform in 1999, mid-term review in 2003, health check in 2008) or by means of single-sector reforms (for example cotton and tobacco in 2004, sugar in 2006, fruit and vegetables in 2008 and wine in 2008). In spite of these many reforms, all of which followed the philosophy of decoupling support for agricultural income from the act of production and targeting this support at non-market functions of agriculture, the EU is about to reform the CAP once again over the next few months, for the period 2014–2020.

In October 2011, the European Commission presented its first concrete proposals for reforming the various CAP instruments. Its proposals are aimed at preparing European agriculture and rural areas for the new economic, social, environmental and technological challenges they will face. The objectives of the reformed CAP are to promote 1) viable food production, 2) the sustainable management of natural resources and the fight against climate change and 3) balanced territorial development. These objectives are not fundamentally new, and by themselves they do not therefore justify a reform which is different from those adopted over the past 20 years.

On the other hand, changes to the context in which European agriculture is operating may provide real motivation for certain innovative reforms proposed by the European Commission. In particular, over the past five years there have been fundamental changes to the situation on certain European and global agricultural markets (in particular cereals, oilseeds, sugar, dairy products and, to a lesser extent, meat), with higher and more volatile average prices than the previous 15 years. The variability of agricultural incomes has increased correspondingly, even if they depend to some extent on fixed budgetary support. This new context of increasingly volatile markets for agricultural products, agricultural inputs and agricultural incomes, as seen in recent years, means that questions about the relevance and effectiveness of the CAP's current tools and their possible reform are entirely justified. The European Commission believes that one of the reasons why the CAP must be reformed is to help the agricultural sector to become more competitive and to respond to the economic crisis and the growing instability of production prices. New measures must be taken to help farmers deal with price and income volatility. In other words, the European Commission believes that more volatile agricultural prices in future justify a reform of the current CAP to manage agricultural risks.

The objective of our note is to provide the European Parliament with a critical analysis of the European Commission's proposals concerning the price volatility of agricultural raw products and inputs and the income stability of European producers. This critical analysis covers both the measures that have actually been proposed and the reasons given to justify them. We also analyse the outcomes of the European Commission's impact assessment which accompanies the proposals (European Commission, 2011a). Our note ends with a list of recommendations to help the Members of the European Parliament in their legislative work.

Even though the European Commission and, more generally, many political decision-makers (both European and international) find it self-evident that public action in the agricultural sector is effective in dealing with market and income volatility, this effectiveness is still the subject of academic debate. The recent increase in the volatility of

agricultural prices and their average level has given rise to much research at international level on this problem's causes, consequences and solutions, and this research is ongoing. It has to be said that the conclusions and policy recommendations that have emerged from this research differ widely. Although public intervention in catastrophic situations is regarded in all instances as legitimate, other conclusions vary widely. By way of example, two recent reports aimed at defining an optimal CAP for the post-2013 period come to different conclusions regarding the relevance of market instruments, and, more specifically, trade instruments. Tangerman (2011) recommends that market instruments such as customs duties should not be used in Europe, whereas Bardaji et al. (2011) believe instead that it must still be possible to use them, in particular for vulnerable sectors (such as the European cattle industry). This is why we consider it important to start by setting out what we believe to be the real economic arguments that justify public intervention in the face of agricultural market risks. We also explain the principles that should govern this possible public intervention and the procedures to be followed. These theoretical deliberations, based on our review of the academic literature, make up the first part of this note.

In the second part, we firstly present and then comment on the European Commission's arguments in favour of risk mitigation and management measures in agriculture. In particular, we firstly analyse the validity and robustness of the European Commission's arguments for increased agricultural price volatility in the future. We then examine the validity and robustness of arguments concerning the negative consequences of this alleged increase in agricultural price volatility in terms of the variability of agricultural incomes.

In the third part, we present the measures proposed by the European Commission and then subject them to a critical analysis. A desire to combat the possible negative effects of sources of risks in agriculture and/or to limit the extent and occurrence of these adverse events appears to be behind many of the instruments proposed. It is clear that the measures for managing agricultural markets set out in the single common market organisation (CMO) regulation (European Commission, 2011b) and the risk management measures set out in the rural development policy regulation (European Commission, 2011c) are part of the arsenal of measures planned. However, the measures proposed in the direct aid regulation (European Commission, 2011d) also appear to follow this goal. These instruments must therefore be considered together and, in particular, their global coherence must be assessed in order to provide a comprehensive critical analysis.

The last part sets out an overall summary of our main comments on the European Commission's proposals and analyses.

1. PUBLIC ACTION IN AGRICULTURE IN RESPONSE TO VOLATILITY: SUMMARY OF THE LITERATURE

Both in Europe and elsewhere, farmers face many sources of risk and uncertainty, which are mainly but not exclusively linked to their agricultural production activities. The first risks traditionally identified are production or technological risks which mean that, for the same quantity of inputs, the products obtained from an agricultural activity are not identical in volume and quality (quantitative risk versus quality risk). These production risks result from climatic hazards (hail, storms, droughts, ice, etc.) for the cultivation of crops, for example, or sanitary hazards (epidemic, endemic or zoonotic diseases) for livestock farming, for example.

Market risks are also generally identified at the level of individual farmers, mainly that the price of products is not known for certain when the farmer starts production activities. However, this is not the only example of market risk. Market risks also include the price of inputs used during activities (for example fertilisers, fuels, etc.), as well as marketing risks related to the question of whether or not purchasers for products/vendors of inputs can be found locally and/or rapidly. Further examples of market risks include financial risks (for example whether or not the banking sector decides to finance a productive investment) and access to production factors (in particular land). It should be noted at this point that the origin of price risks for agricultural products is unlikely to be very important for individual farmers, since there can be several causes of these risks (cf. for example Munier, 2010). A market price results from an interaction between supply, which may be predetermined, and demand. An unpredictable change to one or other of these components, for example due to a production risk which cannot be anticipated and which is experienced by several farmers, will necessarily result in unexpected price variation. This is what is known by the academic community as exogenous price volatility, and is connected to the production risk mentioned above. In addition, 'endogenous' price volatility may also exist, resulting from a poor assessment by agricultural producers (the academic literature speaks of non-rational expectations) of the market situation, and this can exist independently of any exogenous sources of price volatility. This endogenous volatility can exist in other sectors and therefore for other prices, and it can even exist at macroeconomic level for interest rates and exchange rates. Trade in agricultural products between countries/regions means that this potential endogenous volatility of exchange rates can result in the endogenous volatility of agricultural prices, which is the concrete problem that agricultural producers face.

In addition to these two 'major' sources of risk, farmers also face other types of risk. These include environmental risks linked to the use of natural resources during agricultural activities (risk of accidental pollution, for example). Other risks involve the agricultural assets held by farmers, such as fires in the buildings of the holding or the breakdown of agricultural equipment. Farmers face risks to their health (diseases for example), some of which are a direct result of their production activities (for example applying phytosanitary products or handling animals). Finally, farmers face political or institutional uncertainty beyond that connected to the CAP (for example approvals of new technologies such as those involving genetically-modified organisms, or the taxation of agricultural assets).

These different sources of risk and uncertainty vary in several dimensions, including the probability of their occurrence (rare or frequent), their scale (small or large), their possible asymmetry (balanced or fewer favourable events than adverse events, etc.). Some sources

of risk are much less well-known and quantifiable than others (institutional risk versus the risk of a fire in the buildings of the holding). In addition, not all agricultural activities face different sources of risks in the same way. For example, landless animal husbandry activities are less subject to the risk of drought than crop cultivation activities. Exposure to risk also depends on the location of agricultural holdings; for example, holdings in Southern France have in the past experienced more droughts than holdings in Northern France. Finally, not all of these sources of risk have evolved in the same way over time. For example, it is generally accepted that quality risks for European agricultural products have decreased over a long period of time, in particular due to improved familiarity with technological processes. Conversely, climate risks are an increasing problem (climate change).

European farmers are thus faced with several sources of risk and uncertainty. Does this necessarily justify public intervention, and if so, what kind of public intervention? We intend to answer this question firstly from the point of view of economic theory, since there is no consensus of any kind in the many recent reports on the optimal nature of public intervention in agriculture in response to risk and uncertainty. In addition, no real economic justification is given for the instruments proposed. For example, even those who regard public intervention as legitimate put forward few economic arguments in favour of intervention prices for cereals as a 'safety net'. More specific details are needed regarding this measure, which is included in the European Commission's proposals.

We will start by referring to King's law, which has often been put forward as an intuitive justification for public intervention in agriculture. We will show the gaps in this argument, and then focus on market failures, which are the real reason for public intervention. We will finish by discussing possible public intervention instruments.

1.1. Inadequacy of King's law

While farmers face many sources of risk and uncertainty, this is also the case for producers engaged in other economic activities. Furthermore, none of the sources of risk and uncertainty mentioned above are really specific to agricultural activities. For example, climate risk (rainfall, sunshine, heat, etc.) also has an impact on certain tourist activities. The legitimacy of public intervention which is strictly agriculture-related cannot therefore be based on exposure to a specific source of risk and uncertainty. A more convincing a priori argument could possibly be that farmers accumulate many risks, and that these risks have a greater impact on farmers than on other sectors. Unfortunately, this argument is quite difficult to verify using historical data for the European Union, simply because there have always been agricultural policies which have operated in part by mitigating the effects of these sources of risk and uncertainty. For example, until the middle of the last decade, dairy product prices and dairy producer incomes were less volatile than those for landless animal husbandry sectors, due to stronger public intervention through the CMO for milk and dairy products.

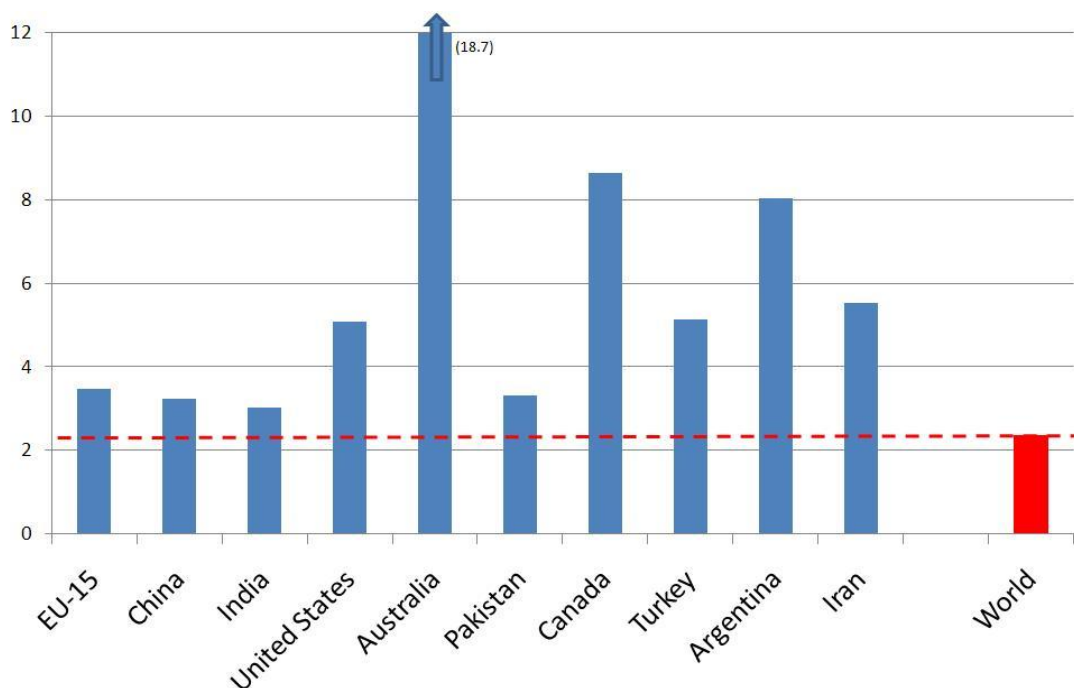
The total number and scale of sources of risk and uncertainty are not in fact generally used as arguments to justify public intervention; instead, these are regarded as characteristics inherent to agricultural activities and markets. More specifically, there is a rich literature (cited in Chatellier, 2011, for example) on the unique features of agriculture compared to other sectors. In particular, it is argued that a) agricultural supply is insensitive to price in the short term due to production delays and b) food demand is also insensitive to price. As a result, any unanticipated impact on quantities supplied or demanded (for example due to a climatic effect) or any poor assessment by agricultural producers of future demand will

result in strong variation of prices, whether upwards or downwards, and as a result in the variation of agricultural incomes. This is the law stated by Gregory King, an English statistician who highlighted the price inelasticity of demand for food. It should be added that c) farmers do not like experiencing income variations (they are regarded as risk averse) and will therefore prefer to invest less in agricultural activities or even to leave the sector. This is ultimately detrimental to agricultural consumers and the global economy, because the volumes available will on average be lower and therefore prices higher (also on average). Since this is undesirable, public intervention in agriculture is needed to combat agricultural price volatility and guarantee agricultural incomes.

This argument, which uses King's law to justify public intervention, is quite intuitive and logically appealing. It is however invalidated by a major omission. Since economic operators are aware of these factors, they will adapt their behaviour in an attempt to take advantage of the situation or to protect themselves against its negative consequences. We can distinguish between two types of behaviours or mechanisms: those which are intended to mitigate price volatility, and those which are aimed at managing/sharing/transferring residual risks.

The first mechanism intended to limit price volatility is storage. This has long been practised (as can be seen in the Old Testament, in Joseph's advice to the pharaoh on the benefits of storage) and can have a stabilising effect on prices. When production exceeds demand, the storage of quantities makes it possible to limit the price drop. Conversely, when production falls short of demand, releasing the stored quantities allows the increase to be limited. In the past, it has been possible for such storage operations to be carried out by public authorities, but private operators (farms, cooperatives, retailers) can also be involved. Much research on the agricultural economy (the reference work being the book by Wright and Williams, 1991) shows the beneficial effect of competitive/private storage on agricultural price volatility and, ultimately, the wellbeing of economic operators. However, storage mechanisms cannot be a panacea, for two main reasons. Firstly, this beneficial effect depends on the costs of storage; the higher the unitary costs of storage, the less effective it is. Taken to the extreme, some products cannot be stored at all due to their perishability. This argument is not very convincing, however, since processed products can be stored more easily (powdered milk or butter instead of milk, for example). Secondly, the stabilising effect of storage reaches its limits when stores are 'empty' and production is low. In other words, it is easier for storage to prevent low prices than high prices. Furthermore, a characteristic of agricultural products is that they are generally 'low', very rarely very low and sometimes high or even very high. It is generally acknowledged that the relatively low levels of global stocks of cereals contributed to the increase in their prices in 2007. Although it does not entirely prevent price volatility, therefore, the mechanism of storage is a first step towards stabilising agricultural prices.

A second behaviour/mechanism intended to limit agricultural price volatility is simply trade between regions. Climate variations which affect agricultural yields are not experienced in the same way at the same time in the world's agricultural production zones. For example, hail is a fairly local climatic phenomenon which only affects part of the global harvest. This results in a variation in yields between countries, as shown in Figure 1 for wheat.

Figure 1. Coefficient of variation for wheat yield over the period 1960–2010

Source: Jean et al. (2011).

If there were no trade between areas vulnerable to climatic hazards and areas less vulnerable to such hazards, agricultural prices would be volatile in the former area, or in other words alternate between high and low prices, and more stable in the latter. These price differences will encourage economic operators to trade their goods. When prices are high in a region which has experienced a negative impact on production, therefore, producers in the region which has not been affected will be keen to export some of their products. Conversely, when prices are low in a region which has a positive impact on production, consumers in the region which has not been affected will be keen to import some of the products they consume. The effect of this trade will be to mitigate price variation in the region vulnerable to climatic hazards. Conversely, it will increase price variation in regions which are not vulnerable to climatic hazards. Trade therefore makes it possible to distribute the effect of impacts on production, whether exogenous or endogenous, over greater volumes of supply or demand, which has the effect of reducing global price volatility. Once again, this trade mechanism cannot be a panacea since it cannot result in the total disappearance of agricultural price volatility. Furthermore, similarly to the storage mechanism, its effectiveness depends on the costs of trading goods. In particular, these costs include transport costs, which can be high for certain agricultural products. For example, the heat wave which ravaged France in 2011 led to significant decreases in the production of fodder in regions in Southern France. The costly transport of fodder from areas in the North to these regions made it possible to mitigate the consequences in terms of animal feed (and thus early slaughtering).

Agricultural price volatility will always exist, in spite of these two storage and trade mechanisms, and it will result in agricultural income volatility if farmers do not adapt. There are several options for mitigating the negative effects of price volatility, and a distinction can be made between ex ante decisions (before the unpredictable event takes place) and ex post decisions.

A first ex ante decision relates to diversifying the sources of income for agricultural households. Diversification can take many forms; it may relate to diversification outside agriculture, whereby one member of the household works outside the holding. Activities related to agriculture, such as farm tourism and rural services (maintenance of rural roads) can also reduce income variation for agricultural households. It may also include diversification within agriculture in the strict sense of the word, in terms of carrying out several agricultural activities, which may be complementary as regards use of the workforce and production equipment (for example the production of several arable crops, cereals, oilseeds, proteins, beets). Finally, diversification may relate to production technologies, with the adoption of technologies and procedures which are more or less vulnerable to hazards. Once again, this mechanism involving adaptation by agricultural households is not an answer to every problem. Opportunities for work outside holdings are not available in all rural areas. In addition, these diversifications result in other costs and a lower anticipated income, due to the existence of economies of scale.

A second ex ante decision relates to the total or partial transfer of the consequences of risk to other economic stakeholders against payment. Reference is often made in this connection to insurance contracts and financial contracts, whether in the context of organised markets (futures markets) or non-organised markets (over-the-counter markets). Sharing or transferring the consequences of risk, against payment, is in fact possible with stakeholders other than insurers or investors on the financial markets. It can take place with farmers' customers within the framework of a marketing contract with their cooperatives, for example. It can also take place, although this is very rarely mentioned during debates on risk in agriculture, with parties who supply production factors to farmers, such as land owners. Not all agricultural households have full ownership of the land they cultivate, since some farmers enter into lease agreements with landlords. These agreements can include provisions aimed at ensuring that the cost of leasing the land plays a role in partially absorbing the consequences of risk. The most obvious case is the *métayage* system, which allows the amount paid for the land (and, on a more general note, the capital invested by the landlord) to be indexed to the level of sales. This system is widespread in developing countries. In the United States, the *métayage* system is gaining momentum and today accounts for almost 35 % of leased land (including hybrid *métayage* systems). Since 45 % of US agricultural land is leased, the system is used for nearly 16 % of agricultural land overall. The *métayage* system plays a marginal role in Europe as a whole, although it is more significant in certain regions (in the Provence Alpes Cotes d'Azur or Mediterranean regions in France, where it accounts for nearly 5 % of land, or the Netherlands where it accounts for nearly 20 %). The system was a great deal more widespread at the start of the 20th century, but was accused of removing any incentive for holdings to increase their production. The system involves sharing the profits of any increase with the landlord, while farmers retain all profits from an increase in the case of simple leasing contracts. The replacement of *métayage* by tenant farming is therefore explained in part by the fact that farmers found it too costly to transfer part of their risk to landlords.

Although the *métayage* system is much less widespread in Europe today, landowners can nevertheless absorb some of the consequences of risk for agricultural incomes. In France, for example, payment for land is based in part on agricultural incomes under the tenant farming statute. When incomes have risen in previous years, the index calculated by prefects to determine changes in unitary farm rent also rises (adjusted for inflation). Conversely, when agricultural incomes have dropped in the past, the farm rent for the following year is reduced. When signing lease agreements, farmers can refer to the farm rent index calculated by prefects for annual farm rents. Once again, this system does not

entirely eliminate variations in agricultural incomes, but means that both increases and decreases are shared to a certain extent with land owners.

The consequences of sources of risk and uncertainty can also be shared with or transferred to insurers on the basis of insurance contracts. A typical example for agriculture is a hail insurance contract, which is an ex ante decision on the part of a producer to pay a premium to an insurer, who will pay out an indemnity if a hail event affects harvests. Once again, this ex ante decision comes at a cost to farmers, since the insurer must collect premiums in order to be able to pay out indemnities. The premium charged by insurers will depend on the nature of the risk; the lower the risk and the less it is correlated among individuals, the lower the premium. Conversely, the more the risk is correlated between farmers, the higher the premium charged by insurers will be, since the latter may have to reinsure their risk with reinsurers. If they do not, they run the risk of possibly going bankrupt if an adverse event affects all of their insured parties at once. The insurance system is therefore better suited to non-systemic risks, such as production risks.

It is usually recommended that farmers use financial contracts, including deferred delivery contracts (forward contracts) on over-the-counter markets, and futures contracts and options on organised markets, for price risks which affect all producers in a given business sector at once. Although a great deal of criticism has been levelled at the financial markets for the role they are supposed to have played in recent developments in world agricultural product prices, it should be acknowledged that farmers have used the financial markets for a long time. This is particularly true in the United States. In Europe, the use of financial contracts and markets has been limited until recently, mainly due to the fact that the CAP limited price variation and thus made them less useful for European farmers. Since the CAP reform of 1992, which brought down agricultural prices in Europe, futures markets for agricultural products have been created such as Eurex and Nyse Euronext. Financial contracts (futures and options) are now available for milling wheat, maize, rapeseed, barley, industrial potatoes, piglets and pigmeat. As regards processed products, there are contracts for butter, skimmed milk powder and sugar.

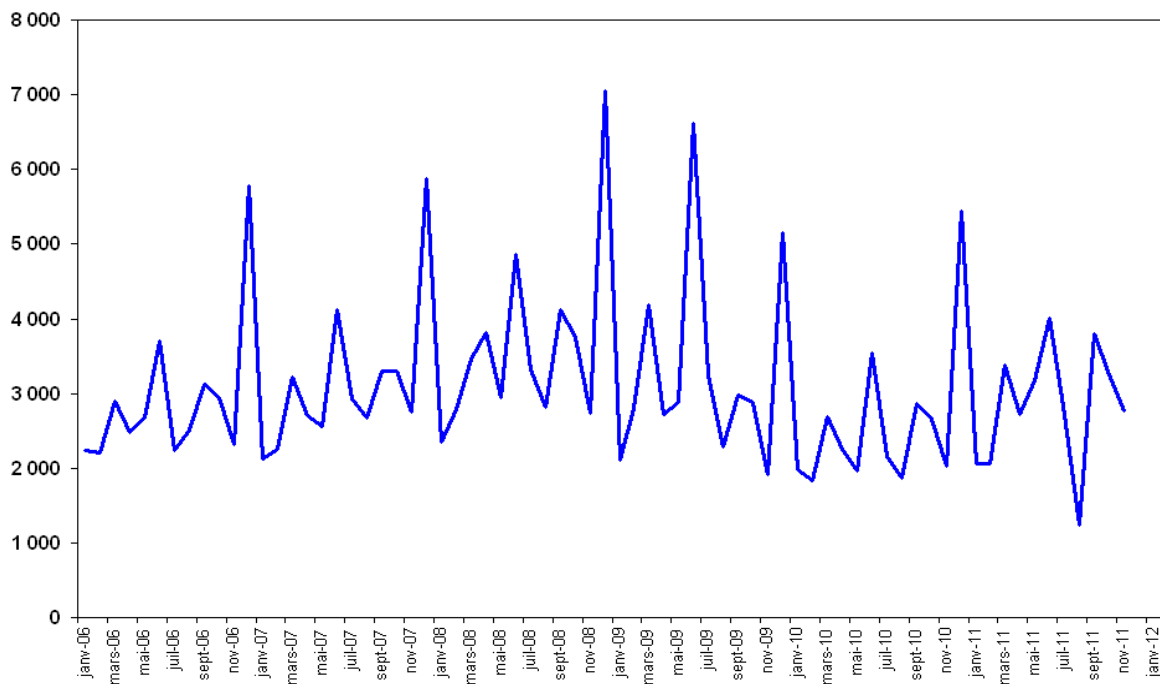
These contracts therefore make it possible to share or sell (in the case of options) the consequences of risk with investors, of whom there may potentially be more in the case of futures contracts. A futures contract is a standardised delivery contract stipulating quantities, quality and the delivery date and period, the conditions for dispatch and the payment method. These contracts are negotiated on futures markets with clearing houses which ensure that participants are solvent by means of margin deposits and margin calls. Although the use of standardised futures contracts simplifies matters for clearing houses and means that many investors can participate, it does not necessarily correspond to the objectives of farmers who may not produce the volumes or the quality stipulated in the contract. This is why deferred delivery contracts also exist, which are generally concluded between two operators, for example a farmer and a wholesaler. The features of these contracts can be tailored to a greater extent to suit the needs/objectives of each party. Unlike futures contracts, however, where guarantee systems are put in place by clearing houses, these deferred delivery contracts can be subject to counterparty risk, or in other words the risk of the other party not fulfilling its commitments.

In the academic literature, these futures contracts (and the associated options) are presented as the solution to price risk for agricultural producers. The cost of these contracts is indeed quite low, since it mainly involves the payment of a minimal margin deposit (and margin calls). However, there are nevertheless certain limits to the solution of futures contracts. In particular, there remains a basic risk for operators, whereby the base is the

difference between the futures price and the cash price (or spot prices). This base differs between agents and over time, since it depends on the costs of storage, the costs of transport to deliver or collect products from the official silo of the commodity exchange, and the real quality of the available product. The closing base essentially corresponds to the costs of transport and any difference in quality. Furthermore, prices for the products underlying the futures contract must be sufficiently volatile and their variations unforeseeable in order for the market to be sufficiently liquid, or in other words for some agents to want to hedge their risks and others to want to diversify their portfolios. In other words, futures markets are not the solution when there is little variation in prices.

Despite the existence of mechanisms which mitigate the consequences of price volatility and ex ante decisions for risk sharing/transfer, agricultural incomes can still remain volatile. Farmers then have the choice of at least two ex post decisions, or in other words decisions taken after the risk event, to mitigate the consequences of the residual variability. The first of these decisions relates to productive investments in production technologies or factors. For example, when prices turn out to be favourable during a growing year, farmers can bring forward their investment decisions. Conversely, when agricultural prices turn out to be lower than anticipated, farmers can delay certain investments to some extent. These investment decisions have an impact on productive capacity during future growing seasons, but also have a smoothing effect on final agricultural incomes, in particular taxable income. Without carrying out an in-depth economic analysis, it is quite difficult to establish the risk management motivation behind investment decisions. Although it cannot be regarded as formal proof of the stabilising role of investment, it is nevertheless interesting to note that purchases of agricultural equipment, and in particular tractors, are mainly made at the end of the year and correlate positively with agricultural prices. Figure 2 shows this for France.

Figure 2. Registrations of new tractors in France



Source: Chatellier (2012).

Key: Janv – January / Mars – March / Mai – May / Juil – July

A second ex post decision relates to saving (or dissaving) decisions and final consumption by agricultural households. The most important factor for agricultural households is probably their ability to smooth their consumption. To do so, they can save part of their income when the risk event (price for example) is favourable. Conversely, they cannot save or reduce their savings or borrow in the event of an unfavourable risk event. This smoothing mechanism of course depends on the agricultural household's access to savings and credit markets. As in the case of physical storage, this mechanism can only function effectively if savings are already in place, which is more of a problem for new entrants to farming. Savings must also be liquid, or in other words easy to mobilise. If savings are in the form of property assets, a farmer wishing to mobilise them will face transactions costs.

Overall, King's law, which is based on the inelasticity of food demand coupled to agricultural supply which is inelastic in the short term, falls far short of justifying in theoretical terms public intervention in agriculture in response to risk and uncertainty. This law fails to take any notice of the different mechanisms and behaviours which have the effect of mitigating this volatility or managing its consequences. A theoretical justification for intervention must therefore be found elsewhere. Until now, our analysis has only dealt with mechanisms from a theoretical point of view, but King's law is also debatable in empirical terms. For example, the price inelasticity of demand for food is certainly not as strong in all countries, in particular developing countries. It also varies according to food product, since some can be substituted for others. Furthermore, supply is not entirely inelastic to price variations. For example, vegetable products in the southern hemisphere are harvested later than those in the northern hemisphere. In addition, while certain production factors are involved from the start of the production process (land for vegetable products, reproductive animals for animal products), yields are never entirely independent of prices. A certain variation in short-term supply is therefore possible at global level. In addition to its theoretical inadequacies, the empirical validity of King's law is therefore far from clear-cut for all agricultural sectors.

1.2. Market failures

Different behaviours and mechanisms therefore make it possible to mitigate agricultural price volatility or to manage the consequences of risks. However, none of these behaviours or mechanisms are ideal for farmers, in the sense of reducing volatility to zero cost, since they all have an economic or opportunity cost. Storage makes it possible to smooth price fluctuations over time, but entails storage costs. Trade makes it possible to smooth such fluctuations in space, but entails at the very least transport costs. Diversifying activities entails at the very least organisational costs at company level. Lease agreements for land involving flexible payment may mean that access to land is lost, since the land owner may prefer to rent the land for fixed payments. Insurance contracts mean that it is necessary to pay premiums, the total of which cannot be equivalent to the prospective indemnity since insurers incur costs, by verifying claims for example. Futures contracts involve making margin deposits which generate less interest and expose producers to basis risks. Bringing forward or delaying investments can mean a loss of competitiveness due to a sub-optimal choice of technology or capital. Finally, savings generally attract a lower interest rate than loans, since banks also face costs (risk of borrowers defaulting).

Is public intervention necessary to reduce these costs? The criterion generally used in economic analyses to justify public intervention is known as the Pareto criterion, according to which public intervention in agriculture is economically legitimate in response to risk and uncertainty if it improves the global allocation of resources, or in other words if it can enhance the wellbeing of certain economic operators without reducing that of others. The

allocation of resources in the presence of risk and uncertainty may be sub-optimal and could therefore be improved by public intervention if the above-mentioned private mechanisms for risk mitigation and management fail, or in other words if their social costs are higher than the prospective social benefits, or if they are incomplete, or in other words not available to economic operators (or available at infinite cost). In other words, public intervention is justified if it can bring about ex ante improvements to the functioning of these risk mitigation and management markets and/or it can provide the required number of such markets. The question that should be asked in order to justify public intervention in agriculture in response to risks and uncertainty is therefore whether risk mitigation and management markets are imperfect or incomplete.

This is a key question which has given rise to much economic research, and the answer cannot be the same for all contexts. For example, insurance markets are significantly more developed in developed countries than in developing countries. Nevertheless, at least one conclusion is drawn in all the research studies, namely that there is an information problem. Information asymmetry between economic operators, transaction costs resulting from the need to access information or even the absence of information on uncertain situations are the main failures of the risk mitigation or management markets identified in economic analyses. As we will discuss in the next section, not every public intervention is automatically effective, even in the context of markets which are inefficient in terms of information (cf. for example Grossman and Stiglitz, 1980). The choice of public intervention type is extremely important.

More specific information should be provided about the nature of these information failures. Problems relating to information asymmetry have been studied for a very long time, in particular as regards agricultural insurance. The problem can be summarised as follows: information asymmetry exists when an economic operator (a farmer) is more aware of his risks than an insurer. An information asymmetry of this kind can result in two classic insurance problems, namely moral risk and adverse selection. Moral risk occurs when the insured party modifies his behaviour following the purchase of an insurance contract, for example by taking riskier production decisions. Adverse selection occurs when only the farmers who are most exposed to risk purchase insurance contracts. If the premiums calculated by insurers are based on the entire farming population, they will not be able to pay out indemnities in the event of a disaster. Without perfect information, however, insurers are not fully aware of the exposure to risk of each farmer. In view of these asymmetric information problems, insurers have several options to reduce their own risk of bankruptcy: increasing the level of premiums, establishing franchises and no-claims bonus systems. The aim of all of these systems is to collect information, but ultimately they result in the higher cost (or lower effectiveness) of insurance contracts for farmers. This additional cost (or reduced effectiveness) which results from information problems can even mean that some farmers do not use insurance contracts when they would have used them without the additional cost.

A second failure stems from transaction costs resulting from the need to obtain inaccessible information. This explains in part the lack of futures markets for certain agricultural products, for example. As we emphasised above, futures markets can develop more easily if the underlying product is of a relatively homogenous quality, since the quality of the product can be measured and be easily measurable by reliable and indisputable techniques (cf. Delande, 1992 for example). If this is not the case, market operators may lodge disputes, for example regarding the quality of products and therefore the costs of quality checks. Commodity exchanges are reluctant to propose futures contracts for non-homogenous products.

A third and more straightforward failure results from a lack of 'reliable' information on a future risk event. In agriculture, for example, this can be the case for unknown food-related health risks or new animal epidemics. The probability of these risk events occurring is unknown, as is their scale. It is therefore technically impossible for insurers to draft contracts aimed at protecting farmers from these risks. However, it should be emphasised that securitisation (or in other words using financial instruments) is nevertheless becoming more widespread for natural disasters, which are also risk events with an unknown probability. A further example of a lack of 'reliable' information which results in imperfect risk management markets relates to long-term decisions. In agriculture, and indeed in other sectors of economic activity, investments are made over several years, but there are not necessarily any long-term risk management markets. Investors in futures markets do may not have the information they need to take a particular position (to buy or to sell) on the futures markets, and thus latter may not exist due to a lack of liquidity.

In addition to information problems, there are other failures that may affect risk mitigation and management markets. A first source of imperfections is the existence of positive or negative externalities linked to agricultural activities. A specific example of this in relation to risk in agriculture is when a farmer vaccinates his animals against a disease, whether diagnosed or potential, and in so doing reduces the risk of the disease spreading to animals on other farms, as was recently the case with vaccinations against bluetongue. The market fails in such cases, since farmers who vaccinate their animals incur costs while the benefits are shared with other farmers. A second source of imperfection is the existence of a market power, which can emerge when there are economies of scale and/or significant fixed costs for a production activity. This results in there being a limited number of producers on the market that could try to exploit these rents. As regards risk in agriculture, this can be the case for agricultural insurance.

All of these market failures linked to information problems, market power and externalities are reasons that have been clearly identified by economists as justification for possible public intervention. We believe that there are additional reasons, which as far as we are aware have not been studied in such depth. In particular, public intervention in a given region (country) may be legitimate in response to policies implemented in other regions. Intervention by one region to limit the consequences of risk for its economic operators may work to the disadvantage of other regions. For example, the price risk is higher for countries that do not intervene in their agricultural markets, since the world price for agricultural products is more volatile than domestic prices in many regions. This additional source of risk is not as readily comprehensible as traditional sources of risk in agriculture, falling rather within the realm of uncertainty, and therefore management markets can be said to fail. For example, at which point does the situation in a region with which a farmer is trading become disastrous? Even more uncertainty surrounds the threshold for triggering intervention or whether trading conditions will be modified.

This unpredictability of public intervention in other regions is entirely logical in the agriculture sector. It is easy to understand that regions that are net importers of food products would intervene on a discretionary basis when faced with the threat of food riots. The emotional impact of issues relating to food is a real and unique technical feature of agricultural markets (which differs from the features described in King's law). The need to eat, and above all the fear of inadequate food supplies for populations, has always given rise to local political measures, and we can see no reason why this should not happen again in future. It is unrealistic to suppose that governments will not intervene when faced with a perceived threat to food supplies for their populations. This argument varies between

countries depending on the share of household budgets accounted for by food. As emphasised by Bricas and Daviron (2008), for example, it is overly simplistic to refer to the 'food riots' of 2008, since the demonstrators were protesting firstly about rising fuel costs (in Cameroon and Iran), pay (in Egypt) and the corruption and behaviour of the elite. The later protests about lack of food gave rise to fears of more widespread destabilisation among political leaders, which logically prompted them to intervene.

1.3. Methods of public action

Risk mitigation and management markets are therefore characterised by various imperfections, which means that it is legitimate to look for the best public intervention to correct them. Yet what form of public intervention is the most effective? Should intervention be targeted directly at these imperfections, or should more direct intervention be carried out on physical agricultural markets or even agricultural incomes? Should public intervention take place at all, since the cure may be worse than the disease? In the next part of our analysis, we focus on information failures.

The answer to these crucial questions cannot be the same for all countries. For example, Molander (2009) and Tangerman (2011) believe that the scale of these failures in the European Union is not sufficient to justify strong intervention by the public authorities. These two authors suggest that the role of the European Member States and the EU should be limited to catastrophic loss events (involving a lack of reliable information), but without providing any specific explanation of how intervention should take place. Conversely, these failures are much more significant in developing countries, and public intervention, such as social safety nets, must be put in place for deprived households.

It is clear that defining effective public intervention in agriculture in response to risk and uncertainty first requires the exact source and scale of market imperfections to be identified. For example, noting the absence of certain risk management markets is not enough to put a policy in place. It may simply be the case that these markets are of no use to economic operators, since they manage the consequences of risk in other ways (cf. for example Simmons, 2002). For example, many pig farmers in Europe do not use futures markets to hedge their price risk, since they may prefer saving/dissaving behaviour to smooth the consequences of price risk on their consumption. In this instance, the role played by public intervention is limited to monitoring the competitive level of risk management markets and that of the credit market.

We are aware of some research which tries to explain the incompleteness of risk management markets in empirical terms, by highlighting the role of agricultural policy. For example, Maynard et al. (2005) show that the development of futures markets for milk in the United States is held back by the current dairy policy. By the same token, Wang et al. (2004) show that US policy on arable crops has a major impact on decisions by US producers to hedge risks on futures markets. In Europe, research carried out by Mahul (2002) or Cordier (2008), for example, also emphasises the major impact of European direct aid on hedging decisions. It is not only economic research studies that reveal the role played by agricultural policies in the development of risk management markets, since this is explicitly acknowledged by the political leaders themselves. For example, senators in France acknowledge that one of the reasons why crop insurance is unpopular is that farmers expect the state to intervene by means of budgetary credits in the event of a disaster; it is therefore not in their interests to insure themselves and pay premiums (Botrel and Bourdin, 2011). Given that political uncertainty itself is the real reason why risk

management markets fail, we recommend putting in place a credible policy that cannot be manipulated by economic operators, so that these risk management markets can develop.

The methods of public intervention in agriculture in response to risk and uncertainty must therefore be examined on a case-by-case basis. Nevertheless, it is possible a general principle for intervention can be established. Public intervention is necessary when public authorities have access to information and/or can produce this information and redistribute it to economic operators at a lower cost than private markets (OECD, 2009).

More specifically, this means that in the case of agricultural insurance contracts, for example, public intervention is recommended if it means that problems associated with information asymmetries can be effectively reduced. This involves aid for the establishment of databases providing information on past behaviour (an indicator of attitudes to risk, which will mitigate the problem of moral risk) and the results of economic operators (an indicator of their exposure to risk, which will mitigate the problem of adverse selection). There may of course be significant changes to this past information over time, but it will allow charges for insurance contracts to be set more effectively by competing insurers. It also involves the provision of information on exogenous sources of yield volatility, such as investments in weather stations, which will allow insurance contracts to be drafted on the basis of indices which cannot be manipulated by economic operators, thus reducing problems of adverse selection and moral risk. It should be acknowledged at this point that the effectiveness of this intervention depends on the extent to which individual risks are correlated with climate indices.

Many countries, including those in Europe, intervene on agricultural insurance markets by means of subsidies for insurance premiums. The implicit argument is that these subsidies act as an incentive for more farmers to buy these insurance contracts, thus reducing adverse selection problems overall. Past experience, in particular in Spain and the United States, has shown that more farmers do in fact use these contracts as a result of the subsidies, but that they create other problems since they do not tackle the information problem directly (Cafiero, 2008). Subsidies of this kind do not allow problems of moral risk to be controlled effectively, since farmers opt for risky crops/decisions, for example by means of a lower level of crop diversification. Furthermore, these subsidies create a problem of redistribution to some extent, since they benefit farmers who take risks and do not reward those who use other risk management strategies. It is also apparent that these insurance subsidy programmes are increasingly costly for the countries that implement them, while at the same time not significantly reducing the amounts of emergency aid required. Finally, in some countries at least, questions are being raised about the extent to which such subsidies are pocketed by insurers, which makes them less effective at covering risks for farmers (Babcock, 2009). Public investment in weather stations cannot be affected by problems of this kind.

Futures markets are an instrument which can be used by economic operators to hedge their price risks, and also provide information about future prices. These markets make it possible to access the information which is held by economic operators and which influences their future expectations. If an agent expects that prices will rise on the basis of private information, for example, he will take a long position on futures markets. Conversely, if he thinks that prices will drop, he will take a short position on the markets. Public intervention must therefore facilitate this type of market, and also ensure that they function well. In order for this to happen, the markets must be liquid, or in other words the participation of a large number of operators should be promoted, in such a way that information from a maximum number of economic operators is reflected in the prices of

futures contracts and options. If markets are not liquid, on the other hand, there is a higher chance that the information provided by futures markets will be manipulated. It is also in the interests of commodity exchanges to avoid fraud and manipulation by abuse of dominant positions, and so they ensure the participation of economic operators who want to hedge their physical risk on these markets. This potential problem of manipulation has been recognised since the very beginning of futures markets, over 150 years ago. It is one of the reasons for the existence of supervisory bodies such as the CFTC in the United States, which ensure that operators are segmented and that there is no dominant position. It is also in the interests of the commodity exchanges to avoid the risk of default by agents participating in futures markets, which could result in systemic risk, and they prevent this risk by managing guarantees (initial margin, daily variation limits and margin calls). Public intervention is recommended if these private mechanisms are not adequate to ensure that financial markets operate properly, and involves in particular the monitoring (and thus the collection of real-time information) of operations carried out on these markets to ensure that there is no manipulation.

Despite these public interventions aimed at resolving information problems, risk management markets, like futures markets, will never exist for all agricultural products, since transaction costs will remain too high. Should we therefore make provision for direct public intervention on physical markets, for example by means of stores or storage capacities or production quotas? The issue of 'public' stores has been widely studied in the economic literature in terms of the stabilisation of prices and agricultural incomes. It must be said that these studies have often been carried out using inappropriate analytical frameworks, since it is often supposed that there is no market failure: agents are perfectly rational and have all the necessary information. Based on this assumption, these studies can only conclude that public intervention is ineffective. Nevertheless, there are some studies that have analysed public storage in the context of failed markets. Reference should be made at this point to the studies by Gardner (1979) and Newbery (1989), with the latter recently expanded on by Gouel (2010), which focus on examples of developing countries with poor consumers who cannot hedge their price risk for food and devote a large part of their budgets to food. These studies show that public storage policy may be effective in this context. For example, Newbery compares a public storage policy to a food rationing policy targeted at the poorest households. The author examines different households in developing countries, some of which are experiencing food insecurity and some of which are not. He shows that a public storage policy is effective and preferable to a food rationing policy targeted at poor households if the latter cannot be reliably identified by the public authorities. Conversely, if the state is able to identify households that are genuinely experiencing insecurity, public storage is not the most effective policy. Once again, effective public intervention depends on the quality of information available to the public authorities. Reference should also be made to the theoretical research carried out by Féménia (2010), which focuses on problems involving mistaken expectations by farmers who are assumed to have no access to futures markets. Instead of basing their production and investment decisions on information provided by futures markets, farmers base them on past (price) information, which is not entirely relevant when the market context changes. This represents a market failure, and the author then examines the possibility of subsidising stores (and storage capacities) to mitigate price fluctuations. It emerges that a policy of simply subsidising the fixed costs of storage is not effective. Even though such a policy allows prices to be kept low for several years, it cannot prevent price peaks when agricultural yields are low, all the more so because low prices are no incentive for production. As a result, an 'inflexible' policy of this kind increases price peaks and is not an optimal solution. Studies still need to be carried out into a policy of variable subsidies for storage costs, depending on stocks available, for example. The question that needs to be

asked is what additional information the public authorities will need to implement such a policy, which assumes that private operators will provide real-time information on their own stocks. This is necessarily expensive, if only because economic operators need an incentive to provide such information, and, above all, can give rise to manipulation. In this regard, it should be noted that international policies aimed at stabilisation by means of storage failed in the past, partly because they were diverted from their goal of stabilisation and instead were used for support purposes, under the influence of agricultural producers (Gilbert, 1996).

Finally, it should be noticed that many debates have been held and much work has been carried out on the causes of the explosion in food prices of 2007/2008, and on the possible solutions to this problem. As one of a variety of such solutions proposed in academic and professional circles, the physical regulation of agricultural markets, in particular by means of international stabilising stores, was dismissed by the G20 members during the French Presidency of 2011. This physical regulation is nevertheless still supported by several national authorities (for example the French Economic, Social and Environmental Council) and international bodies (for example the High-Level Panel of Experts on Food Security and Nutrition set up by the FAO). Instead, the G20 recommendations insist on the need to improve the functioning of agricultural financial markets.

The members of the G20 also recommend encouraging production by promoting research into agricultural technologies. This type of public intervention is important and should be promoted, in particular as regards research into technologies which are robust against risks affecting agricultural production. Investment in upstream knowledge of technological processes is also an area of public intervention with a view to improving the information available to all economic operators.

2. ANALYSIS OF ARGUMENTS IN FAVOUR OF RISK MANAGEMENT INSTRUMENTS UNDER THE NEW CAP

The European Commission presented its legislative proposals for a new CAP on 12 October 2011. Before drafting these proposals, in April 2010 the European Commissioner for Agriculture, D. Cioloş, launched a public debate on the future of the CAP in terms of its objectives and its contribution to the Europe 2020 strategy for smart, sustainable and inclusive growth. Following these debates, which concluded with a conference in July 2010 and exchanges with the Council and the European Parliament, the European Commission presented the Communication on the CAP towards 2020 in November 2010. This Communication outlines the challenges and principles of the future CAP, and proposes the analysis of three options for reform: adjustment, integration or re-focus. A major impact assessment was carried out for these options by the European Commission's services, in particular those of the Directorate-General for Agriculture. The results of this impact assessment were published at the same time as the legislative proposals of 12 October 2011. This impact assessment contains a wealth of information, in particular quantitative data. Our analysis is based mainly on this impact assessment, since it contains the most detailed arguments (in particular Annex 5 on market measures and Annex 6 on risk management). For example, in its Communication of November 2010, the European Commission merely notes that agricultural price volatility will increase in the future, without providing any real reasons why. In contrast, the impact assessment explains why the European Commission believes that price volatility will increase.

We are well aware that the scenarios analysed in the impact assessment do not correspond exactly to the legislative proposals for reform, and therefore that we must take the necessary caution when interpreting this assessment. Proposals for regulations always start with an explanatory memorandum and recitals, but the information that these contain is much more general than that provided in the impact assessment, and so we will give priority to the latter.

In this part, we carry out a general analysis, without discussing each of the instruments proposed for the new CAP. More specifically, we firstly analyse the European Commission's arguments in favour of increased agricultural price volatility in Europe in the future. We then analyse the arguments put forward by the European Commission to justify reforming the CAP to include new tools or overhauled tools in response to this supposed increase in agricultural price volatility.

2.1. Arguments for an increased volatility of agricultural prices

Ever since global prices for certain agricultural products increased in 2007, it has often been claimed in political debate that agricultural prices will be more volatile in future. In Annex 5 of the impact assessment, on market measures, we can see why the European Commission also believes that these prices will be more volatile in the future. Three arguments are put forward:

- Climate change and its impact on the variability of production, in particular extreme climate events in regions in the rest of the world (outside Europe).
- A greater correlation with prices for non-agricultural goods, in particular the prices of energy assets in connection with the production of biofuels which strengthen this correlation in terms of demand and supply.

- The continuing integration of global markets for raw materials, both agricultural and non-agricultural, into financial markets.

Analysis

The climate change argument is entirely relevant in economic terms. If a source of risk becomes more hazardous, it is logical that this will result in greater variability of agricultural prices, all other things being equal. Without wanting to dispute this argument, in our opinion it is important to us to note that an increase in climate variability does not entail an increase in the variability of agricultural yields and production of the same magnitude, quite simply because not all regions and not all crops are affected in the same way (cf. for example O'Connor, 2012 on grass production in Ireland). Furthermore, the impact of climate change on agricultural production will depend on adjustments made by farmers in terms of production choice (land usage) and agronomic behaviour. We would also note that one of the causes of climate change is an increase in greenhouse gas emissions. Notwithstanding its effect on the climate, the increased concentration of atmospheric carbon dioxide tends to be beneficial for agricultural production. As far as we are aware, finally, studies on the effects of climate change on agricultural production and agricultural markets often concern long-term analyses (up to 2050 for example) rather than short-term (cf. for example Nelson, 2009).

The argument for the impact of climate change on the variability of agricultural production, and consequently of agricultural prices, is therefore theoretically correct. To the best of our knowledge, the extent of this impact between now and 2020 has not been adequately quantified (and no bibliographic reference is provided by the European Commission in its impact assessment).

The argument for a greater correlation between prices for minerals/energy products and agricultural prices is much more open to debate. The theory is that the increased variability of energy prices will affect the volatility of agricultural prices, both in terms of agricultural supply, or in other words the costs of production, and in terms of demand for agricultural goods. As regards supply, variability in the price of inputs (fertilisers, fuels, lubricants) effectively results in the variability of variable production costs if farmers do not adjust their production or hedging strategies. Farmers can hedge these input price risks by means of derivative products (swaps) on over-the-counter financial markets (products offered by FIS in London) which are currently available for various fertilisers. Furthermore, the link between the variability of input price and that of agricultural prices implicitly assumes that agricultural prices are always (all the time) determined by the marginal costs of production. In other words, there is an implicit assumption that there is no adjustment at all to the remuneration of production factors which are relatively fixed in the short term (family work, capital, land), and ultimately that no problems exist in terms of variation in agricultural incomes. This implicit assumption is not credible, since the variability of agricultural input prices can only be transmitted in part to agricultural prices. To what extent does this transmission take place? That depends on the agricultural products, or more specifically the significance of these inputs in the costs of production, the possibility of partially substituting them for other inputs and/or implementing less intensive techniques for these inputs. As regards supply, it is assumed that the production of first-generation biofuels creates a stronger correlation between the variability of energy prices and agricultural prices. This is not automatically the case, for the following reasons. Biofuel production in many regions has to date benefited from public support, often with more or less binding targets. In the United States, for example, usage mandates are set at federal and state level, as is the case in Europe. When the price of oil provides little incentive to produce biofuels, the latter

are only profitable within the levels set in the mandates. As a result, the demand for agricultural raw materials for this production is ultimately inflexible, and not sensitive to variations in the price of fossil fuels. In this respect, it is far from clear that variability in oil prices will affect agricultural markets. The remuneration of capital invested by companies producing biofuels may be the only variable affected. The situation is different when oil prices are at levels which encourage the production of biofuels beyond the levels set in mandates. In such cases, the demand for agricultural goods to produce biofuels becomes sensitive to variations in the price of oil. However, the variability of agricultural production will not have the same effect on the variability of agricultural prices, since the demand for agricultural goods becomes more sensitive to agricultural prices. As a result, when average energy prices justify the production of biofuels beyond the levels set in mandates, two opposing forces affect the volatility of agricultural prices: on the one hand, a 'contagion' effect, since agricultural prices become sensitive to those of oil, and on the other hand a 'dilution' effect, since the market becomes larger and can absorb variation in agricultural production more easily. Which of these two effects is dominant? Studies of this issue are starting to appear in the academic literature, and the results available today for biofuels in the USA tend to show that the dilution effect dominates the contagion effect (Gohin and Tréguer, 2010).

The argument for a correlation between agricultural prices and prices for other raw materials is therefore not as clear cut, since agricultural prices are determined by many other factors which can absorb these volatilities.

The argument for the continuing integration of global markets for agricultural and non-agricultural raw materials with financial markets therefore assumes that the latter are destabilising factors in agricultural markets. The role of finance in agricultural price volatility has been hotly debated, and there are many econometric analyses which still fuel these debates (cf. for example Gilbert, 2012). Care should therefore be taken in drawing conclusions, but it should be noted that the financialisation of agricultural markets is old news. What is new in recent years is the extremely rapid development of levels of investment by new operators using innovative instruments (exchange traded products), and not merely simple futures and options contracts on organised markets. Debates centre on the extent to which new investment funds can be held liable and, as far as we are aware, econometric analyses are still based on data from organised markets (mainly in the US, since this is the only country to have put in place an operator classification, which was revised in 2008, and an information system on positions of operator by class). Generally speaking, these econometric analyses of variations in futures prices and the positions of economic operators on these organised markets do not succeed in demonstrating statistically that investment funds are responsible for agricultural price variations. These data are by definition imperfect, and cannot provide all of the information which would be useful for an analysis. Economic operators are ranked in categories without knowing their exact motivation for participating in these organised markets (hedging versus diversification versus speculation). To circumvent this problem, Cordier and Gohin (2011) recently carried out an original study into capitalisation flows in new financial instruments, positions on futures markets and futures prices. This econometric study, which requires further examination, tests the direct relation between the capitalisation flows in investment funds and futures prices, then between these flows and positions on organised markets, and finally the traditional relationship between positions and futures prices. The authors find that capitalisation flows in investment funds have a real impact on futures prices, but one which is basically split between raw materials or linked to index investment funds, and which has a relatively small scope. A lack of causality between variations in futures

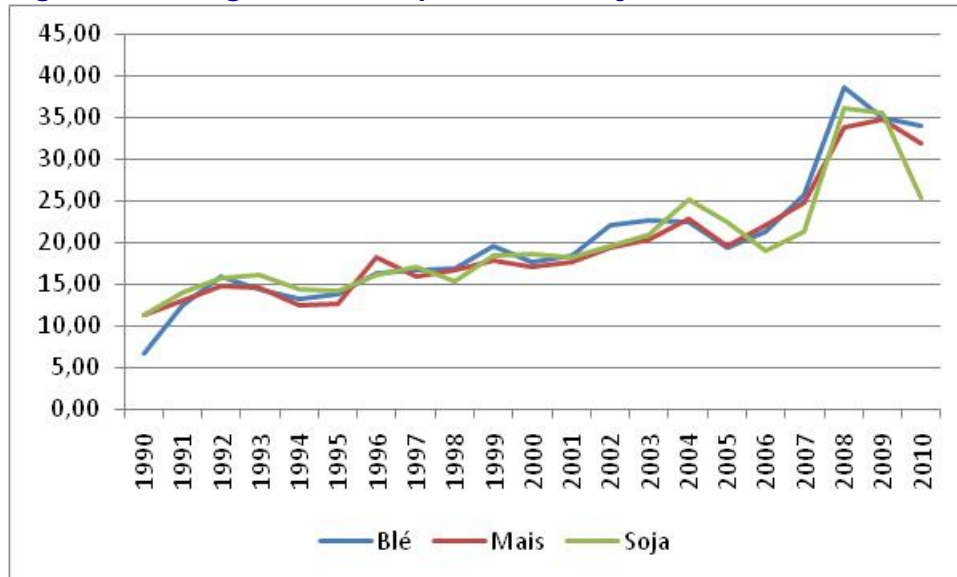
positions and variations in futures prices, both upwards and downwards, is also identified, as is the case in other econometric analyses.

The argument whereby the financialisation of agricultural markets is responsible for an increase in agricultural price volatility is therefore not really valid today in empirical terms.

In addition to these three sources of risk which can have an impact on agricultural price volatility, other sources not mentioned by the European Commission may emerge in the future. We are thinking in particular of the uncertainty surrounding the future of the biofuels policies implemented in various countries. These policies are increasingly being challenged, in particular due to the adverse effects biofuel production may have on net emissions of greenhouse gases. They are criticised in the conclusions of the G20 agriculture summit. Biofuels have become a significant market for some agricultural products, and 'brutal' challenges to these support policies could destabilise agricultural markets in the short/medium term.

How volatile will agricultural prices be between now and 2020, the horizon for analysis for the CAP reform? Given the number of factors which have an impact on agricultural markets, it is difficult to quantify it. Projections for agricultural markets by the traditional institutions (FAPRI, OECD and USDA) generally concentrate on price levels rather than price volatility, but recent projections by the OECD and FAO have included an analysis of future volatility. They conclude that there will be a drop in the median variability of global prices for maize, rice and wheat by 2019, in comparison to the period 1976–2009. Only sources of risk involving yields, crude oil and fertiliser prices and economic growth were taken into account when preparing these projections (implicit assumption that finance has no impact, for example). These projections should be treated with the usual caution for this type of exercise, but they deserve to be included in any analysis. Furthermore, this does not mean that there will not be significant agricultural price volatility over the next few years between now and 2019, since the information available in respect of stocks suggests that the latter are relatively low. In addition, any random negative event could in the short term result in significant price volatility (OECD-FAO, 2011).

We would like to conclude this analysis by noting that the increase in the price volatility of many agricultural products did not start with the increase in average prices that took place in 2007, which can be seen when the increase is calculated using the implicit volatility indicator rather than the historical volatility indicator. As its name suggests, historical volatility is based on historical price variations actually observed in the past. It is not very useful in terms of predicting future price variations, since it does not include any information on current and future market conditions. Conversely, implicit volatility is based on prices for options traded on financial markets. This implicit volatility therefore corresponds to economic operators' real assessment of future price volatility, since it is based on the actual expenditure/revenues of options buyers/sellers. Therefore the implicit volatilities for the prices of wheat, maize and soya (calculated on the basis of quotes from the Chicago Mercantile Exchange, the world's leading futures market for agricultural products) have more than doubled over the period 1990–2007, from around 10 % to 25 % (Figure 3). Between 2007 and 2009, implicit volatilities increased again up to 35 %, and then dropped to around 30 % in 2010. The volatility of global prices perceived by economic operators is not therefore increasing continuously.

Figure 3. Changes in the implicit volatility of wheat, maize and soya prices

Source: OECD-FAO (2011)

Key: Blé – wheat / Mais – maize / Soja – soya

2.2. Arguments in favour of European public action

Agricultural markets are volatile, and it should be acknowledged at this point that agricultural price volatility may increase in the future. Does this mean that public intervention in Europe is necessary to combat the effects of this volatility? If so, should it be implemented within the same framework as the CAP, given that not all European regions face the various sources of risk to the same extent? The European Commission believes that the answer is yes, for the following reasons:

- In addition to the increased volatility of agricultural prices, agricultural activities also face a strong increase in input prices. Between 2004 and 2010, the average world agricultural prices increased by 50 % compared to the period 1986–2003. At the same time, energy prices increased by 220 % and prices for fertilisers by 150 %. Agricultural incomes are therefore low compared to incomes for other activities, all the more so because a slow-down in productivity gains can be observed. Between 2008 and 2010, agricultural incomes were only 40 % of non-agricultural incomes for the EU of 27 (barely 60 % for the countries in the EU of 15, and less than 40 % for the countries in the EU of 12). They were 50 % of non-agricultural incomes at the start of the decade.
- Agricultural incomes are not only low and now dropping, they are also now volatile. After having increased fairly regularly by 15 % in real terms between 2000 and 2004, agricultural incomes per agricultural work unit (AWU) dropped by 10 % in 2005. They rose again by 15 % between 2006 and 2007. They then dropped sharply in 2008 and in particular in 2009, returning to the levels seen at the start of the decade. The first figures available at European level for 2010 suggest that agricultural incomes have once again risen by more than 10 %. The low level and volatility of agricultural incomes reduces long-term investments by farmers, which compromises the competitiveness of the European agricultural sector. Various public interventions (in respect of plant and animal health, crisis management and preventative and curative interventions) are therefore

necessary. Furthermore, experience gained from the dairy crisis in 2008–2009 shows that policy instruments need to be provided for all sectors of agricultural activity.

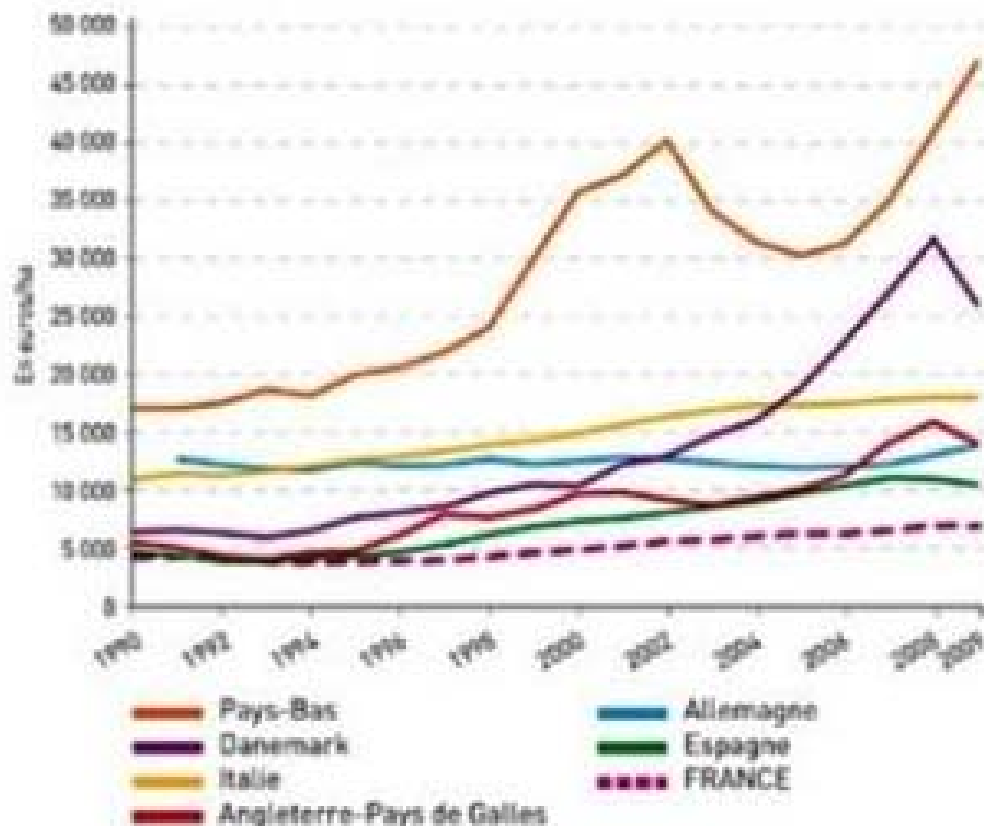
- Whereas agricultural prices are volatile, food prices paid by households increase in a fairly regular way. More specifically, there have been significant changes to price transmission in the food chain since 2007, with on the one hand much lower variations in food prices than in agricultural prices, and on the other hand more rapid price transmission when agricultural prices are high than when they are low. This slow and asymmetric price transmission to households delays market adjustments (by stimulating demand when agricultural prices are low) and exacerbates the volatility of agricultural prices. It is therefore important for public intervention to improve the functioning of the food chain.

Analysis

The emphasis is first on problems concerning the low level and volatility of agricultural incomes, rather than on possible failures of risk mitigation and management markets. If agricultural incomes are structurally low, a structural policy is needed rather than a risk management policy.

The issue of whether incomes for European farmers are so low that they should be supported by means of public intervention is a debate which resurfaces during every reform of the CAP. The question is whether the EU's main common policy in budgetary terms produces such a result. In recent years, total subsidies have accounted for almost 40 % of agricultural incomes, and yet these latter are only 40 % of non-agricultural incomes for the EU of 27, despite these subsidies. Many research studies challenge the validity of figures for agricultural incomes (cf. for example Hill, 2010), with the first of these criticisms relating to the measurement of work in agriculture. This is not a simple measurement, because holdings are still mainly run by families, even if there has been a rapid increase in the use of salaried employees in agriculture. Much work is therefore non-salaried, and its volume is difficult to measure. These comparisons between farmers and non-farmers try to correct the differences in the volume of hours worked. A further criticism, closely related to the first, concerns the difference between incomes for agricultural activities in the strict sense of the word and incomes of agricultural households, some of which have incomes from non-agricultural activities or non-agricultural assets. A third criticism relates to capital redemption operations which may correspond to a strategy of increasing costs in order to reduce taxation. Payment for land owned is also part of this problem.

Even though it is difficult to measure the incomes of agricultural households directly, since this requires additional information to be collected, they can nevertheless be analysed indirectly using changes in the price of agricultural land. The value of agricultural land partly reflects expectations of future income from agricultural activity, and increases in this value have been seen for several years in European countries, as shown in Figure 3. They are particularly apparent in Northern European countries (Denmark and the Netherlands), and less pronounced in Southern European countries (France, Italy and Spain). Values increased more rapidly in 2008 with the increase in agricultural prices, then more slowly in 2009 with their fall. This may have been a land asset bubble, but the continued increase in the value of agricultural land partly reflects the current expectations of economic operators (farmers and non-farmers) of the relative future profitability of agricultural activities. In our opinion, on the face of it these developments are not consistent with the idea of a continued downward trend for agricultural incomes in relative terms.

Figure 4. Changes in agricultural land prices in Europe

Source: Countries of Europe – Scafr.

Key: Pays-Bas – Netherlands / Danemark – Denmark / Italie – Italy / Angleterre-Pays de Galles – England/Wales
 Allemagne – Germany / Espagne – Spain

In this regard, we are surprised that the impact assessment carried out by the European Commission makes no mention of these changes in agricultural land prices. It should of course be acknowledged that the prices actually recorded relate to the small number of hectares traded each year, and that these prices do not depend only on the expected profitability of agricultural activities. Land regulations, interest rates and urban pressure can have an influence on these prices, for example. The statistics for France relate to land which is intended to remain in use for agricultural purposes, with a distinction made between 'free land' and 'leased land'. The latter is much less likely to be lost for agricultural use in the short/medium term, and is mostly bought by farmers (90 %). Prices for leased agricultural land are therefore a better reflection of expectations of the future profitability of agriculture than prices for free agricultural land (which could be easier to sell for urbanisation purposes). Since 1997, prices for this leased land have continued to rise in France in real terms.

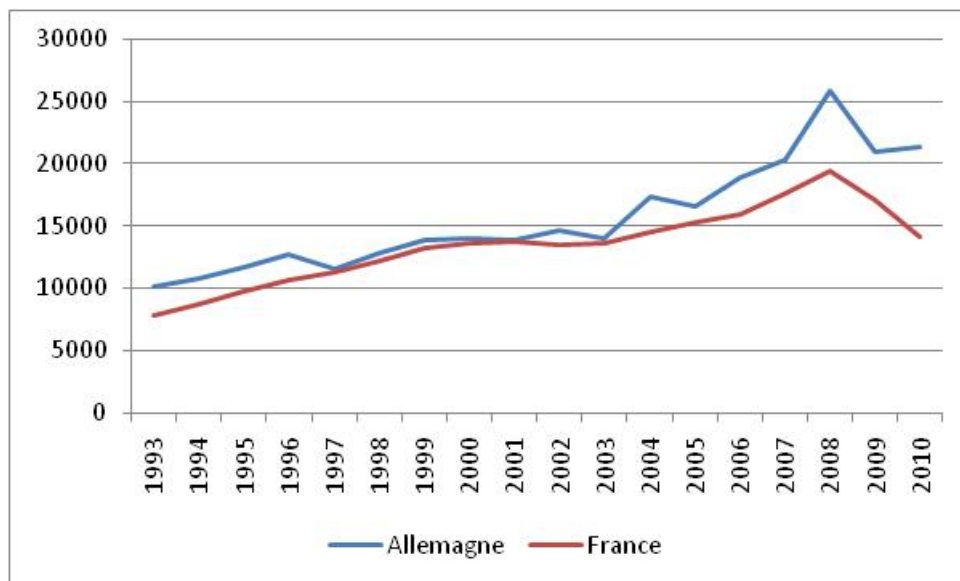
The argument concerning the low level of agricultural incomes is justification for a structural policy rather than a risk management policy. Furthermore, the empirical evidence for the low level of agricultural incomes is debatable.

The argument concerning the increased volatility of agricultural incomes would appear at first glance to be much more relevant in terms of justifying the inclusion of a risk management component in the CAP. However, this volatility should be measured and

studies carried out to ascertain whether farmers have used risk management strategies or not, or whether, on the contrary, their behaviour has exacerbated the problem. As noted in the first part, farmers can take several ex ante or ex post decisions to manage the consequences of risk in agriculture: diversification, contracts (land, insurance or financial), investments and savings. The European Commission does not examine these various decisions when it examines the increasing volatility of agricultural incomes (Annex 1). This is a complex situation to analyse, since not all agricultural holdings face the same sources of risk or to the same extent.

The European Commission's impact assessment includes a macro-economic analysis based on Eurostat's Economic Accounts for Agriculture, which are available to the public. Agricultural incomes are calculated by dividing net income for fixed capital consumption factors by total AWUs (salaried and non-salaried). The choice of this indicator is debatable, for two reasons. The first is that it seems more relevant to us to use non-salaried workforce as a denominator (even if this can be difficult to measure, see above) and net business income as a numerator. The latter is defined as the net income of factors less farm rent and interest on investments. This net business income is closer to the amount paid for non-salaried work and land owned by agricultural households. Volatility appears much greater when using this indicator, which is closer to the revenues of agricultural households, quite simply because the unitary payment of a salaried employee is relatively involatile. For example, if we look at the example of Germany between 1993 and 2011, the coefficient of variation for this indicator was 0.49, compared to 0.26 for the indicator stating the net income of factors over AWU. Between 1993 and 2005, the figures are 0.47 and 0.22 respectively. In Germany, therefore, no spectacular rise can be seen in recent years in the volatility of incomes for agricultural households from agricultural activities. The increase is stronger in France, however, with the coefficient of variation rising from 0.10 for the period 1993–2005 to 0.14 for the period 1993–2011.

The second reason is that fixed capital consumption is a decision variable for farmers which is closely linked to levels of investment, which means that the latter have an enormous influence on net income and its volatility. Gross business income (net income plus fixed capital consumption) is therefore significantly less volatile. In Germany, the coefficient of variation for gross business income per non-salaried AWU was 0.26 between 1993 and 2011 (compared to 0.49 for net income). This demonstrates the importance of investment decisions and amortisation methods when calculating the volatility of agricultural incomes. These decisions should not be analysed solely from the viewpoint of managing income risks. They must also be analysed with a view to the long-term trend for (partially) substituting agricultural work for capital. One question that should be asked is whether investments are accelerated (delayed) when incomes are favourable (unfavourable) and what the consequences of this are for subsequent years. For example, extra investment during years that are favourable in terms of taxation will mean that net results are automatically lower in following years due to higher levels of amortisation. In this regard, a historical analysis of investments per non-salaried AWU shows that the latter increased fairly regularly until 2007, in both France and Germany (see Figure 5). A sharp increase can be observed in 2008, in particular in Germany, with a difference of nearly EUR 8 000 per non-salaried AWU compared to the figure calculated for 1993–2006 (approximately EUR 3 000 in France). Investments of this kind, which are undoubtedly partly motivated by tax considerations, automatically result in additional fixed capital consumption in subsequent years and resulted in low incomes in 2009.

Figure 5. Changes in investments per non-salaried AWU in France and Germany

Source: our calculations based on Eurostat's Economic Accounts for Agriculture.

Key: Allemagne – Germany / France – France

The validity of the argument for an increased volatility of agricultural incomes therefore depends on the Member State involved (ultimately less relevant in Germany and more significant in France). Moreover, this argument does not take account of farmers' risk management decisions such as investments, which may result in adverse situations in subsequent years.

Finally, the argument concerning imperfect price transmission in the food chain is entirely justified in economic terms. If households only ever experience increases and never decreases in the price of foodstuffs, the demand for agricultural goods cannot play a full role in mitigating the volatility of agricultural prices, and the volatility of agricultural prices is amplified as a result. There are two questions that arise in connection with this argument, the first of which is whether the role played by price transmission is potentially important. This would be disputed by some, on the basis that food demand is relatively inelastic to price. This is indisputably true as regards the basic food basket for developed countries, but more debatable in other countries. In addition, this price inelasticity of demand is undoubtedly less pronounced at the level of each food good. There is a certain degree of substitution within families of products, for example between meats or dairy products and other desserts. A second question is whether this imperfect price transmission in the food chain results solely from non-competitive behaviour on the part of processors and distributors. In other words, where does the real market power lie when food processors/distributors purchase agricultural raw materials? This is not a new question, and the European Commission's impact assessment does not include any new figures that could quantify it. This age-old issue of imperfect price transmission was raised again during the dairy crisis in 2008–2009. Although the price paid to producers for milk was low, the price paid by consumers for dairy products did not really drop. This does not automatically mean that the market power lies with food manufacturers and distributors. In theory, it could be due to the fact that these operators' profits were previously negative, since the price of milk rose in 2007. This fundamental question can however only be resolved by means of a dynamic analysis (over several years) incorporating the various products supplied by these industries (industrial dairy products and mass-market products) and changes in processing costs. Unfortunately, these data are difficult to access, even for the European Commission,

as it acknowledges in its 2009 Communication to the Council on the situation in the dairy market. This Communication states that it will be necessary to address certain issues to improve the effectiveness of the food chain, in particular the lack of comprehensive and reliable data on prices and margins throughout the whole food chain.

The argument concerning the imperfect transmission of prices is correct in theory, but should be quantified in more detail. In order to do so, information must be collected which makes it possible to measure market power.

3. ANALYSIS OF THE MEASURES PROPOSED IN THE NEW CAP FOR RISK MANAGEMENT

Many of the measures proposed for the post-2013 CAP are justified, at least in part, on the grounds of problems relating to risk. The following analysis of proposals is divided into groups of measures, starting with those in the single CMO regulation, then those in the direct payments regulation, and finally those in the rural development regulation.

Most of these measures can be found in the single CMO regulation of 2007, which was the result of bringing together 21 CMOs (Regulation (EC) No 1234/2007). This regulation, which was amended 13 times between 2008 and 2010, resulted in late 2010 in the proposal for a regulation COM(2010)799, which took into account the new functioning of the EU following the coming into force of the Treaty of Lisbon. Our analysis will follow the structure of the single CMO proposal, and start with price intervention and private storage aid schemes. We will then analyse sector-specific aid regimes, rules on marketing and producer organisations, measures for trade with third countries, exceptional measures and the crisis reserve, ending with transitional provisions linked to the abolition of supply limitation measures. We then analyse the direct payments proposed in terms of risk management, and conclude with the risk management tools proposed in the rural development regulation.

3.1. Public intervention and private storage aid schemes

Proposals

Two types of measures are proposed. Firstly, the price intervention scheme entails the public authorities purchasing goods when market prices reach price intervention levels set in relation to reference prices. This intervention scheme applies to five types of products, including three cereals (common wheat, barley and maize), paddy rice, beef, butter and skimmed milk powder. Public intervention is automatic for three products (common wheat, butter and skimmed milk powder), during limited periods and for limited volumes (3 million tonnes, 30 000 tonnes and 109 000 tonnes respectively). Any intervention beyond these volumes is subject to an adjudication procedure decided on by the European Commission. For other products (barley, maize, paddy rice and beef), public intervention is not triggered automatically, but instead depends on the market situation as perceived by the European Commission. The distribution of products purchased within the framework of public intervention must ensure that any market disruption is avoided. The private storage aid scheme, on the other hand, involves the payment of aid to storage operators for holding their stocks rather than selling them. Such aids can be granted for eight types of product: white sugar, olive oil, flax fibres, beef, butter, skimmed milk powder, pigmeat, and sheepmeat and goatmeat. The European Commission decides the level of aid once it has been triggered.

There are some innovations in these proposals compared to the current single CMO under the CAP. As regards the public intervention scheme, the only new feature is the abolition of intervention for common wheat and sorghum. There are manifold new features proposed for the private storage aid scheme: eligibility of skimmed milk powder, removal of the obligation to grant aid for the storage of butter and greater opportunity for the European Commission to activate this aid. Under the current single CMO, this aid can only be

activated when market prices reach a certain percentage of reference prices. Conversely, reference prices remain the same.

Analysis

Price intervention and private storage aid schemes are historical CAP instruments which have long played a role in supporting agricultural prices and agricultural incomes. The reforms adopted since 1992 have meant that the levels of these intervention prices have gradually dropped. What role do they play exactly in terms of risk management? The European Commission (cf. the analysis of the re-focus scenario in Annex 5) believes that they should be regarded as safety nets, and that abolishing them would increase price volatility on European markets. The recent experience of the dairy crisis shows that these schemes are effective in limiting drops in European agricultural prices. The absence of clearly defined safety nets of this kind would give rise to uncertainty in these sectors, which would have a negative impact on the decisions of various stakeholders.

We would like to make the following comments on the proposed measures, whether innovative or not. The price intervention scheme is clearly established for only one product offered by farmers, namely common wheat. European farmers have a futures market for wheat in Paris, however (Nyse-Euronext). The number of futures contracts exchanged (whereby a contract is set at 50 tonnes) continues to rise; while the figure was less than 1 million before 2006, it was over 5.5 million in 2011. This market is therefore becoming increasingly liquid, and provides European farmers with an instrument for managing their price risk for wheat. There is of course a difference between the price of wheat at the farm gate and the prices in the futures contracts (basis risk), but there is also a difference between the farm-gate price and the intervention price. The wheat sector is therefore certainly not the sector faced with the highest level of market failure (incompleteness of risk management markets). The price intervention scheme derives more from the aim of supporting prices than that of managing price risks. More specifically, the price intervention scheme has a price support component and a price stabilisation component, by avoiding low market prices for producers. However, it does not provide any protection against price volatility for wheat when prices rise above the intervention price (set at EUR 101.3 per tonne). This is one of the reasons why futures contracts have become increasingly widespread in recent years, since European prices have frequently far surpassed this level. In addition, the fact that oilseed producers, for example, have not historically received support in the form of price intervention, and still do not benefit from the price intervention scheme, demonstrates the significance of the support component of this scheme. European prices for oilseeds are equally volatile, but European producers can manage this price risk through a futures market for oilseed rape, also based in Paris.

The current CMO already provides the European Commission with a large amount of freedom to activate public intervention, for example for maize, barley or beef, or during adjudication procedures. Similarly, private storage aid is granted largely at the discretion of the European Commission. The proposals strengthen the European Commission's role in implementing this measure (it is no longer obligatory for butter, for example, and the figures are even less specific). We do not understand the economic thinking behind these proposals, which merely increase uncertainty for these agricultural sectors. This political uncertainty is detrimental to stakeholders, as indeed the European Commission stresses in its impact assessment. Such uncertainty cannot promote the growth of risk management markets. In passing, we would note at this point, although we have no formal evidence, that the futures market for maize in Paris is markedly less active than the market for common wheat. This political uncertainty also gives rise to tension and false hopes, as

demonstrated by the dairy crisis. Although the European Commission emphasises the effectiveness of its action during this crisis in terms of milk prices, professional stakeholders believe that the European Commission did not respond rapidly and forcefully enough (cf. the report of the High-Level Group on Milk).

The abolition of optional public intervention for durum wheat and sorghum, to which a passing reference is made in the impact assessment, most likely stems from a desire to simplify the scheme. This optional public intervention has not been authorised during the past five growing years for these two products. From a strictly economic point of view (disregarding administrative costs), this abolition can be understood if the prices of these products evolve in a similar fashion to those of other cereals through the phenomenon of supply substitution (as regards land usage) and demand substitution (as regards demand for animals).

As regards the dairy sector, the proposal involves making skimmed milk powder eligible again for optional private storage aid, and making private storage aid for butter optional instead of obligatory. These proposals do not reflect the conclusions of the High-Level Group on Milk, which favoured the status quo. The European Commission believes that automatic storage aid for butter has too large a 'deadweight' effect on operators storing butter. As shown by Féménia (2010) in a theoretical study, it is entirely possible for flat-rate aid granted for storage to not be economically effective. This depends on the nature and scale of market imperfections. As far as butter is concerned, the European Commission still needs to demonstrate that this instrument is ineffective simply due to the deadweight effect. The European Commission is implying that stored volumes do not change at all following storage aid, which is the reverse of the intended effect.

The reintroduction of optional private storage aid for skimmed milk powder is put forward in the impact assessment as an alternative to public intervention during crises, and therefore an alternative to adjudication procedures. In reality, this proposal should be viewed in relation to another proposal, namely the abolition of aid for the use of skimmed milk powder for animal feed (in the chapter on aid to certain sectors). The European Commission now regards this aid for domestic use as ineffective, although in the past it made it possible to reduce the net price paid by users (veal producers). As market prices have dropped, users no longer need aid to be granted to enable them to use skimmed milk powder. The question that should in fact be asked with regard to this market is whether storage aid is more effective than aid for domestic usage, given that the aim is to support prices at least at the level of the intervention price. This is not an easy comparison to make (not a simple comparison of the price elasticities of two supplies), since storage aid has the effect of displacing excess quantities over time, while aid for domestic use immediately stimulates demand.

No changes are made in these proposals to the reference prices set to implement private storage aid or the price intervention scheme. We would note that there has been a trend in recent years for the average prices of certain agricultural products and their volatility to increase, and this trend can obviously be reversed. On the basis of the available projections (OECD, FAPRI), the European Commission believes that a reversal of this trend is relatively unlikely between now and 2020. In addition, the European Commission places a great deal of emphasis on the increase in prices for agricultural inputs (fertilisers, fuels, lubricants, etc.) that has been seen in recent years, and the possible continuation of this trend. This means that average production costs, all other things being equal, will increase. In this context, keeping reference prices at their current level will automatically reduce the role they play as a safety net for agricultural incomes. For example, if the average prices for

agricultural inputs increase more rapidly than the average prices of agricultural products, the current reference prices will be less and less restrictive and ultimately will not provide any protection for agricultural incomes.

Recommendations

From the point of view of the management of agricultural risks, we recommend the following improvements to these proposals:

1. Make reference prices flexible on the basis of a transparent rule. Even if futures markets are being established for an increasing number of agricultural products, which enable farmers to hedge their price risks, these futures markets are not generally liquid for periods longer than two growing seasons. This means that farmers cannot easily secure their specific medium/long-term investments. This incompleteness of price risk management markets means that public intervention is justified. Lapan and Moschini (1996) showed that this intervention could theoretically take the form of a price policy. The results of this theoretical work cannot be transposed directly to the CAP, however, since they were obtained for a small country where policy has no effect on demand. However, they justify the idea of price intervention based on the information available when establishing this intervention, which facilitates long-term decisions. On this basis, we therefore suggest using reference prices which change, but not according to production costs. Production costs adapt to anticipated future prices, since investment levels and land values depend in part on the prices anticipated by agents. Indexing reference prices against changes in production costs would repeat the mistakes of the pre-reform CAP. Conversely, we suggest that the rule governing changes to reference prices should be based on world price trends. It should be noted that a scheme of this kind was enshrined in US legislation on agriculture in respect of changes to their equivalent to reference prices (marketing loans), even if no such justification was provided. This idea of a flexible reference price was also referred to in the report on changes to the CAP coordinated by Buckwell in 1997.

We recognise that such a scheme of this kind is not without its problems, in particular that of obtaining high-quality information on global prices, and that it can involve transfers from consumers to producers when intervention is effective. However, on average (over a long period), consumers could benefit from this scheme since production (or prices, respectively) would on average be higher (or lower, respectively) due to more secured investments.

2. Make all agricultural sectors potentially eligible for these measures. Although all agricultural sectors are faced with price volatility, public intervention and private storage aid schemes are only currently available for certain sectors. This is a consequence of the historical objective of supporting prices rather than managing risks. More specifically, these schemes should be available for sectors where specific medium/long-term investments are necessary.
3. Adopt transparent and credible intervention rules. In addition to the multiple sources of risk and uncertainty that already exist, the current CAP adds other uncertainties regarding the effectiveness of public intervention and private storage aid schemes (cf. the dairy crisis, which was perceived differently in the various Member States). The proposals increase these uncertainties, which are detrimental to the functioning of markets and to decision-making by economic stakeholders. We also recommend more transparent rules, for the activation of both public storage and release from storage. It

is unrealistic to believe that releases from storage cannot have any effect on markets, and so an indication of the relative price level at which quantities will be released must be provided as public information. Similarly, if the relative volumes of public stocks and private storage aid were to be clarified, this could contribute to better decisions on the establishment of private storage capacities.

3.2. Sector-specific aid

Proposals

The main proposals which are relevant for our analysis concern crisis management measures in the fruit and vegetables sector and in the wine sector. In the first, financial aid is granted to operational funds managed by producer organisations (PO). These funds can be used for several purposes, including the prevention and management of crises. Specifically, this can take the form of recalls from the market, green harvesting or non-harvesting, stimulating demand, training measures, crop insurance and, finally, contributions to the administrative costs of establishing mutual funds. Financial aid may not exceed producers' financial contributions (i.e. 50 % of expenses), or 4.1 % of the value of products marketed by the PO in previous years. This percentage may be increased to 4.6 % provided that the share above 4.1 % is allocated for crisis prevention and management. The 50 % limit is increased to 100 % when the quantities recalled from the market are distributed free of charge to charity, for example. This exception is limited to 5 % of the volume of products marketed by the PO, however. These proposals do not introduce any new features in relation to the CAP's current single CMO.

In the wine sector, European subsidies are granted to Member States to implement national aid programmes over five years. Measures eligible for these subsidies again include green harvesting (whereby payments may not exceed 50 % of the costs of destruction), mutual funds (aid for their establishment, covering administrative costs), crop insurance (80 % of premiums for insurance against natural disasters may be subsidised, and 50 % for other crop insurances). No genuinely new features are introduced in comparison to the CAP's current single CMO: as predicted, these crisis prevention and management measures will replace the previous aid for distillation into potable alcohol and crisis distillation.

Analysis

These proposals confirm the recent reforms in these two sectors where production surpluses could be significant. In the fruit and vegetable sector, therefore, crisis management by means of repeated market withdrawal measures, mostly paid for by European taxpayers, resulted in a structural surplus. The reforms adopted in 1996, 2000 and 2003 reduced the extent of these withdrawals, in particular by providing for financial contributions from producers. The European Commission justifies the continuation of withdrawal measures, to a limited extent (5 % of volumes), due to the perishability of these products and the unpredictability of their production. As a result, surpluses can noticeably disrupt the market, even if they are limited.

We acknowledge that the fruit and vegetable sector readily lends itself to the application of Gregory King's law, as referred to in the first part of this report. The production of fruit and vegetables is vulnerable to climate risks and there is a time lag between production decisions (sowing) and harvests which results in a certain short-term inflexibility of supply. Demand is relatively inflexible in relation to price, and prices can fall rapidly in the event of overproduction. Risk mitigation mechanisms, which include storage and trade, make it possible to smooth out prices somewhat. Some of these products cannot be stored

(although some can be processed and stored, such as tomato juice), and transport costs are quite high. Opportunities to mitigate these price effects are therefore limited. Furthermore, apart from potatoes, there are no futures markets for these products, due to their heterogeneity. Producers cannot therefore hedge their risk of a fall in prices in this way, and doing so for processed products (orange juice for example) would entail a basis risk between the price of the agricultural product and the processed good.

What is more, it is by no means obvious that specific public intervention is needed in this sector to manage the risks caused by climatic risks. These climatic risks are not entirely unpredictable, and in the past we have seen that they can also lead to underproduction (falling yields) and consequently soaring prices. In other words, a crisis can be caused not only by low prices, but also by peaks in price which can occur for the same climatic reasons. Furthermore, in terms of risk management, producers also have the possibility of diversifying their production portfolios (several vegetables). In this regard, the CAP reforms towards decoupling give more freedom to producers to diversify their crop rotations (arable crops versus vegetables). We should not forget that this diversification is not a panacea when it involves specific major investments which require large production volumes to spread fixed general costs (potentially the case for perennial crops). Producers can also manage the consequences of income risks using credit and savings. It has not been proven that fruit and vegetable producers are still restricted in terms of access to credit. On the contrary, the relatively low numbers of producers participating in these POs (around 30 %) could be explained by the fact that some of the producers regard subsidised risk management mechanisms as less appealing than these private solutions.

Cafiero et al. (2009) have suggested two risk management tools to replace the current recall mechanism. On the one hand, conditional credit lines would allow producers to access credit immediately during a fall in prices. The role of the public authorities could then be to provide guarantees or to subsidise interest rates. This first proposal therefore implicitly assumes that the banking sector has a very imperfect knowledge of the fruit and vegetables sector. If this were the case, the easiest solution would be to improve this knowledge by disseminating information. Conversely, if the banking sector had a good level of knowledge of the fruit and vegetables sector and the traditional heritage of its producers, this proposal could be diverted from its aim of risk management. On the other hand, the options initially proposed by the public authorities would allow producers to obtain ex ante cover against future price risks. The ultimate aim is for these options to be traded between private stakeholders and for the public authority to withdraw from the options market, with its role limited to providing real-time price information. This second proposal is more attractive, and its costs and benefits should be compared.

Recommendations

The CMOs for wine and fruit and vegetables were recently reformed in order to reduce direct intervention in the markets by public authorities (recalls) and to promote risk management tools (such as insurance and mutual funds). These reforms make it possible to bring the procedures for public intervention in these sectors into line with those in other agricultural sectors. With a view to transition, we are in favour of these sector-specific aid proposals due to their risk management component. Continuing sector-specific aid for the management of climatic risk and price risks in the long term is therefore debatable in economic terms. These sectors are faced by other types of uncertainty, in particular unpredictable consumer reactions following (suspected) health problems. It is the role of the crisis reserve and exceptional measures, which we will examine below, to tackle these problems. These sectors are also potentially faced with problems relating to imperfect price

transmission in the food chain. Rules on marketing and producer organisations can be used to tackle these problems.

3.3. Rules on marketing and producer organisations

Proposals

The main proposals which are relevant for our analysis of risks relate to contractual relations and contractual negotiations in the dairy sector and measures on producer organisations and inter-branch organisations. As regards the dairy sector, it is proposed that Member States should be able to decide whether a contract should be signed between producers and processors for the delivery of raw milk. This contract, which should be in place before deliveries are made, states the price to be paid (or the price formula), the volumes to be delivered and the contract's duration. Contracts are not obligatory between a producer and his cooperative. The contract can be negotiated by a producer organisation, provided that the total volume negotiated by the latter is limited (no more than 33 % of national production and no more than 3.5 % of European production). This must not result in barriers to competition on dairy markets. These proposals are new in comparison to Regulation (EC) No 1234/2007, but appear to be identical to those in Regulation (EC) No 799/2010 on the single CMO or the 'dairy package' in COM(2010)728, recently voted through in Parliament.

It is proposed that it should be possible for all agricultural sectors covered by the CAP to establish producer organisations. The aim of these producer organisations can be to ensure the programming of production and its adaptation to demand in terms of quality and quantity, to concentrate supply, to optimise production costs and to stabilise production prices. These proposals are already included in the single CMO (Article 122, amended in 2009). Conversely, the proposed Article 112 states the measures that can be carried out by these producer organisations (the provision of information on market price changes, a preference for short and medium-term forecasts on the basis of knowledge of the means of production used) and measures which are prohibited (market recall measures) in certain sectors (live plants, beef, pigmeat, sheepmeat and goatmeat, and eggs and poultry).

The Member States can also recognise inter-branch organisations, the aim of which can be to improve awareness and transparency of production and the market by publishing statistical price data. These inter-branch organisations and producer organisations should not jeopardise the proper functioning of the market. Once again, there is no major innovation in these proposals as regards the problems of agricultural risks.

Analysis

The European Commission's proposals are motivated by a desire to increase the share of added value which can be attributed to the agricultural sector and which is generated by the food chain overall. The objectives include increasing farmers' negotiating powers, in particular by means of contractual relations, and improving price transparency. The move from a quota system to a non-quota system in the dairy sector, the importance of the dairy sector in rural areas and the recent price volatility of dairy products all mean that specific rules are necessary.

Contracts are an ex ante solution which make it possible for producers to manage their price or production risks with the other contracting party. Authorising such contracts is therefore relevant in economic terms. It is preferable for the consequences of risks to be

borne by several stakeholders from the same sector rather than from a single branch within this sector (farmers for example). It is costly for the two contracting parties to draft individualised contracts, and there can be no doubt that economies of scale exist. It can also be effective to facilitate the negotiation of contracts between groups of farmers and processors. For example, there are more 'small' dairy producers in Europe (68 % of the 955 000 European dairy producers produce fewer than 100 tonnes of milk per year) than processors (of which there are around 5 000, with the 10 largest processors in each country accounting for between 60 and 90 % of volumes produced). The role of the public authorities should not be limited to legally authorising these contracts (thereby also providing a 'back door' legislative framework for checking compliance with contractual terms of contracts and possibly applying sanctions in the event of non-compliance) and negotiations by producer organisations. They should also ensure that public information can be collected and provided to help draft these contracts. On the other hand, the authorities should not impose different contractual terms, such as those concerning prices, volumes or the duration of contracts. Setting a minimum price in contracts of this kind, for example, would mean that the consequences of risks would be borne mainly by the downstream link of the chain, while they should be borne by all of the links in the food chain. Similarly, it would not be effective to impose a minimum duration, for example the average lifetime of agricultural investments, since not all economic operators (farmers, processors) have the same kinds of investment or the same investment strategies. Furthermore, this would complicate negotiations on other contractual terms (for example on pricing schemes).

The desire to combat possible rents arising from market powers in the food chain is also entirely relevant. Market powers of this kind would mean that the consequences of risks were borne disproportionately by farmers. The subject of market powers in the food chain and imperfect price transmission is a recurring one in agricultural debates. Although the concentration of downstream sectors in relation to upstream sectors has been well documented, and an increasing amount of information is available regarding final and farm-gate prices, empirical evidence of market powers in agri-food industries or among food distributors is still the subject of debate in the scientific community (cf. for example Burrell, 2009). This can depend on the sector, the period and the measurement methods used (dynamic or static, including or omitting the price volatilities of non-agricultural inputs, including or omitting economies of scale, etc.). At this point it should be emphasised that if food prices from agri-food industries are relatively stable and agricultural prices are volatile, the profitability of capital invested in agri-food industries is automatically volatile. The first question that must be answered therefore concerns the average level of margins obtained by agri-food industries in relation to their processing costs, followed by the variability of these margins in relation to that seen in the agriculture sector (and similarly for distributors).

Assuming that there are consecutive rents for market powers at agri-food or distributor level, the second question that must be answered relates to the best public intervention to correct this market failure. Should their market powers be reduced directly or should that of agricultural producers be increased? Increasing the market power of agricultural producers is not generally the solution recommended in economic studies. Its main flaw is that it can result in double marginalisation, or in other words a succession of market power which is less than optimal for the global economy (Réquillart, 2009). The European Commission's proposals for a new CAP aim to avoid this problem, for example by limiting the size of producer organisations in the dairy sector, by restricting accompanying measures for supply in other sectors or by approving the objective of stabilising producer prices rather than market prices. Anti-trust practices in the agriculture sector are also policed by national competition authorities. For example, French producers of chicory, who

are concentrated in Northern France and mostly grouped in producer organisations, were recently fined for price fixing.

Increasing the market power held by farmers can therefore potentially be ineffective. Can such an increase reduce the market power of stakeholders upstream in the sector? One solution is to challenge their rents, and cooperatives can also be targeted in such measures. Cooperatives are far from insignificant as regards processing in many agricultural sectors. For example, almost 58 % of milk produced by farmers is processed by cooperatives. However, studies show a lack of 'enthusiasm' among farmers for their cooperative, for example because of their unclear investment strategies (Theuvsen, 2009) or the belief that they are linked to lower profitability as an inherent result of, among other things, the obligation to accept all farmers in a given area (Burrell, 2009).

Recommendations

These proposals aim to improve the functioning of the food chain by means of better price transmission and better sharing of the consequences of risks between stakeholders through the use of contracts. Improving the quality and quantity of information is crucial in this context. Measures which promote the gathering and sharing of information are therefore relevant since overall they can facilitate risk management markets. Operations to gather and disseminate economic information are expensive and should be regarded as a public good (Grossman et Stiglitz, 1980). Such operations were proposed by Cafiero et al. (2009) for the fruit and vegetables sector, and we are therefore surprised that there are no proposals for European support to fund them. Studies still need to be carried out into the level of such support and the way in which it would be distributed between the Member States. In this connection, we would emphasise that such support should not be identical for all sectors. The futures markets that exist in certain sectors already provide a certain amount of information regarding the expectations of stakeholders.

Detailed proposals have been set out regarding the use of contracts in the dairy sector and have furthermore recently been voted through as part of the dairy package. This use of contracts is linked to the decision to abolish dairy quotas ultimately. Proposals have also been made to abolish sugar quotas. The same problems of risk sharing between producers and processors may emerge in this sector, even if it should be noted that the smaller number of products derived from beets (in comparison to milk) and the fact that production is annual (rather than daily) should make negotiations between stakeholders somewhat simpler.

The desire to tackle possible cases where market power is held by food processors/distributors is relevant both as such and also in terms of risk management. Strengthening the power of agricultural producers within the food chain should not result in successive market powers. It is important to find ways (gathering of private information not for publication) of effectively measuring these possible instances of market power.

3.4. Trade with third countries

Proposals

The main measures proposed in relation to risk management issues are firstly additional import duties applicable to products in the cereal, rice, sugar, fruit and vegetable (including processed), beef, milk and dairy products, pigmeat, sheepmeat and goatmeat, egg, poultry and banana sectors, as well as grape juice and must. The European Commission will decide

to impose these additional duties in order to avoid or neutralise the adverse effects of imports on the European market in two instances: when imports are made at a price lower than the trigger price, or when they exceed a certain level of domestic consumption in terms of volume. These additional duties are not implemented when there is no risk of imports disrupting the market. Other measures include safeguard measures which will be decided on by the European Commission, and the suspension of inward and outward processing systems (for almost exactly the same products), again when the European market is disrupted or risks being disrupted. Finally, the measures include export refunds which are decided on by the European Commission. All the measures proposed must comply with international agreements.

The main new features in comparison to the current single CMO involve measures for sugar imports (traditional imports of sugar for refining), which will lapse when sugar quotas are abolished, and the abolition of the variable import duties mechanism for cereals.

Finally, and even though this measure is not relevant in terms of risk management, it should be noted that the scope of application of the European Globalisation Adjustment Fund is to be extended to cover the agricultural sector.

Analysis

These trade measures, customs duties (fixed and/or ad valorem), import quotas and export refunds are instruments which have long been associated with schemes of price intervention. The less widespread use of these instruments since the 1992 reforms has allowed a reduction in public spending on export refunds, as well as a drop in customs duties. These measures and the associated expenditure had been criticised by third countries and for very good reason, since their effect was to unload European surpluses, whether structural or economic, onto global markets while protecting the European market against variations in global prices. One of the objectives of the successive CAP reforms of the last 20 years has been to reduce these adverse effects on third countries. Criticism is still levelled at the extent of the remaining measures, and some assessments find that the trade component of these reforms did not go far enough (cf. for example Hertel and Keeney, 2006). Conversely, others believe that any distortions that are created are only minor, and are ultimately found in very few sectors (mainly beef) (cf. Féménia and Gohin, 2009).

The future impact of these measures will depend on global price levels; they will have no impact if global prices are high, but may have a significant impact if these prices fall. In this context, should these measures be maintained, reformed or abandoned from the viewpoint of risk management? Even though the vast majority of economic analyses are opposed to these measures, some theoretical studies have justified them in terms of risk management. Two of these studies deserve closer examination; firstly, a famous article by Newbery and Stiglitz (1984), which came to the conclusion that customs duties can be effective. In this article, with the catchy title 'Pareto Inferior Trade', the authors carry out a theoretical study of the effectiveness of prohibitive customs duties between two countries. The initial source of risk is a production risk (yields due to climate risks), affecting only one of two activities considered in the model. When trade is zero between the two countries due to prohibitive customs duties, demand has a stabilising role on incomes for the high-risk production (negative correlation between price and supply). When the market is opened up and customs duties are abolished, prices no longer vary according to production, and incomes from the high-risk production therefore become volatile. In the absence of risk management mechanisms, risk-averse producers will invest less in the high-risk sector, and

thus the average price of the corresponding product will increase. In other words, the abolition of customs duties will result in a more stable but higher average price, which penalises consumers. The opening up of markets can prove to be ineffective overall. This rigorous theoretical proof is based on strong hypotheses, in particular the absence of any risk management mechanism. In the conclusion, the authors rightly emphasise the limited scope of their results due to these hypotheses. They even put forward a private risk management solution which is rarely mentioned, namely the possibility of purchasing shares of capital/land in the foreign country, with the aim of diversifying the portfolio of producers engaged in the high-risk sectors. A recent article by Calvo Pardo (2009) also demonstrates the role played by trade policy when economic stakeholders experience problems relating to imperfect information. More specifically, the main thrust of the article is that opening markets up to trade can destabilise producers' expectations. It is no longer enough for them to anticipate what may happen on their domestic market; instead, they must also anticipate what could happen on the international market (and therefore anticipate the decisions of foreign producers/consumers). As a result, production decisions may be modified, which can result in adverse market volatility. Once again, a key assumption is the absence of risk management mechanisms and, in particular, of futures markets which allow access to information. The relevance of this assumption in agriculture depends on the sector, and it is less credible in sectors supplying homogenous products.

These theoretical studies do not make it possible to establish the precise form of an optimal trade policy; above all, they point to instances where provision for such a policy could be made if no other risk management solution is feasible. Returning to the proposals for the future CAP, account should also be taken of international constraints, which impose limits in terms of customs protection (consolidated customs duties) and also in terms of export subsidies. As far as we are aware, these latter have never been analysed in the context of the incompleteness of risk management markets. Instead, they are regarded as causing the destabilisation of international markets by Europe, and are therefore widely criticised. Again as far as we are aware, there have been no studies into the instability caused by public decisions in third countries, which could have an impact on European agriculture and the European economy. As we stated in part one in relation to sources of risk and uncertainty in agriculture, one type of uncertainty is the nature and level of public intervention in other countries, whether such intervention is implemented on the grounds of providing food security for populations or on the grounds of protecting incomes for agricultural producers. For example, it is difficult to anticipate export restriction measures that are decided on to protect populations from price increases (as a specific example, the price levels from which Argentina or Russia will limit their exports), or measures limiting imports and encouraging exports in order to protect sectors from price drops (more specifically, all debates on non-tariff barriers, in particular sanitary measures such as those imposed on meat exported to Russia, versus external food aid measures by the US). Economic stakeholders cannot always protect themselves against this uncertainty, which translates into the volatility of European agricultural prices (once again because futures markets do not exist for all products).

In this context, one solution can be found in the more stringent use of discretionary international trade rules. It is questionable whether this solution, however advisable, could be used in the short/medium term (between now and 2020 for the new CAP). European measures which prevent an intensive use of these measures in third countries therefore appear justified. The measures proposed for the new CAP could fulfil this preventive role. The main problem relates to the fact that these measures should not be used solely to support European agricultural prices, which would transfer the natural instability of European markets to global markets.

Recommendations

The trade measures set out in the CAP are still widely criticised by third countries and in economic analyses. The impact of these measures has reduced greatly since the start of the CAP reforms in 1992, but it may become significant again, depending on developments on global markets. The proposals for a new CAP do not introduce any new features as regards these measures, instead keeping them essentially unchanged. In the interests of managing risk and uncertainty, however, we believe that their short/medium term role could be to dissuade third countries from adopting large-scale discretionary policies.

We recommend sending a clearer signal to third countries regarding Europe's willingness to review these measures, in particular export refunds, on the condition that parallel efforts are made on their part (such as export credits). Conversely, the expansion of the Globalisation Adjustment Fund to include the agriculture sector is a positive initiative, among other reasons because it sends out an important signal that the EU is more willing to conclude trade negotiations.

3.5. Exceptional measures and the crisis reserve in the agriculture sector

Proposals

Several measures are proposed for situations that are regarded as exceptional. Firstly, the European Commission proposes (Article 154) that in the case of threats of market disturbances caused by significant price rises or falls on internal or external markets, it can take the necessary preventive measures for the sector concerned. These preventive measures can include the suspension of import rights in whole or in part. Secondly, the European Commission may (Article 155) adopt exceptional support measures in order to take account of a) trade restrictions resulting from the application of measures for combating the spread of diseases in animals and b) a loss of consumer confidence due public, animal or plant health risks. The first exceptional measures (animal diseases) may only be taken if the Member State concerned has taken health and veterinary measures to stamp out the disease, and the European budget will provide part-financing equivalent to 50 % of expenditure (60 % in the case of foot-and-mouth disease). Thirdly (Article 156), the European Commission shall adopt necessary and justifiable emergency measures to resolve specific problems. Finally (Article 159), it will be possible to mobilise and use an emergency reserve to respond to crisis situations (totalling EUR 3.9 billion for the period 2014–2020, from EUR 531 million in 2014 up to EUR 598 million in 2020) by means of three types of instruments: public intervention and private storage aid schemes, export refunds and exceptional measures (Article 154 as mentioned above).

As regards the current single CMO, the main innovations consist in the extension of exceptional measures linked to a loss of consumer confidence to cover all sectors (not only eggs and poultry), the establishment of emergency measures to resolve specific problems and the crisis reserve.

Analysis

These proposals are not very clear on the whole, both as regards the conditions under which public action is triggered (which in concrete terms means significant price rises or drops) and the nature and funding level of the measures that will actually be implemented. For example, Article 154 does not make it clear whether only preventive measures are possible (French version of the single CMO proposals) or if ex post measures can also be implemented (the English version does not refer to prevention). It would nevertheless be logical to include ex post measures, since the crisis reserve can be mobilised to fund such measures. This ambiguity surrounding public action will inevitably curb the development of risk management markets.

In addition, we do not believe that the expansion of exceptional measures connected to loss of consumer confidence to include all sectors is really appropriate. Futures markets exist in certain sectors, and if agents take a futures position they are guaranteed a product price (purchase for consumers and sale for producers). Liquid futures markets are however needed in order for this to happen, to avoid possible payment defaults. Conversely, these measures are relevant for other sectors where such markets do not exist, since it is difficult to predict how consumers will react to sanitary problems, and therefore impossible to prepare in advance. A key question therefore relates to the types of measure that will be most appropriate; aid for consumption, aid for storage, liquidity assistance for producers or recall measures.

The recent E. coli epidemic (between May and July 2011), based mainly in Germany, showed that several measures must be implemented. The first priority during this epidemic, in which 46 people died, was of course to identify the cause of the epidemic in order to put a halt to it (several investigations were carried out which finally identified fenugreek seeds imported from Egypt, and a ban was placed on these imports). This was accompanied during and after the epidemic by intense negotiations with Russia, which stopped imports of European vegetables (which have an annual value of almost EUR 600 million). The objective of these negotiations was to reassure Russia that European vegetables are harmless. In order to limit price drops on the European market linked to reduced consumption by European households, decisions were made to implement recall and green harvesting measures (whether or not producers were members of a PO). These measures entailed budgetary spending of EUR 227 million. Finally, decisions were taken in 11 European countries to run promotion and communication campaigns to stimulate European demand (with a budget of EUR 34 million, of which EUR 17 million was covered by the European budget). According to European producers, their losses exceeded EUR 812 million during the first two weeks of the epidemic, and the measures implemented fell far short of compensating for all of these losses. Producers have called for additional measures, in particular deferred payments of contributions or loans at reduced rates, in order to mitigate the economic consequences of this epidemic over time. We believe that these mechanisms are entirely relevant, and that they should form part of the range of exceptional measures supported at European level (and by Member States).

A further problem in these exceptional situations is that of identifying real losses by all stakeholders in the food chain. In particular, in the case of animal diseases such as foot-and-mouth which involve the destruction of animals, processors are also subject to costs that cannot be insured in advance. There is no insurance for foot-and-mouth disease in Europe because it is not currently present, and it is impossible to objectify (probabilise) its outbreak. Gohin and Rault (2012) showed in the case of a hypothetical episode of foot-and-mouth disease in Brittany, involving a slaughter of animals similar to the British outbreak of

2001, that in the short term agri-food industries would be the main economic stakeholders affected. Furthermore, the impact of such outbreaks will be felt for a long time in livestock farming sectors due to the fact that livestock cannot be replaced quickly. This means that exceptional measures should not apply exclusively to agricultural sectors, or be limited to epidemics.

In the case of animal epidemics, exceptional measures are considered to be in place when Member States adopt adequate veterinary measures which are co-financed. This requirement may give rise to problems if the animal epidemic starts in one Member State but the entire European market is affected.

The emergency crisis reserve is presented in these proposals as a major innovation. These funds can be used to fund measures under the intervention and private storage aid schemes as well as export refunds (within the limits authorised by the WTO). If the emergency reserve can only be used to fund these measures, it will ultimately serve no other purpose than to increase the budget available for market measures under the CAP's first pillar, while keeping direct aid in place (which means no financial discipline resulting in a reduction in direct aid when market expenditure is high). The budget for these measures will increase by 20 % between 2014 and 2020, from EUR 18.7 billion to EUR 22.6 billion. In other words, the emergency reserve would increase the significance of the public intervention scheme without addressing its faults (see above).

Recommendations

From the viewpoint of managing risk and uncertainty, exceptional measures and the emergency reserve are tools which should be mobilised primarily in sectors where risk management mechanisms have failed (meat and fruit and vegetables in particular).

The measures proposed are not clear enough. The thresholds at which intervention is triggered should be clarified, as well as the nature of measures and the amount of funding for them. These measures should not relate solely to markets, since they can also be targeted at financing conditions for producers.

Finally, these measures should not be reserved only for agricultural producers; the food processing sector can also suffer from a loss in consumer confidence. These measures should make it possible to spread the consequences of risk over several growing seasons.

3.6. Production limitation systems

Proposals

The main proposals relate to the abolition of production quotas in the sugar and dairy sectors after the 2015 growing seasons. They confirm the abolition of plantation rights in the wine sector by 2016 (or 2018 in certain Member States).

Analysis

These systems for limiting production, directly by means of production quotas and indirectly by means of plantation rights, were put in place to limit overproduction, whether actual (milk in 1984 or wine in 1978) or anticipated (sugar, with quotas from the outset in 1968) by means of support for prices. These systems were not therefore initially intended to play a role in terms of managing risks for farmers. The reduction of price support necessarily gives rise to questions regarding their usefulness. The European Commission

believes that they are no longer relevant since they inhibit farmers' responses to market signals.

Even though they are fairly popular among farmers, supply restriction systems have been largely criticised in economic studies. However, the studies of this instrument in the economic literature have not generally taken any account of risk. Conversely, Innes (1990) studied these systems in the context of production risk (yield risk). He shows that a production quota (slightly above the non-policy level of demand) coupled to strong support for producer prices (involving variable production subsidies) can be effective in the Pareto sense. The idea is that this policy will result in producers wanting to produce more on average, which will make it possible to avoid price peaks when yields are low. However, this theoretical result was obtained in a very specific context, with a single country that is not involved in trade and a single representative producer. In particular, the author assumes the 'total' incompleteness of risk mitigation and management markets, whereas economic operators, including governments, are assumed to be perfectly rational (which means there is no information problem).

Production quotas have been criticised for several reasons, including the fact that they generate rent primarily for producers that are already established when the system is put in place, and practically no profit for others who have to pay for access to this rent. Furthermore, if producers do not have the same production costs then it is impossible to set quotas at the right level: they will always be too high for the least competitive producers and too low for others. The dairy crisis in 2008–2009 is a good example of this, with some countries where milk production dropped sharply (production was 8 % under quota in France, for example), whereas in others it followed the increase in milk quotas on the whole (the Netherlands and Denmark). Production costs are also very heterogeneous in the sugar sector, as shown by developments in production since the implementation of the reform in 2006: total French production has increased by 8 %, whereas Italian production has dropped by nearly 70 %.

'Flexible' quotas could be devised to mitigate price volatility. However, this does not resolve the problems mentioned above in relation to heterogeneous production costs. This would give rise to the same problems as those associated with storage measures implemented in international agreements on products in the past (cf. Gilbert, 1996). These flexible quotas would also introduce a new production risk for farmers.

Since production limitation systems are not effective instruments for managing risk in agriculture, provision must be made for a transitional period until they are dismantled. This entails three decisions, relating to the speed at which the system is dismantled (number of growing seasons), the rate of dismantling (linear/tapered) and finally the accompanying measures. Relatively few economic studies have been carried out into these questions concerning the optimum transition between two systems. Féménia and Gohin (2010) show that an optimum transition depends on the one hand on the specific nature of assets (capital) in the sectors studied, and on the other hand on the capacity of stakeholders to anticipate the situation of balance in the new system. The more specific the nature of the assets and the less clear the expectations, the greater the need for a long and gradual transitional period, which will avoid major endogenous market fluctuations. A clear announcement of the abolition of plantation rights in the wine sector and the accompanying measures was included in the CMO reform of 2008, which enhances transparency and gives stakeholders time to adjust.

Even if not stated clearly in the current single CMO, the abolition of milk quotas had become relatively clear by the end of the debate on the CAP health check in 2008. A 'soft landing' is planned, by means of a gradual increase in milk quotas. The first interim assessment carried out by the European Commission in late 2010 shows a widening gap between quotas and production levels in many countries, which the European Commission considers to be proof of a 'soft landing'. However, it should be noted that the prices of milk and inputs go a long way towards explaining this result, and that we have seen a narrowing of this gap during the last two dairy years. This shows that milk producers are responding to market signals, which is clearly the aim.

Once again, it is unlikely that the proposal to abolish sugar quotas will surprise professional stakeholders, even if no clear indication of this abolition was included in the current single CMO. The real innovation in the current proposals is to abolish these quotas after the 2015 growing season. It is no surprise that this proposal has been disputed by professional stakeholders who are calling for more time to adjust (cf. for example the position of the French trade union CGB). The European sugar sector has undergone far-reaching changes since the reform of 2006, with significant restructuring in many countries. Some producers/manufacturers have decided to abandon production and receive the associated compensation. Conversely, others have been able to buy back production quotas if they previously produced sugar over the quota. During the first phase of the reform (2006–2007), producers in eight countries purchased these production rights (France, Germany, United Kingdom, the Netherlands, Belgium, Denmark, Poland and Lithuania) for a total of almost 1 million tonnes (or in other words 6 % of the European quota before the reform). It is hard to know whether these manufacturers, when purchasing the production rights in 2006, anticipated a continuation of the 'sugar' CMO after 2015 and/or an increase in global sugar prices, which has in fact taken place since 2006. The question that now needs to be asked is whether an abrupt abolition of sugar quotas after 2015 would jeopardise these specific investments, to the extent of destabilising the sector. The European Commission's impact assessment examines two scenarios: an abrupt abolition as of 2016, and a 'soft landing' with an annual quota increase of 3 % for two years. The results for 2020 show a significant difference between the two scenarios. The 'soft landing' scenario results in a greater increase in European sugar production (3.3 %) than the abrupt suppression scenario (1.9 %), compared to a status quo scenario. The thinking behind this is that there are still quota rents in certain countries and, as a result, the 'soft landing' scenario will maintain these rents for longer. According to these results, there is therefore no need to delay the abolition of sugar quotas, since this will not create any new risks, and will primarily cause rents to disappear more quickly.

Recommendations

From the viewpoint of managing agricultural risks, we recommend adopting the European Commission's proposals concerning the ultimate abolition of production limitation systems. There should be no room for ambiguity about this abolition, as is the case in the current single CMO. The current Article 59(3) thus allows stakeholders to think that milk quotas may be revised depending on the situation on the dairy markets. As regards sugar quotas, it is far from clear to us that the sector should be given more time to adjust. Recent investments, following restructuring in 2006–2007, have benefited from broadly favourable world sugar prices. If provision is nevertheless to be made for a 'soft landing' as regards the dismantling of sugar quotas, for non-economic reasons and in particular because other sectors have enjoyed this benefit, the date of their abolition should be stated very clearly.

3.7. Direct payments

Proposals

The European Commission is proposing manifold changes to direct payments to farmers. They relate both to the level of payments (with the aim of achieving greater harmonisation in Europe) and the procedures for granting these direct payments (to young farmers, to small holdings, cross-compliance constraints, modulation, the definition of an 'active farmer', regions subject to natural constraints, cotton, etc.). Our analysis focuses on two key proposals for the management of agricultural risk. The first of these is to continue basic direct payments, which will be limited and adjustable downwards if necessary (Article 19). The second proposal gives Member States the opportunity to allocate coupled aid to certain sectors in certain regions when they experience problems. This aid may only be used to help maintain production in these regions, and its value may not exceed 5 % of the total amount of direct aid, except in the case of Member States where coupled aid was widely used in the past. It can be adjusted (downwards) from 2017.

Compared to the current regulation on direct payments, the two key innovations as far as risk management is concerned are therefore a) greater uncertainty for holdings as regards unit levels of basic direct payments and b) a change to the grounds for coupled aid, to make it more focused on economic difficulties in the agricultural sectors in question.

Analysis

Coupled direct payments were introduced in 1992 in order to compensate farmers for the drops in intervention prices. Since 2003, these payments have been increasingly decoupled from the act of production. The European Commission believes that these payments make it possible to increase and stabilise agricultural incomes, and in 2001 their existence was used as justification for not supporting new risk management instruments. In these new proposals for the period 2014–2020, the European Commission once again justifies basic direct payments by calling them an agricultural income stabilisation mechanism. Specifically, the European Commission believes that the growing gap between agricultural prices and agricultural input prices proves that it is important to maintain decoupled direct payments, which make it possible to mitigate the volatility of agricultural incomes (page 19 of the executive summary of the impact assessment).

Many economic analyses have dealt with the impact of decoupled direct payments on levels of agricultural production and agricultural incomes (cf. Carpentier et al. 2012 for a recent analysis). The literature shows that direct payments contribute to an increase in agricultural production. In other words, even decoupled direct payments as required by the WTO do not have an entirely neutral effect on markets. However, the effects are fairly limited, since these direct payments are tied to the land factor. In fact, they principally contribute to increasing the value of agricultural land, which is never owned entirely by farmers. For example, nearly 80 % of agricultural areas in France, Belgium and Germany is rented, as opposed to only 20 % in Ireland. Moreover, there has been an increase in the proportion of agricultural land rented for at least the past 15 years (Ciaian et al., 2010). This means that unless 'strong' land regulations are in place, land owners benefit more and more from direct payments, instead of farmers. Even if the landowner and the farmer are members of the same agricultural household, this decreases the effectiveness of these direct payments in terms of reducing the variability of the marginal share which is ultimately received by agricultural households. Any change to direct payments which reduces this outflow of funds will thus increase their effectiveness. At the same time, this

will be accompanied by stronger effects on production and, possibly, more vigorous challenges from third countries within the WTO.

As regards coupled payment, the European Commission's proposals still reveal a desire to abolish them in the long term (cf. Article 39) and they can be analysed from the perspective of a transition from one political regime to another. The wording of the proposed regulation could suggest that the European Commission is open to the idea of counter-cyclical payments, since coupled payments are possible for sectors in certain regions experiencing problems, in order to maintain their level of production. This is not the case, since these payments must be defined before their implementation, and are quite limited in budgetary terms. The executive summary of the impact analysis clearly states that counter-cyclical measures are not appropriate, since they do not take into account changes in input prices.

Even if it appears logical and can be supported by professional stakeholders, the idea of linked direct payments to price levels has been quite widely rebutted by economic analyses (cf. for example Bureau and Witzke, 2010). The arguments cited include possible incompatibility at international level (WTO), the need for strong budgetary flexibility (more than for income insurance), the return to sector-specific policies, since not all prices vary at the same time and to the same extent, and a lack of incentive to promote environmentally-friendly agricultural practices. A further argument is similar to that usually advanced in respect of storage, or in other words the price level that should be aimed for (which will probably still be too low for producers). The fear is that the mistakes of the CAP in the 1980s will be repeated in terms of supply, and producers will no longer perceive real market signals.

Recommendations

Basic direct payments still feature in the proposals for a new CAP as an instrument for the support and stabilisation of agricultural incomes. However, the unit level of these basic payments appears to be adjustment variable to take account of constraints on budgetary resources or expenditure on market measures or voluntary measures (on young people etc.). Better justification should be provided for these basic direct payments, in order to provide them with sound funding. If these payments are aimed at compensating market failure (public assets provided by farmers but not remunerated by the market), as a minimum they must under no circumstances be the only budgetary adjustment variable.

Measures aimed at limiting the capitalisation of these direct payments in property value must be promoted (such as modulation for agricultural employment). The higher the level of capitalisation, the less these direct payments will make it possible for farmers who do not own land to supply public assets or to manage the consequences of risk with savings and credit.

The continuation of coupled aid is not economically justified in respect of risk management in agriculture.

3.8. Second pillar measures

Proposals

Many of the measures in the regulation on development are aimed at managing agricultural risks (for example aid to restore the potential of agricultural production damaged by natural disasters). Our analysis focuses on measures from the toolbox for risk management, of which there are three.

Financial aid paid directly to producers for the payment of insurance premiums which cover losses caused by adverse weather events, an outbreak of animal or plant disease or a parasite infestation. The losses must exceed 30 % of annual production over the past three years (or five years if the highest and lowest values are eliminated). Financial aid may not exceed 65 % of the insurance premium.

Financial aid may also be provided for mutual funds with a view to the payment of financial compensation to farmers for economic losses caused by the outbreak of an animal or plant disease or an environmental incident. Financial aid may only cover administrative costs arising from the establishment of the mutual funds (over a period of three years) and the amounts taken from the fund to pay out indemnities. Financial aid may also be provided to cover the interest on loans taken out by the fund to pay indemnities. As before, the financial aid may not exceed 65 % of eligible expenditure.

Finally, financial aid may be provided to mutual funds for the payment of financial compensation to farmers who suffer a large drop in income. The drop in income must exceed 30 % of average annual income over the past three years (or five years if the highest and lower values are eliminated). No more than 70 % of lost income may be compensated by the fund. As before, eligible expenditure includes interest on loans that may have been taken out by the fund to cover indemnities, and financial aid is limited to 65 %.

In comparison to the current CAP, these proposals feature two major innovations: on the one hand, financial support for mutual funds to cover economic losses, and on the other hand, a move to the second pillar for two other measures.

Analysis

Since the CAP health check of 2008, it has been possible for the Member States to use part of their direct aid to subsidise insurance premiums and mutual funds. Only three Member States did so in 2010 (France, the Netherlands and Italy). In many other Member States, State aid is mobilised to subsidise insurance premiums (which has been possible for longer). Public support for insurance premiums has always been the subject of academic debate, which can be summarised as follows. On the one hand, such support makes it possible to promote this risk management instrument, in particular by reducing adverse selection problems. On the other hand, this support results in producers taking riskier decisions, does not reward careful producers and, finally, part of the support can be pocketed by insurance companies. There is not much empirical evidence from Europe to support these different arguments. For example, Garrido and Zilberman (2008) found relatively few adverse selection effects in Spain, in contrast to Makki and Somwaru (2001) in the United States. The problem of public support possibly being captured by insurance companies is regularly criticised in the United States (cf. for example Babcock, 2009). The number of insurance companies is more limited in Europe (Bielza et al., 2009, Schaffnit-

Chatterjee, 2010), but this does not necessarily mean less competition. A weaker relationship has also been observed between indemnities paid and premiums received (including subsidies). Once again, this does not necessarily mean that insurance companies are capturing support, if the risks covered and the insurance products offered are different. On the other hand, as far as we are aware the academic world is unanimous in its preference for partially subsidised crop insurance over ad hoc emergency aid paid by public powers in the event of disasters (cf. for example Innes, 2003). For example, the weak growth of crop insurance in France can in part be explained by the fact that farmers expect ad hoc indemnities through emergency budgetary appropriations (Botrel and Bourdin, 2011). Ex ante support for insurance covering known risks is therefore recommended, rather than ex post emergency interventions.

The implementation of public support for marginal agricultural insurance (we prefer to use the term 'margin' in order to avoid any confusion, whereby the 'margin' is defined as the difference between revenue, subsidies and variable costs) has been debated for over 10 years. To date, the European Commission has been hostile to the idea, preferring to help farmers to learn to use futures markets. It believes that the main problems associated with such insurance are the budgetary cost and the budgetary flexibility which is needed but which is incompatible with the functioning of the EU. In its first report on risk management and insurance in 2001, therefore, the European Commission stated that the implementation of marginal insurance compensating all losses of above 30 % could cost over EUR 3.5 billion in 1997 for the EU of 12 (EC, 2001). The report also states that marginal insurance is difficult to implement because a great deal of information on the agricultural holdings' accounts needs to be collected and held. During the CAP health check in 2008, the cost of such a system was again advanced as a reason for omitting it from proposals. It was estimated that budgetary spending could reach up to EUR 12 billion for the EU of 15, depending on the year (EUR 9 billion on average). These calculations were carried out on the basis of data recorded between 1989 and 2003, assuming that 70 % of losses above 30 % would be compensated. In its impact assessment of the current proposals for reform of the CAP, these calculations have been revised for the period 1998–2007, assuming that losses above 30 % would be compensated at 70 %. Even if agricultural margins rose on average in 2007, many producers (animal production) suffered marginal losses. The system would have cost over EUR 6 billion, and around 15 % of holdings would have received payments. A widespread drop in agricultural prices of 10 % would mean a cost of over EUR 10 billion. These figures should be compared to the EUR 14.4 billion annual budget proposed for the second pillar of the CAP.

How should we interpret this new proposal? The European Commission is not proposing that an insurance product should be subsidised in full, but that subsidies should be provided for mutual funds established by farmers, to a level of 65 % and via the second pillar (therefore with national co-financing). A key question is therefore whether these mutual funds will be established. Mutual funds are a particular type of insurance which offers advantages but also limitations for farmers. In comparison to insurance products, regional and/or sector-specific mutual funds potentially suffer fewer information problems (adverse selection, moral risk). On the other hand, these funds are more vulnerable to systemic risk, or in other words risk which affects all the economic operators belonging to the fund at once, since there is less diversification among the contributors to the fund. Conversely, insurers do not offer only agricultural products and have easier access to reinsurance. Up until now, mutual funds in agriculture have been solely sector-specific and mainly motivated by exogenous risks, or in other words completely independent of the actions of exogenous producers such as the emergence of animal diseases (Bielza et al., 2009).

Can they be established for marginal risks? Bielza et al. (2007) showed, for a Spanish potato sector faced by the risk of higher prices, that a mutual fund is preferable to subsidised income insurance and even to futures contracts (due to the basis risk). However, even with mutual funds, there are inevitable problems of moral risk which reduce their effectiveness. When the margin is insured, the moral risk may originate from a reduced diversification of activities or the optimised timing of input purchases or the optimised declaration of stocks (Meuwissen et al. 2011). There is also very likely to be a problem of adverse selection, since certain agricultural sectors are less subject to marginal risk, for example, or have other risk management mechanisms (major crops versus fruit and vegetables). Mutual funds to cover these marginal crises also involve other types of problems, for example the availability of information on margins obtained in the past by holdings. This information is available via tax declarations, but the question is whether farmers are willing to share them with other farmers within the fund. This is far from automatically the case, since farmers are sometimes, if not often, in competition for the acquisition of land. A further problem relates to delays in the payment of indemnities by the fund. Information on margins is needed before payments are started, which can take time. Kimura and Anton (2011) report that the marginal insurance system in Canada generally takes two years to make these payments. This considerably reduces the system's effectiveness in terms of reducing margin variability. This problem of a time lag in the payment of indemnities could be resolved by using credit, with farmers who need to claim these indemnities able to ask for a short-term loan from their bank. This ultimately gives rise to the question of whether savings and credit are efficient risk management mechanisms. If so, a mutual fund for marginal risks has more in common with a marginal support mechanism than a risk management mechanism.

Recommendations

For the purposes of transition and education, we recommend adopting the European Commission's first two proposals and thus maintaining systems to support insurance and mutual funds for animal and plant disease-related risks. However, it needs to be made clearer that budgetary support for these systems has no long-term future. More in-depth studies should be carried out into the question of whether this support may be passed on to insurance companies.

We also recommend adopting the proposal to support mutual funds for economic losses, although it should be stated clearly that this support cannot continue indefinitely. It is of course the case that these subsidised funds have potential downsides in terms of replacing of private risk management strategies, and that they do not directly tackle market failures. However, as well as being compatible with current WTO rules, the proposed system has the advantage of handing responsibility over to producers by creating a fund, and to the Member States by means of their financial contribution (second pillar) and their recognition of these funds.

CONCLUSION

In October 2011, the European Commission presented its legislative proposals for a new CAP for the period 2014–2020. These proposals are roughly in line with the philosophy behind many of the reforms carried out over the past 20 years. There continues to be a focus on the decoupling of public support from the act of agricultural production in favour of targeting non-market functions provided by agriculture, in particular through the confirmation of the abolition of production quotas. The recent increase in the volatility of European agricultural prices, the dairy crisis of 2009 and the E. coli epidemic of summer 2011 have however prompted the European Commission to propose new risk management instruments for agriculture (emergency crisis reserve, financial support for mutual funds for economic losses) and to keep others in place (public intervention and private storage aid schemes, sector-specific aid). The main objective of this report is to carry out a critical analysis of these proposals. Our main comments and recommendations are as follows.

Agricultural activities are subject to many risks, such as production risks which affect the quantities produced and the quality of products supplied, market risks concerning the price of products or inputs and financial, environmental and human risks. Public policy cannot be justified by the existence of these different sources of risk. Instead, it can be justified by a possible lack of risk management mechanisms. The instruments proposed for a new CAP very often lack clarity, and decisions about their actual implementation are sometimes left to the European Commission (triggering of public intervention and private storage aid schemes, forms of exceptional measures in the event of a crisis and levels of funding for these measures, and use of the crisis reserve). The lack of clarity regarding some measures may also give rise to doubts about their relevance in the medium term, or even in the short term: uncertainty surrounding the level of basic direct payments raises questions about their real legitimacy. This lack of clarity adds uncertainty to agricultural activities, penalises the competitiveness of European agriculture and hinders the development of private risk management instruments. This therefore adds a further source of political risk to the numerous sources of risk faced by farmers, which is detrimental at the level of the European economy as a whole. We therefore recommend clear, transparent and credible long-term rules (which cannot be manipulated by professional stakeholders), so that private risk management markets can fulfil their role efficiently.

The proposed CAP for 2014–2020 cannot be analysed without taking into account its long history since its establishment in the 1960s, and therefore the transitional periods which will be necessary to facilitate reforms. Despite the fact that reforms have been ongoing for the past 20 years, it is still possible to observe the same debates on the level of agricultural incomes (and consequently their variability) or the sharing of added value in the food chain. There is a major lack of quantitative information to support these debates and justify proposals. As regards real incomes of agricultural households, for example, the information generally available is limited to income for agricultural activities. From the point of view of agricultural risk management issues and the public policy that may be implemented, what this means in concrete terms is that the way in which agricultural households manage their risks today is imperfectly known. Savings and credit solutions, the diversification of households into rural and non-agricultural activities and the use of financial contracts may be effective means of risk management, for example, but it is still difficult to know at present whether their use is widespread. As regards the sharing of added value in the food chain, which could increase the volatility of agricultural prices, there is also a lack of quantitative information to measure possible downstream market powers and then propose

appropriate measures. Similarly, a sufficient level of competition should be ensured in the insurance sector so that subsidies for the use of insurance products are not pocketed by the sector to too great an extent. More generally, we recommend public action to improve the level of information available, both to monitor the effectiveness of policies and to facilitate the development of risk management instruments and decision-making by farmers. The information market cannot be effective by definition, since information should often be regarded as a public good. The public authorities must therefore promote this public good, for example by recognising and supporting inter-branch organisations which can provide this economic information.

Trade negotiations, whether bilateral or multilateral within the WTO, have often played a major role in previous reforms of the CAP, with the European Commission regularly justifying its proposals on the basis of the international context. This is not now the case with the new proposals, which merely fit into the framework of current international rules. No one today can say whether a new multilateral agreement will be concluded between now and 2020. However, all the political decision-makers within the G20 acknowledge today that the proper functioning of the international markets is necessary in order to combat the volatility of global agricultural prices and to ensure global food security. The main barriers to global agricultural trade must be reduced. After 20 years of reforms, the EU has significantly reduced the distortions caused by the CAP on global markets. By continuing with a policy of decoupling, and confirming the abolition of production limitation mechanisms, the current proposals reduce effects of distortion yet further. We recommend going somewhat further, however, with as a minimum a proposal which states more clearly that there will be a conditional abolition of restitutions for exports. There should be a move from a defensive position to a somewhat more proactive position on the international stage, since the EU is far from being the only region to support its agriculture and to want to protect it from fluctuations in global prices. Such a proposal, linked to the proposal to extend the Globalisation Adjustment Fund to cover agricultural sectors, is evidence of Europe's desire to contribute to the opening up of agricultural trade and to reduce the volatility of global agricultural prices.

In general terms, the proposals for the new CAP attempt to simplify measures, to the point where it is becoming hard to distinguish the proposals for the livestock sector from the proposals for other sectors. For example, coupled aid for sectors experiencing difficulties is not reserved only for animal production, whereas the main aid regimes apply to the fruit and vegetable and wine sectors. Are specific measures needed for animal production? Animal production sectors are not subject to exactly the same sources of risk, or to the same extent. For example, landless sectors are relatively less exposed to risks of production due to the technical choices made by farmers. Conversely, plant-growing sectors are also affected by production risks (fodder), which farmers traditionally manage by means of stores. On the other hand, animal production sectors are perhaps more subject to crises following a loss of consumer confidence following an outbreak of an epidemic or zoonotic disease. This also affects fruit and vegetables sectors, and these unforeseeable events cannot be managed *ex ante* by economic stakeholders. This is why we recommend public action in these circumstances by means of emergency and crisis measures.

The European Commission's proposals are characterised by the underlying belief that the consequences of risks must be shared between several stakeholders, whether or not they are involved in food sectors, and not only between farmers. These include upstream agri-food industries by means of the use of contracts, insurers (and reinsurers) by means of insurance products and investors (speculators) by means of financial instruments. Both

positive and negative consequences of risks can also be shared with stakeholders upstream from agriculture, in particular landowners. Land is a characteristic asset of agriculture in many rural areas, which is also owned by non-agricultural households, to a greater or lesser extent depending on the Member State. The value of and payments for this asset, which cannot be relocated, can in part reflect the economic conditions of agriculture and, in particular, variations in income from agricultural activities. This transmission to land prices and payments is very dependent on the land regulations and tax policies implemented in the different Member States. Land regulations and tax policies do not fall within the scope of Community intervention, although they can play a major role in risk management. This is the main reason why we are in favour of moving risk management tools to the second pillar of the CAP.

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