CORE REPORT - ULYSSES Project (EC contract no. 312182)

Project objectives, work progress and achievements, project management

2nd REPORTING PERIOD (From February 1, 2014 until July 31, 2015)

1 Project objectives for the period

Please provide an overview of the project objectives for the reporting period in question, as included in Annex I to the Grant Agreement. These objectives are required so that this report is a stand-alone document.

Please include a summary of the recommendations from the previous reviews (if any) and indicate how these have been taken into account.

The context of ULYSSES is the aftermath of the 2007-2009 food crisis. A new era of increased price volatility and markets instability, higher commodities prices and more intense globalization of food markets. Serious concerns in the international community, placing the issue on top of the agenda, gave rise to discussions about the desired degree of markets regulations, the scope and adequacy of WTO regulations, and the rebalancing of the agro-food value chain. Most policy proposals were made with none or little scientific base about the drivers of food price instability, the transmission of volatility along the market chain, and the impact on consumers around the world.

Against this background and responding to the need of deepening the knowledge on the topic, ULYSSES' main objectives are:

1. **Revise and assess the literature** on prices volatility of food, feed and non-food commodities, including market fundamentals, drivers, impacts, measurements and methodologies
2. Re-evaluate and analyse the 2007-2011 **markets' volatility**, using **updated data**, **new methods and new drivers linkages** with a view to identify primary causes of markets' volatility, including market fundamentals, estimate impacts, and make projections for future drivers of causes of markets' volatility.
3. Identify and evaluate the **drivers and factors causing markets volatility**, and make **projections for supply shocks, demand changes and climate change** impacts on agricultural production, identifying the **linkages** between these and short- and long- markets volatility.
4. Evaluate the impact of prices volatility in the **food supply chain in the EU**, and **in developing countries** assessing the strategies used by agents to cope with markets' instability and **suggesting policies** that can potentially enhance their capacity to deal with market uncertainties.

5. Evaluate impacts of food and agricultural price volatility and price levels on **EU consumers** and **households** in selected **developing countries**
6. Draw **policy relevant conclusions** that help the EU define specific market management strategies within the **CAP after 2013** and inform the EU's standing in **international discussions within the G-20**, FAO and other initiatives.

This multifaceted research programme aims to draw policy relevant conclusions, which may apply to the national, block-trade (EU) and global levels.

2 Work progress and achievements during the period
Please provide a concise overview of the progress of the work in line with the structure of Annex I to the Grant Agreement.
For each work package, except project management, which will be reported in the management section, please provide the following information:
• A summary of progress towards objectives and details for each task;
• Highlight clearly significant results;
• If applicable, explain the reasons for deviations from Annex I and their impact on other tasks as well as on available resources and planning;
• If applicable, explain the reasons for failing to achieve critical objectives and/or not being on schedule and explain the impact on other tasks as well as on available resources and planning (the explanations should be coherent with the declaration by the project coordinator) ;
• a statement on the use of resources, in particular highlighting and explaining deviations between actual and planned person-months per work package and per beneficiary in Annex 1 (Description of Work);
• If applicable, propose corrective actions.

Ethics Review/Screening Requirements

Before the contract was signed, the proposal underwent an Ethics Review procedure, which contained 11 questions. Applicant responded to all the questions that were raised by the reviewers, and the Commission accepted the responses.

All Project's tasks and work packages have been executed in full compliance with the recommendations and agreements.

Therefore, these has not been any possibility to breach any ethical recommendation or obligation in pursuing and carrying out the work programme.

WP2 Analysis of Volatility drivers

Progresses per task

T2.1. Review of literature on volatility assessments, causality tests and modeling approaches

Summary of progress: "Literature review of papers dealing with food price volatility and potential drivers finished, different modeling approaches analysed" (Working Paper No.1)

Work performed and main results achieved so far as described in the task: Review of literature on volatility assessments, causality tests and modeling approaches. Expected final results and their potential impacts and use: overview of volatility drivers identified so far and of methods used, basis for own analysis on volatility drivers (T2.3, Scientific Paper 1) and volatility spillovers between oil and agricultural markets (T2.3, Scientific Paper 8)

The work performed and the main results are the collection and categorisation of peer-reviewed and selected grey literature on price volatility in agriculture. Review of the identified literature with a focus on price volatility drivers.

The expected final results are an overview of drivers identified in the literature; an overview of methods used in the literature; as well as an assessment of the effects and the relative importance of different drivers, all that according to the literature.

T2.2. Data collection and compilation

Summary of progress: Data collection and compilation finished, derivatives data from US and Europe organized as MySQL database, spot price database organized as Access database.

Work performed and main results:

a) ordering and preparation of futures and options data in database

b) collecting data of potential volatility drivers

c) gathering spot price data from different resources, MS ACCESS database designed for retrieving data

Expected final results and potential impacts:

a) useful for analysis of implied information as predictor of future volatile periods (mainly for Scientific Paper 4, partially also used for Scientific Paper 1)

b) useful for VAR model (T2.3, Scientific Paper 1)

c) useful for VAR model (T2.3, Scientific Paper 8)

The main results and work performed are:

1. The development of data bank concept; programming of data bank frame; data transfer of spot, futures and options price data from various sources (FAO, USDA, EU, etc.), and the organisation of data in MS Access.
2. Data concept: the identification the relevant markets and search for the corresponding spot, futures, and options data.
3. Identification of the relevant drivers. Compilation of data on identified drivers (stocks, exchange rates, financialisation, speculation, etc.) from various sources (CTFC, FAO, USDA, EU, etc.) Organisation of data in MS Access.

This is applied to building the basis for empirical analyses of the WP.

1. Starting point for analysis of implied information as predictors of volatility and spikes.
2. Starting point for the VAR model (T2.3)

T2.3. Providing new empirical evidences on the short-term drivers of price volatility, using updated data, new methods and drivers linkages

Outputs:

Scientific Paper No. 1, '*Volatility analysis: causation impacts in retrospect (2007-2011) and preparing for the future*'

Scientific Paper No. 4, '*On historical and implied risk measures for major agricultural commodity markets'*

Scientific Paper No. 8, '*The dynamic pattern of volatility spillovers between oil and agricultural markets'*

Work performed and main results: estimation of VAR model for several commodity groups with the drivers most often discussed in literature (identified in T2.1)

Expected final results and potential impacts:

a) new empirical evidence of key drivers and analysis of spillover effects between commodities,
b) new empirical evidence on spillover effects between oil and agricultural market; work performed and main results are: analysis of volatility based on VAR model with a unified methodology. Identification of several groups of economically interconnected commodities. Analysis uses a large number of potential drivers, as identified in the literature (T2.1) (co-author of scientific paper).

The aim is to find new empirical evidence on key drivers and volatility spillovers between commodities.

T2.4. Preparation, calibration and estimation of original volatility models, including rational expectation storage model augmented by financial markets and policy instrument variables

Work performed and main results: Development of alternative risk measures for markets with sufficiently liquid options; decomposition of the proposed risk measures into various components with different interpretation and policy implications.

Final results and potential impacts: Detailed insights into the components of price volatility; because of the forward-looking nature of the proposed measures, these could be a very useful component for early warning systems.

The work performed and main results are:

1. Concept of a model to predict volatility changes and price spikes, based on forward-looking option-implied volatility, skewness, and kurtosis.
2. Estimation of univariate Generalised Autoregressive Conditional Heteroskedasticity (GARCH) models for spot price data
3. Estimation of the domestic price volatility using SDLOG is: Standard deviation of (log Pt – log Pt-1) or std log (Pt/Pt-1). This method is commonly used to measure and assess price volatility.

4. In the developing countries, food price volatility was estimated at two different levels (wholesale and retail) along the food chain for rice, maize, wheat, cassava and beans. The lack of data made it difficult to elaborate the conclusion on the level of volatility of traditional staple food commodities (bean and cassava) and the connection with the volatility of internationally traded staple food such as rice wheat and maize. But our partial information set suggests that volatility is higher for traditional staple food.

The aim of these are obtaining:

1. Improved predictions of volatility and price spikes, leading to an early warning system that permits timely policy reactions.
2. Baseline GARCH volatilities.

T2.5. Drawing policy conclusions from volatility models

Work performed and main results: Work performed as described in the task: policy conclusions have been drawn based on the literature review and the own analysis of volatility drivers (Scientific Paper 1), on the necessity to develop forward-looking risk measures for early-warning systems (Scientific Paper 4), and on the own analysis of volatility spillovers between agricultural and energy markets (Scientific Paper 8).

Final results and potential impacts: These policy conclusions are useful for the ongoing adjustments of the EU agricultural policy, and on a broader level, useful for the revisions of the EU's regulatory framework for financial markets. Within the projects, the conclusions were important for building blocks for the overall policy conclusions.

Assessment and significant results

The results for the WP2 are the following:

Results from Scientific Paper No. 1:

- Exchange rate volatility is a key driver for food price volatility

- Financialisation / Speculation as measured as in Scientific Paper not a driver

- Other drivers are important for some commodities, but market specific, cannot be generalized

- A lot of volatility remains unexplained

Results from Scientific Paper No. 4:

- Disaggregation of volatility into a set of risk measures allows new insights of the food price crisis

- Implied estimators of such risk measures are valuable for predicting certain price moves

Results from Scientific Paper No. 8:

- There is not a simple spillover volatility pattern between grain and oil prices or vegetable oil and oil prices.

- We find episodes when the notoriously high oil price fluctuations induce additional volatility in key agricultural markets.

- This suggests that volatility spillovers are more likely to occur in periods when stocks are low.

- The prevalence of spillover periods is product specific, and seems to be driven by substitutability of the products in food, feed, or biofuel use.

Overall findings:

- Policy measures should be market specific, there no key drivers having the same kind of influence and impacts on all products and markets.

- A great deal of volatility is caused by spill-over effects

- A lot of volatility is still unexplained, therefore focus should be on coping with volatility rather than reducing it

- High volatility could have different sources, important to look at the fine structure in order to find appropriate measures to cope with it

- Implied risk measures can be a valuable basis for an early warning system (together with other variables)

- Hence, the biofuel policies should be carefully reconsidered,

- The potential of buffer stocks for curbing price volatility seems rather limited, especially in those periods when oil markets drive agricultural price volatilities.

Significant results for T.2.1. Review of literature on volatility assessments, causality tests and modeling approaches

Over the past years, a substantial body of literature on the development of agricultural price volatility has emerged. In order to structure the existing literature, we started with an analysis of the methodological choices which must be made when empirically analysing agricultural price volatility. Most significantly, choices on the prices analysed (spot versus futures), the frequency of price data (daily, weekly, monthly, etc.), the nature of the volatility concept (backward versus forward looking), and the methodological framework (parametric versus non-parametric) constituted the most important choices. Subsequently, an inventory of the existing literature published in peer-reviewed scientific journals, augmented by selected influential working papers from renowned organisations, was taken and classified. The drivers discussed in these papers were identified and subsumed into broader categories. The dominating group was the one in which variables for capturing financialisation and speculation were discussed. However, in this group, there was also substantial disagreement concerning the direction of the impact on agricultural price volatility. Further details can be found in the attached working paper and in the policy brief.

Significant results for T2.2. Data collection and compilation

As a basis for the following tasks, a database concept was developed. An MS Access database was used because of easier handling in comparison to alternative databases. Price information from various sources for spot, futures, and options were made available in the database. In addition, data on potential drivers was added from various secondary sources. Finally, a number of own calculations based on secondary data (e.g., Working's index of excess speculation, indices of financialisation, information on stock predictions, etc.) were added to the database.

Significant results for T2.3. Providing new empirical evidences on the short-term drivers of price volatility, using updated data, new methods and drivers linkages

Starting point of our own analyses was the estimation of a benchmark volatility (based on a GARCH methodology and on a Realized Volatility methodology) using the updated data from T.2.2. We opted for a univariate framework, in order to avoid dependence of the resulting volatility measures on the specific composition of commodities included. Driver linkages and price volatility spill-overs were analysed in an innovative model framework. In particular, commodity groups were identified jointly with a comprehensive set of potential driver variables (based on T.2.1.). We then take the benchmark volatilities for the included commodities and model them as a vector autoregressive model, using the potential driver variables as exogenous variables. In order to avoid path dependency in the model specification process, we rely on automated model selection procedures.

Significant results for T2.4. Preparation, calibration and estimation of original volatility models, including rational expectation storage model augmented by financial markets and policy instrument variables

The results from the VAR model developed in T2.3 indicate: a) significant spillovers among the commodities in each group (based on impulse response functions), and b) only a minor impact of the typical drivers discussed in the literature. The most important drivers are related to macroeconomic conditions, i.e., exchange rates and oil prices. Financialisation and speculation, while dominating the literature, are rarely influential; in the few cases where they are, the impact was unanimously price volatility reducing.

In developing countries:

1. When looking at aggregated volatility in developing countries, there was no clear picture of one level being constantly more volatile than the other. But based on the cases reviewed, it seems that wholesale is often more unstable than the retail level.
2. Price volatility for rice was higher in Africa. It is a problem especially for some countries in western Africa where rice is one of the most important staple foods. This problem is exacerbated if we consider the fact that rice price levels in Africa are usually higher than in Asia, with exception of Philippines where prices are quite high but price volatilities are low. Maize prices also show high levels of volatility in Africa. The result could be useful for others members of the consortium

Deviations from DOW

The title of Scientific Paper No. 4 deviates from the description in the DOW. The content is as described as in the DOW, but we have a broader view on risk measures and focus not only on volatility. The new title is "On historical and implied risk measures for major agricultural commodity markets".

WP3. Understanding and coping with long-term volatility

Progresses per task

T3.1. Review of the literature on modelling approaches to link biophysical (climate change) and market models

Work performed: The main purpose of T3.1 was to provide a detailed literature review on modelling approaches to link biophysical (climate change) and market models in order to indicate the extent to which supply shocks are main causes of increased prices rise and volatility.

All partners in WP3 (JRC-IPTS, JRC-IES, UPM) performed jointly T3.1 and summarised the work in deliverable D.3.8, *i.e.* the report "Still a challenge - interaction of biophysical and economic models for crop production and market analysis" (ULYSSES Working Paper no. 3). The deliverable focuses on the review of the main models used for prospective analysis and crop forecast, both at the global and EU levels. It also reviews previous modelling efforts, which had indicated the extent to which supply shocks are the main causes of price increase and volatility. High priority has been given to the impacts of climate change on prices with an integrated modelling approach between bio-physical and economic modelling. Specifically, the relevant biophysical and agro-economic models have been discussed, highlighting their recent improvements and also their weaknesses to address certain relevant policy questions. Moreover, the state-of-the-art integrated modelling approaches have been analysed, with a focus on their capability to take into account the global dimension of climate change, global trade and the adaptation processes. The main advantages of this multi-model analysis are: (1) an increased coverage of topics and (2) multi-scale assessment: different models may operate on different spatial and temporal scales.

In terms of *results*, the report shows how model linking is very challenging, in particular when models from different disciplines are combined. The use of different concepts, terminology, data sources, scales and software are obstacles to effective model linking. Keeping consistency over different spatial and temporal scales is one of the key issues. Also, effective co-operation between modelling teams is required, meaning that clear benefits from model linking should exist both for biophysical and agro-economic modelling teams. Although gradual improvements in data availability and model linking approaches have been noticed, a number of critical issues still require further research. Among these:

a) Estimating yield effects for crops not included in the biophysical simulations. In some cases, biophysical data is not available for all crops included in the agro-economic model.
b) Aggregating from high resolution outcomes of the biophysical model to lower resolution country or regional units in the agro-economic model.
c) Deriving crop yield projections in the long-term. Exogenous productivity shocks are entered in partial equilibrium models as shifters in a supply equation. Model response will indicate effects on endogenous yields, area, consumption changes and prices. In the long-term, however, yield effects will be influenced by new technologies and changes

in farming practices. Both biophysical and agro-economic models have limitations to account for these long-term drivers.

Expected final results and their potential impacts and use:

Some *lessons* can be drawn from the literature review of T3.1. In particular, the design of innovative modelling approaches able to analyse the driving forces affecting long-term agricultural trends should take into consideration:

a) Data management: Data availability is crucial to develop an integrated framework. Model chains use data from different sources and at different spatial and temporal scales. Diversity in data sources, along with differences in spatial and temporal scales, requires the use of statistical techniques in order to ensure data consistency.
b) Definition of indicators: indicators cover multiple dimensions of agriculture (socioeconomic and environmental dimensions) and are defined at different scales (from the global to the regional level). Indicators need to be defined such that consistency across scales is guaranteed.
c) Spatial analysis: increasing importance of spatial issues.
d) Multidisciplinary cooperation: when models from different disciplines are linked, cooperation between researchers becomes crucial.
e) Transparency of methods and assumptions: previous studies on the impacts of climate change on agriculture have reported substantial differences in outcomes of key variables such as prices, production and trade. These divergent outcomes arise from differences in model inputs and model specifications.

T3.2. Identify and evaluate long-term drivers of price volatility, including climate change, extreme weather-related events, technology changes, macro- and socio-econmic changes

Work performed: The work performed by JRC-IPTS in T3.2 is based on a partial stochastic analysis aimed at the identification and evaluation of the uncertainty surrounding some of the long-term drivers of price volatility. Using the AGLINK-COSIMO model, we firstly identified which variables will be treated as "stochastic" in the long-term analysis and then we evaluate the uncertainty impact on the agricultural markets. Task 3.2 has been the basic step for Task 3.5 where we analyse the effects of uncertainty scenarios on price volatility, variability and level.

The first part of the work consisted in the identification of the main sources of systematic uncertainty in agricultural markets (macroeconomic conditions and yields) which could influence price volatility in the long-term. The selection was motivated by two considerations, namely the need to cover the major sources of uncertainty for EU agricultural markets whilst keeping the analysis simple enough to be able to identify the main contributors of uncertainty in each market. The selected variables are 1) crop yield uncertainty and 2) a set of macroeconomic variables which includes real GDP, GDP deflator, consumer price index, exchange rate, world oil price. In total, 40 country-specific macroeconomic variables and 77 country- and crop-specific yields are treated as uncertain in the partial stochastic analysis. The country coverage goes beyond the EU and includes also other OECD (United States of America, Canada, Japan, Australia and New Zealand) and BRIC countries (Brazil, Russia, India and China).

The *evaluation* phase of Task 3.2 consisted in implementing a partial stochastic analysis using AGLINK-COSIMO Model and following the previous methodology developed by the JRC-IPTS for quantifying the impact of uncertainties on some of the most important drivers of the

price volatility. The partial stochastic analysis consisted of three steps: (i) the approximation of the past uncertainty for yields and macroeconomic variables; (ii) the random generation of multiple sets of possible values for these "stochastic variables"; and (iii) the execution of the AGLINK-COSIMO model for each of the multiple sets of alternative 'uncertainty' scenarios. For macroeconomic variables, the approximation of the past uncertainty is based on forecast errors, determined as the difference between the one-year-ahead forecast (based on the Economic Outlooks of the OECD and the International Monetary Fund) and the observed outcome, over the period 2004-12. For yield, it has been calculated as the difference between the yield predicted by the trend, input and output prices and the actual yield, over the period 1996 to 2012.

Expected final results and their potential impacts and use:

The results of the partial stochastic analysis show that in general EU production and consumption in 2023 are not strongly affected by the uncertainty with a yearly fluctuation (measured by the coefficient of variation) nearly always below 5% and in some cases even around 1% (milk, cheese, meat products). When looking at the combined macroeconomic and yield uncertainty, consumption is very often more certain than production. However this is less true for biofuels (in particular ethanol) and commodities related to them (cereals, in particular maize, oilseeds) for which the variability of oil price and exchange rate has a direct or indirect impact on consumption. For production, crops, biofuels and some dairy products are more vulnerable to uncertainty than the other commodities. Yield uncertainties are the predominant source of variability for crop products whereas macroeconomic uncertainty is more important for the production of dairy products. The two sources of uncertainty have more balanced impacts for other commodities (biofuels, meat). However, with the impacts of uncertainty being generally greater for production than for consumption, trade volumes have to adjust with the consequence that the coefficients of variation of imports and exports are significantly higher than those for production and consumption.

T3.3. Prepare, calibrate and stimulate crop growth models, including BIOMA (climate change scenarios until 2020/2030).

Work performed: In 2013 JRC-IES (Partner 3) ran a set of crop growth simulations in the framework of the ULYSSES project. The table below presents the characteristics of these simulations:

Model	WOFOST
Platform	BioMA
Crops	Wheat, Maize, Barley, Rye, Field beans, Sugar beet, Rapeseed, Potato, Sunflower
Time Horizon	2000, 2030
IPCC scenario and Realizations	A1B Echam, A1B Hadley
Adaptation measures	No Adaptation, 10 days sowing anticipation, 10% increase of Length of Growing Period
Spatial resolution	25km
Spatial extension	EU28
Soil Data	Main Soil Type (STU)
Limiting factors	No Limiting factor (Potential), Water limited

The results of these simulations were provided to partner 1 (UPM) as input for task 3.4.

Expected final results and their potential impacts and use:

The simulations suggest that at EU level the potential yield (under full irrigation assumption) would increase but the rainfed yields are expected to decrease. Maize seems to be the most affected crop, probably due to the fact that it does not benefit a better CO2 assimilation rate due to higher CO2 concentration. For most of the crops the Hadley realization (warm) gives more pessimistic figures than the Echam (mild) realization.

Concerning the adaptation strategies, in potential conditions most of the crops might benefit from at least one of the adaptation measures tested. But the picture is slightly different for water limited simulations since only barley and sunflower seem to benefit from an anticipated sowing date and rapeseed from an increase in the thermal time.

T3.4. Prepare, calibrate and estimate economic models, including CAPRI and AGLINK-COSIMO.

Work performed: In the framework of T3.4 we mainly focused on two models: AGLINK-COSIMO and CAPRI. For AGLINK, the maintenance and the development of the model by JRC-IPTS has been mainly focused on improving the partial stochastic simulations to include uncertainty scenario around the deterministic baseline provided annually by the DG AGRI. The country coverage for crop yields was extended significantly with respect to previous versions of the model: for example, several crops in Canada, China and India, rice in the US, Vietnam and Thailand or soybeans in Brazil have been included. As already mentioned in T3.2, for macroeconomic variables the coverage was as well significantly extended: not only those of the EU were considered but also those in the main OECD (United States of America, Canada, Japan, Australia and New Zealand) and BRIC countries (Brazil, Russia, India and China).

In 2014-2015 UPM calibrated the economic model CAPRI to define the baseline scenario for 2030, taking into account the Shared Socioeconomic Scenarios (SSP) recently developed for climate change research. To analyze the impacts of climate change on agriculture both globally and regionalized within the EU, results from biophysical simulations were incorporated into the CAPRI agro-economic model. For EU regions, specific simulations using the WOFOST (World Food Studies) biophysical model provided yield effects at NUTS 2 level for nine of the most grown crops in Europe. For non-EU regions, we used yield effects simulated by the LPJmL agro-ecosystem model and available from the ISI-MIP project.

Expected final results and their potential impacts and use:

The calibration of the CAPRI baseline for 2030 is an essential step to perform scenario analysis.

The preparation of the AGLINK model serves to carry out the partial stochastic simulations. The partial stochastic simulations, containing several alternative solutions, allow deriving how the exogenous variation entered in the model impacts agricultural markets, an approach used also for the DG AGRI agricultural market outlook.

T3.5. Generate projections for long-term drivers of price volatility, variability and level.

Work performed: In 2014-15 JRC-IPTS performed partial stochastics, considering the main sources of systematic uncertainty around the market drivers in a baseline scenario. The European Commission's baseline from 20131 and the model AGLINK-COSIMO have been used for this purpose.

In 2014-2015 UPM analyzed the role of climate change as a driver —and source of uncertainty— of agrifood systems. We used a bio-economic approach to jointly assess the biophysical and socio-economic effects of climate change on agriculture, providing both a global analysis and a regionalized evaluation within the EU. For doing this, we incorporated results from biophysical simulations into the CAPRI agro-economic model. To account for uncertainties about future crop yield developments, in particular with regard to climate projections and the magnitude of carbon fertilization effects, we analyse a high emission scenario (RCP8.5) for the 2030 horizon under several simulation scenarios that differ as to:

a) climate projection: we used climate projections from three different general circulation models (GCM), namely HadGEM2-ES , IPSL-CM5A-LR and MIROC-ESM-CHEM;

b) consideration of carbon fertilization effects: biophysical simulations were performed both with and without the effects of CO_2 fertilization on crop yields.

Hence, apart from the reference scenario, which assumes no climate effects on crop yields between 2010 and 2030, we considered six simulation scenarios, summarized below:

Definition of simulation scenarios

Code	RCP	GCM	Crop model	CO_2 effects
Reference	Present climate	None	None	None
HadGEM2_CO_2	RCP 8.5	HadGEM2-ES	WOFOST- LPJmL	Full CO_2
IPSL_CO_2	RCP 8.5	IPSL-CM5A-LR	WOFOST- LPJmL	Full CO_2
MIROC_CO_2	RCP 8.5	MIROC	WOFOST- LPJmL	Full CO_2
HadGEM2_noCO_2	RCP 8.5	HadGEM2-ES	WOFOST- LPJmL	No CO_2
IPSL_noCO_2	RCP 8.5	IPSL-CM5A-LR	WOFOST- LPJmL	No CO_2
MIROC_noCO_2	RCP 8.5	MIROC	WOFOST- LPJmL	No CO_2

Expected final results and their potential impacts and use:

The results presented in the deliverable D.3.9 titled "*Production and crop roots (causes?) of volatility measures including partial stochastic simulations of yields and macroeconomic variables*", indicate that crude oil prices and exchange rates are main sources of price variability, but also that change on other variables as GDP and CPI (consumption), yields

[1] European Commission (2013), Prospect for Agricultural Markets and Income in the EU 2013-2023. Accessible at http://ec.europa.eu/agriculture/markets-and-prices/medium-term-outlook/2013/fullrep_en.pdf

(weather), biofuel mandates, or price levels are important uncertainty factors. Furthermore, it has been shown that the magnitude of the implications on price uncertainty differ strongly depending on the market. Commodities presenting high world market price uncertainty are oilseeds and its derivatives, biofuels, pork, wheat, coarse grains, and raw sugar. With partial stochastic simulations two further factors were analysed higher price levels and biofuel policies. First, higher price levels resulted in higher price uncertainty in absolute terms. Its implication is a topic of further research. Second, biofuel mandates appear to be reducing uncertainty by setting strict consumption obligations; without them the strong uncertainty around crude oil prices is partially transmitted particularly to biodiesel, since it is less competitive than bioethanol. Uncertainty in environmental drivers, in particular climate change, is analysed by means of a bioeconomic scenario analysis. The biophysical and economic impacts of climate change have been assessed, providing both a global analysis and a regionalised evaluation within the EU. Results indicate stronger negative production effects across EU regions compared to the rest of the world.

Concerning the impacts of climate change on agriculture, both biophysical and economic results vary widely across scenarios, regions and sectors. The carbon fertilization effect strongly influences the direction of effects for both EU and non-EU regions, leading to crop price increases in the absence of carbon fertilization and to price decreases when CO2 effects are accounted for. Economic simulations show that crop prices will react to yield changes, attenuating the effects of climate change at the global level, but originating significant distribution effects across regions and sectors. Results suggest that agri-food market projections to 2030 are very sensitive to changes in crop productivity and, therefore, to the uncertainties linked to climate change.

Assessment and significant results

Summary of progress towards objectives and details

T3.1. Review of the literature on modelling approaches to link biophysical (climate change) and market models

Fernández F.J., Blanco M., Ceglar A., M'Barek R., Ciaian P., Srivastava A.K., Lecerf R., Ramos F., Niemeyer S., Van-Doorslaer B. (2013). *Still a challenge - interaction of biophysical and economic models for crop production and market analysis*, Working Paper nº 3, ULYSSES project, EU 7th Framework Programme, Project 312182 KBBE.2012.1.4-05, http://www.fp7-ulysses.eu/ , 96 pp.

Francisco J. Fernández and Maria Blanco (2015). Modelling the Economic Impacts of Climate Change on Global and European Agriculture. Review of Economic Structural Approaches. *Economics: The Open-Access, Open-Assessment E-Journal*, 9 (2015-10): 1—53. http://dx.doi.org/10.5018/economics-ejournal.ja.2015-10

T3.2. Identify and evaluate long-term drivers of price volatility, including climate change, extreme weather-related events, technology changes, macro- and socio-economic changes

Artavia M. et al. (2014). Production and crop roots (causes?) of volatility measures including partial stochastic simulations of yields and macroeconomic variables, Scientific Paper nº 2, ULYSSES project, EU 7th Framework Programme, Project 312182 KBBE.2012.1.4-05, http://www.fp7-ulysses.eu/ , 36 pp.

T3.3. Prepare, calibrate and stimulate crop growth models, including BIOMA (climate change scenarios until 2020/2030).

Different simulations have been carried out suggesting that at EU level the potential yield (under full irrigation assumption) would increase but the rainfed yields are expected to decrease. Maize seems to be the most affected crop, probably due to the fact that it does not benefit a better CO2 assimilation rate due to higher CO2 concentration. Depending on the climat scenario realization (f.ex. warm or mild) the yield development diverges.

T3.4. Prepare, calibrate and estimate economic models, including CAPRI and AGLINK-COSIMO.

For this task we extended the partial stochastic analysis by including more sources of uncertainty. The uncertainty was calculated using the historical deviations between expected and observed data. Once the uncertainty is measured, we proceed to perform simulations which later on are entered in the AGLINK-COSIMO model. For doing so, we used the latest available version of AGLINK-COSIMO. This object was achieved by having prepared the models and the simulations, such that they are ready to be used in further analyses.

T3.5. Generate projections for long-term drivers of price volatility, variability and level.

“Abolishing biofuel mandates: Possible impacts on agricultural price levels, price variability and global food security” which has been sent to the journal Food Policy, the paper has been accepted but with revisions. We need to submit the changes by the end of September.
This paper is a more elaborated version of the Ulysses working paper 5: Araujo Enciso, S., Blanco, M., Artavia, M., Ramos, F., Fernández, F., Van Doorslaer, B., Fumagalli, D. & Ceglar, A. (2014). Volatility modelling: long-term challenges and policy implications, Scientific Paper nº 5, ULYSSES project, EU 7th Framework Programme, Project 312182 KBBE.2012.1.4-05, http://www.fp7-ulysses.eu/, 39 pp.

Clearly significant results

The WP3 main results are:

- The critical issues for the design of innovative modelling approaches are data management, definition of indicators, spatial analysis, multidisciplinary cooperation, transparency of methods and assumptions;
- The main long term drivers of volatility which can be included in long-term modelling approaches are crop yields, real GDP, CPI, exchange rate and world oil price;
- For the economic analysis, production and consumption in the EU market are not strongly affected by uncertainty. However, trade volumes are more subject to unexpected fluctuations;

- From biophysical model, maize is the most affected crop in terms of potential yields under a full irrigation assumption;
- Crude oil prices and exchange rates are the main sources of price volatility and the commodities presenting the higher world market price uncertainty are oilseeds, biofuels, pork, wheat, coarse grains and raw sugar;
- Biofuel mandates seem to reduce uncertainty by setting strict consumption obligations;
- The negative effect on production of climate change is higher across the EU regions compared to the rest of the world.

Coordination

See overall project meetings. In addition, several exchanges by mail, phone, VC etc took place.

Georg-August-Universitaet Goettingen (Partner 5, UGOE) has

- Communicated results on short-term volatility from WP2 to WP3
- Identifcated long-term drivers compatible with short-term drivers in WP2
- Made scientific exchange on suitable methods to incorporate stochastics into equilibrium models
- Elaborated the state of the art approach to incorporate stochastics into economic models

WP4. Impact of price volatility in food chains in the EU and in developing countries

Progresses per task

T4.1. Analyse price transmission along the chain & influence of context

Work performed

This task aimed at (i) analysing to what extent price volatility is being transmitted along the food supply chains mentioned; and (ii) identifying and quantifying relevant contextual factors, such as chain design, infrastructure, market power and ownership. Price transmission data and context analyses are carried out for the selected chains and countries, which are readily available and contextual issues can be mapped. A special emphasis will be placed in identifying different food supply chains in EU countries, as identified in the literature. A number of common products (milk, pork, fruits & vegetable, sugar) will be analysed in detail in several EU countries. In addition to data analysis, literature and expert elicitation, if transmission data are not available for some chains, actors along the chain, or countries, analyses are based on literature and experts' elicitation.

This task was subdivided into 2 deliverables, D4.1 (literature review) and D4.2 (food price volatility in developing countries):

Deliverable D.4.12: Literature review on price volatility transmission in food supply chains, the role of contextual factors, and the CAP's market measures (July 2013). The literature review has been published as: *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M., 2015, Price Volatility Transmission in Food Supply Chains: A Literature Review, Agribusiness (31, 1): 3–13.*

Parts of it were also addressed in the monograph (Ch6): *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M., 2015, A review of the role of contextual factors on price volatility transmission in food supply chains.*

Deliverable D.4.13: Analysis and determinants of retail and wholesale staple food price volatility in developing countries, by Guillaume, P., Morales-Opazo, C. Demeke, M. (January 2014).

Extra. In addition to these deliverables, a scientific paper on quantitative assessment of price volatility transmission along food chains has been submitted for publication to JAE: *Assefa, T.T., Meuwissen, M.P.M., Kuiper, E.W. and Oude Lansink, A.G.J.M. (2014), Price volatility transmission in selected European food supply chains, submitted.* Contextual factors considered were retail market power, consumer price inflation and selected CAP policies (Reduction of intervention prices in the 2003 Luxembourg reform and abolition of pig meat intervention buying in 2009).

Extra. Price volatility might be caused by disruptions such as livestock epidemics or animal feed crises. A scientific paper using co-integration methods has been presented at the ICAE conference in Milan and will be submitted to Agribusiness: *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M., 2015, the impact of food scares on price volatility transmission along the German pork chain.*

Extra. In addition to these deliverables, a working paper (ULYSSES Working Paper no.7) on quantitative assessment of price volatility transmission and market power transmission along food chains has been developed and submitted for publication to ERAE: *Felis, A., Garrido, A., 2015. Market Power Dynamics and Price Volatility in Markets of Fresh Fruits and Vegetables*. Fresh agricultural markets are studied in order to explore the structure and dynamics of the process of price formation. The paper studies the behaviour of market power within the distribution chain of perishable agricultural products, taking dynamics and price volatility into account.

Final results, potential impacts and use

Deliverable D.4.12
Reviews clearly show that price volatility transmits along food supply chains thereby exposing all chain actors to risk and uncertainty. More specifically, quantitative analyses as presented in the JAE paper show that:

a) In case of the German cheese supply chain, the retail sector was found to respond negatively to price volatilities transmitted from the feed and farm stages thereby shifting price risk to upstream stages.
b) Despite the importance of feed costs in pig production, we failed to detect significant price volatility transmission from feed to farm stages in both German and Spanish pork supply chains. An interesting finding, however, is the negative effect of farm price volatilities on feed price volatilities in the German pork chain. This highlights that relatively stable farm prices can ‘stabilize’ volatile feed prices.
c) Compared to other chains, the Spanish pork chain is noticeable due to the absence of volatility transmissions across chain stages.
d) We find that price volatilities in the Spanish tomato chain flow from downstream to upstream stages of the chain (from consumer and wholesale to farm, and from wholesale to farm).
e) A common finding for all chains is the relative immunity of consumer prices to upstream price shocks.
f) As expected, we find that retailers might be using market power to reduce the transmission of upstream price shocks. Inflationary pressures are found to increase the

responsiveness of consumer prices to upstream price shocks. The effects of the two policy measures investigated gave mixed results. While the price intervention system (before its reform in the 2003 Luxembourg reform) had a negative effect on the transmission of price shocks in the German cheese chain, intervention buying of pig meat (before its abolition in Health Check of 2009) had a positive effect on transmission of price shocks in the Spanish pork chain. The latter policy had no significant effect in case of the German pork chain.

Deliverable D.4.13
Price volatility for rice was higher in Africa. It is a problem especially for some countries in western Africa where rice is one of the most important staple foods. This problem is exacerbated if we consider the fact that rice price levels in Africa are usually higher than in Asia, with exception of Philippines where prices are quite high but price volatilities are low. Maize prices also show high levels of volatility in Africa. International volatility, oil volatility and yields were found to be critical determinants.

Deliverable D.4.2
Analysis and determinants of retail and wholesale staple food price volatility in developing countries, by Guillaume, P., Morales-Opazo, C. Demeke, M. (January 2014). Data was collected from various institutional sources and aggregated in a unified data set. Food price volatility was estimated in developing countries at two different levels along the food chain, wholesale and retail. Wholesale and retail price volatilities were measured for five staple foods. A model was used to estimate volatility drivers in developing countries for the two market levels. Potential use of these results lies in policy design and recommendation. Policy makers aiming at stabilizing food prices at a specific level of the food chain in developing countries will find the expected average impact of a measure undertaken on any of the analysed drivers. Descriptive statistics of volatility may also help prioritize measures by helping identify where prices are the most instable.

Extra
In addition to these deliverables, a scientific paper on quantitative assessment of price volatility transmission along food chains has been submitted for publication to ERAE: Assefa, T.T., Meuwissen, M.P.M., Kuiper, E.W. and Oude Lansink, A.G.J.M. (2014). Price volatility transmission in selected European food supply chains, submitted to *European Review of Agricultural Economics*.

Analyses in this paper focus on the German cheese, German pork, Spanish pork and Spanish tomatoes supply chains. Data originate from the Transfop project, extended with data from MARM (Ministerio de Agricultura, Alimentación y Medio Ambiente) for the Spanish chains and the European Comission's price monitoring reports for the calculation of cattle and pig feed prices. Contextual factors included are retail market power, consumer price inflation and selected CAP policies (Reduction of intervention prices in the 2003 Luxembourg reform and abolition of pig meat intervention buying in 2009). Data of consumer price indices used as proxy for consumer price inflation were collected from the OECD website.

T4.2. Identify impact of price volatility on management decisions along the chain

Work performed
Structured in-depth interviews with key business' decision makers were performed according to the table below.

Investigated chains

Chain stages	Dutch cheese	German pork	Spanish fresh tomatoes	Bulgarian wheat	French wheat	Dutch fresh tomatoes
Farm	3	2	3	2	2	3
Wholesale[1]	3	2	4	3	1	2
Processing[2]	5	0	N/A[3]	3	1	N/A
Retail	1	0	2	0	0	0

[1]Wholesalers are, Dutch cheese: cheese wholesalers; German pork: pig wholesalers (1 is a cooperative); Spanish tomatoes: fresh tomato wholesalers (2 are cooperatives); Bulgarian wheat: wheat grain wholesalers (mainly focused on exports); French wheat: a cooperative wheat grain wholesaler; Dutch tomatoes: fresh tomato wholesalers.

[2]Processors are, Dutch cheese: cheese processors (4 of them cooperatives); Bulgarian wheat: 2 millers and 1 bakery; French wheat: 1 miller.

[3]Not applicable.

Deliverable D.4.14

Results of the in-depth interviews have been published as deliverable and submitted as a scientific paper: *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M., 2015, Price volatility perceptions and management strategies in European food supply chains; an exploratory approach, submitted.* This paper was also presented during the 2014 EAAE conference in Slovenia).

Deliverable D.4.15

Also, a policy brief was written to address the main price risk management issues found, i.e. Policy Brief (3): *Alternative management and strategic responses to deal with agricultural markets instability: going beyond futures and options contracts in EU agri-food sector* (Ulysses website).

In addition, one of the chapters of the monograph (Ch9) is addressing the price risk management perceptions and strategies along the chain: *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M. (2015*), *Price volatility perceptions, management strategies and policy options in EU food supply chains*.

Final results, potential impacts and use

Deliverables D.4.14/15

Two major types of price risk management strategies dominate the strategies adopted in the investigated chains: *survival* and *adaptive strategies*. *Survival strategies* focus on minimizing losses in the event of an adverse price movement. *Adaptive strategies*, on the other hand, focus on being flexible to market conditions and securing a stable margin regardless of market price movements. Due to the inflexibility in farm production, farmers' strategies are mostly limited to survival strategies. On the other hand, most actors downstream the farm stage seem to be more inclined to adopt adaptive strategies. The analyses of the perceptions of chain actors about price volatility indicate that farmers and retailers are more concerned about persisting adverse price movements than short-term price changes. Short-term price changes were found to be more of a concern to wholesalers and processors.

An opportunity for policy intervention is identified at the farm stage where a gap in risk management seems to exist. Farmers have a limited opportunity to respond to short-term price change due to the inflexible nature of farm production. Though they can respond to prices

persisting for one year/production cycle or longer, their responses are of limited value if the directions of price changes are suddenly reversed between years/production cycles. Income stabilization tools (such as the single farm payment scheme currently in place, and whole-farm income stabilization tools as a future policy option) are useful policy tools in this respect. Further support of farmers to organize themselves in producer organizations and cooperatives is another policy option to allow farmers invest in the production of specialty products and create closer links with retailers by passing the wholesale stage. This can empower farmers vis-a-vis the downstream sector and help secure good and stable prices for their produces. The absence of active futures markets in the German pork, Dutch cheese and Bulgarian wheat sectors is another risk management gap that could be filled with policy intervention. Interest for these hedging instruments was expressed among wholesalers, farmers (German pig farmers) and processors (Dutch cheese processors) in these sectors. Finally, better prediction of short and long-term drivers of price volatility, and timely dissemination of price predictions can be useful to help chain actors better manage the risk from price volatility. While predictions of long-term trends in prices are particularly useful for farm investment decisions, predictions of short-term price changes can support the downstream sector's decisions on whether and when to enter into contracts and on whether to raise stock levels.

Task 4.2 aimed to identify the impact of price volatility on management decisions along the chain. This part of WP4 has a more qualitative approach by using structured questionnaires to identify how food chain actors cope with input and output price volatility by changing their sourcing and selling strategies. Multiple chains and chain stages will be interviewed according to this set-up:

	Dutch cheese	**German pork**	**French bread-wheat**	**Bulgarian bread-wheat**	**Spanish tomatoes**
Farmers	2 dairy farmers	2 pig farmers	2 wheat farmers	2 wheat farmers	2 tomato farmers
Wholesalers	Not applicable	1 pig trader	1 collector	2 grain exporters	2 tomato wholesalers
Processors	3 dairy processors	2 slaughterhouses /processors	1 flour miller	2 millers	Not applicable
Retailers	1 supermarket	1 supermarket	1 bakery	2 bakeries	2 supermarkets

Interviews for the French wheat and Dutch cheese chains took place in January and February 2014 respectively. Interviews with Bulgarian, German and Spanish chain participants are planned for March and April 2014. In Spain and Bulgaria, a local translator will be involved.

T4.3. Explore impact of traditional and innovative price risk management strategies

Work performed

Related deliverables have been split, i.e. towards EU context and LDC context:

Deliverable D.4.16 (EU context)
Impact of chain design and risk management on price stability along food supply chains in Europe. Ex-post simulation included 3 steps, (i) establishing basis prices (= situation without PRM); (ii) parameterise PRM strategies and assess prices (= situation with PRM); and (iii) estimate price levels and analyse the residuals (all moments). Ex-post simulations have been

performed for 4 chains: tomatoes (Spain, Netherlands), cheese (Netherlands), wheat (Bulgaria), pork (Germany). Next to the deliverable, the simulation work will be submitted as scientific paper: *Assefa, T.T., Meuwissen, M.P.M. and Oude Lansink, A.G.J.M., 2015, Quantifying the effectiveness of price volatility management strategies in reducing price volatility*. This work has also been presented during the 2015 ICAE conference in Milan.

Deliverable 4.16 (LDC context)
Antonaci, L., Demeke, M. and Vezzani, A., 2015. The Challenges of Implementing Price and Production Risk Management in Sub-Saharan Africa.

Extra
A *business* brief (July 2015) was written summarising the main messages for business stakeholders, titled: "*Price risk management along EU food chains*"

Final results, potential impacts and use

Deliverable D.4.16(EU)

Managing the risk from price volatility is necessary in an increasingly volatile agricultural market. We investigated the price volatility reducing effects of strategies adopted by farmers, wholesalers and processors in six European food supply chains (Bulgarian wheat, French wheat, German pork, Dutch cheese, Dutch tomato, and Spanish tomato supply chains). The strategies were identified through the interviews conducted. The simulation results show that the price volatility reducing effects of the simulated strategies was minor. This was because prices in many of the strategies were set as close to the spot prices as possible. It was, nevertheless found that strategies such as forward contracts and derivative markets do reduce the price volatility faced. Encouraging the use of these two instruments could be an effective policy option.

Deliverable 4.16(LDC)
Firms operating in the agricultural sector face risks that are specific to this branch of the economy. Agriculture is not only prone to input and output price variability, but it also faces high financial risks resulting from the peculiarity of the production cycle. Given the long time span between the beginning of the production cycle (sowing) and the marketing of the output, farmers are exposed to output price risks and financial constraints. This peculiarity can result in insufficient being cash available to satisfy basic needs and to pay for production expenses, such as inputs. The lack of well-developed financial systems exacerbates these circumstances resulting in insufficient liquidity, loss of income and high interest rates. Moreover, agricultural producers have to deal with risks associated with negative outcomes mainly deriving from extreme weather shocks, such as drought, floods or cold waves. Finally, biological factors, such as insect pests, and crop and livestock diseases, are recurrent events affecting agricultural production. A widely recognized feature of such threats is their spatial correlation. Indeed, climatic and biological events normally hit the overall farming population of a certain area and this has serious implications in how to deal with agricultural risks.

T4.4. Synthesis: simulate stability along the chain

Work performed

Synthesise previous analyses of risk management strategies and exogenous factors on price stability in EU and developing country food chains. Task 4.4 aims to synthesise previous analyses (including scenarios stemming from WP3) towards a combined insight of exogenous factors and endogenous risk management strategies on price stability in EU and developing country food chains. This task is enhanced by current cooperation and aligning within WP4 (WU, FAO) and with other WPs (Goettingen, JRC, UPM and UNWE).

Data was collected from various institutional sources and aggregated in a unified data set. Food price volatility was estimated in developing countries at two different levels along the food chain, wholesale and retail. Wholesale and retail price volatilities were measured for five staple foods. A model was used to estimate volatility drivers in developing countries for the two market levels. International volatility, oil volatility and yields were found to be critical determinants. The estimates can be used for the stability simulations in the second half of the project.

In developing countries, food price volatility was estimated in developing countries at two different levels along the food chain for rice, maize, wheat, cassava and beans. A model was estimated to study volatility responses across the food chain. These volatility determinants can be used to reach the final objective (stability simulations, T4.4).

Potential use for these results lies in policy design and recommendation. Policy makers aiming at stabilizing food prices at a specific level of the food chain in developing countries will find the expected average impact of a measure undertaken on any of the analysed drivers. Descriptive statistics of volatility may also help prioritize measures by helping identify where prices are the most instable.

Final results, potential impacts and use

This task has been captured by the Deliverable D.4.16 deliverables.

Assessment and significant results

Significant results

Price volatility transmission along chain stages. Price volatility transmits along the chain thereby exposing all actors to risk and uncertainty. Price volatility management should thus be done at all stages of the chain.

Price volatility perceptions.

a) In general, chain actors perceive as price volatility price deviations that exceed price expectations by more than 10-15%. Price volatility caused by weather shocks, animal diseases and global demand and supply shocks are perceived as risky. Seasonal price fluctuations and fluctuations caused by speculation are not perceived as risky.
b) *Farmers and retailers:* Persistent adverse price movements that last for one or more production cycle provide farmers the signal to manage price risk
c) *Wholesalers, processors and retailers:* These chain actors should regularly manage price volatility since they have the possibility of reacting to price fluctuations that occur during the year.

Price volatility management strategies.

a) *At the farm stage*: In addition to their limited ability to respond in times of sudden adverse price movements, farmers have limited market power that could enable them to secure fair prices in such times. Such limited market power can be attributed, among others, to the atomized structure of the farm stage and the undifferentiated nature of farmers' produces. In this regard, horizontal collaboration among farmers in the form of producer organizations and/or cooperatives could improve farmers' price negotiation power. Horizontal collaboration further equips farmers with the financial resources necessary for investments in differentiated, value-added and niche products. Such products are less prone to price volatility relative to bulk products. Horizontal collaboration also allows farmers to achieve

the economies of scale necessary to collaborate with the retail sector for the development of niche products.

b) *Wholesale, processing and retail stages*: A traditionally used price risk management strategy by wholesalers, processors and retailers is a forward contract fixing prices for the duration of the contract. Interviews with these chain actors revealed, however, that such types of contracts are risky if one is not able to secure contracts for both major inputs and outputs. A solution could be opting for shorter contracts, or for long-term contracts in which prices are flexible based on some formula. Through a closer collaboration among the chain actors, contracts could be designed in which both parties benefit from sudden upside price movements without being harmed by downside price movements. Targeting niche markets and on branded products can also be an effective price risk management strategy for chain actors downstream to the farm stage.

Impact of price volatility management strategies. Most of the management strategies involve fixing margins instead of prices. Therefore, it can be said that the impacts of strategies used in the selected EU food chains reduce margin volatility instead of price volatility.

The reviews from D.4.1 clearly show that price volatility transmits along food supply chains thereby exposing all chain actors to risk and uncertainty. More specifically, quantitative analyses as presented in the ERAE paper show that:

- In case of the German cheese supply chain, the retail sector was found to respond negatively to price volatilities transmitted from the feed and farm stages thereby shifting price risk to upstream stages.
- Despite the importance of feed costs in pig production, we failed to detect significant price volatility transmission from feed to farm stages in both German and Spanish pork supply chains. An interesting finding, however, is the negative effect of farm price volatilities on feed price volatilities in the German pork chain. This highlights that relatively stable farm prices can 'stabilize' volatile feed prices.
- Compared to other chains, the Spanish pork chain is noticeable due to the absence of volatility transmissions across chain stages.
- Finally, we find that price volatilities in the Spanish tomato chain flow from downstream to upstream stages of the chain (from consumer and wholesale to farm, and from wholesale to farm).
- A common finding for all chains is the relative immunity of consumer prices to upstream price shocks.
- As expected, we find that retailers might be using market power to reduce the transmission of upstream price shocks. Inflationary pressures are found to increase the responsiveness of consumer prices to upstream price shocks. The effects of the two policy measures investigated gave mixed results. While the price intervention system (before its reform in the 2003 Luxembourg reform) had a negative effect on the transmission of price shocks in the German cheese chain, intervention buying of pig meat (before its abolition in Health Check of 2009) had a positive effect on transmission of price shocks in the Spanish pork chain. The latter policy had no significant effect in case of the German pork chain.

Results from D4.2 illustrate the following:

- Price volatility for rice was higher in Africa. It is a problem especially for some countries in western Africa where rice is one of the most important staple foods. This problem is exacerbated if we consider the fact that rice price levels in Africa are usually higher than in Asia, with exception of Philippines where prices are quite high but price volatilities are low.

Maize prices also show high levels of volatility in Africa. The result could be useful for others members of the consortium.

- International volatility, oil volatility and yields were found to be critical determinants. The estimates can be used for the stability simulations in the second half of the project.

When looking at aggregated volatility in developing countries, there was no clear picture of one level being constantly more volatile than the other. But based on the cases reviewed, it seems that wholesale is often more unstable than the retail level.

Based on the econometric analysis, international volatility, oil volatility and yields were found to be central determinants. In and new version we are also dealing with new determinants as production /per capita, rain and governance.

Deviations from annex I (DOW)

In the second half of the project there was one minor deviation from the DOW, i.e. we asked for permission to split Deliverable 4.16 (Month 30) into 2 parts, i.e. one part addressing risk management impacts along food chains in an EU-context and one part focussing on developing countries. This split was approved.

The title of deliverable D4.1 has been changed into “price volatility transmission [..]”. This better fits the scope of ULYSSES.

Price volatility analyses (ERAE paper) are carried out for tomatoes and pork in Spain, and cheese and pork in Germany. The originally planned commodities were pork, milk, tomatoes, potatoes, and apples. Potatoes and apples were excluded from the list to make the number of commodities to be studied feasible. It is believed that tomatoes can well represent the fruits and vegetable sector. Milk was replaced by cheese since most of the milk produced in Germany and The Netherlands goes for the production of cheese. In the list of countries, Italy was replaced by France because it is easier to obtain data from France since the project has Mr Nicolas Ferenczi (from AGPB) as one of its advisory board members.

Price risk management issues (Task 4.2, D4.3) will again have a broader focus, as shown in table above.

The title of deliverable D4.2 has been changed. The content however is the same. The change is due to a better explanation of the content. The new title is “Analysis and determinants of retail and wholesale staple food price volatility in developing countries”.

Deviation between actual and planned person-months

P2 (WU) employs a PhD student (instead of staff only) on the WU tasks of WP4. This has no implications on the total budget. Total PM however is increased (due to lower fee for PhD student). Note that the PhD (Tsion Assefa) is a very qualified PhD (as illustrated among others by her publications on Ulysses already, see above) and is fully working and doing her PhD on the Ulysses-project. Moreover, there is close supervision by the promotor (Alfons Oude Lansink) and the co-promotor (Miranda Meuwissen), both P2 staff.

Coordination activities

In the data gathering phase of Task 4.1, there was regular contact between P2 and the Transfop consortium. With regard to price volatility assessments (D4.2 and ERAE paper), methods were

aligned between P2 and P6. Definitions of price volatility (D4.1, D4.2 and ERAE paper) were discussed with P3 and P5. Framing Ulysses work towards policy implications is discussed with P4. Moreover, general Ulysses skype meetings were attended. These meetings are useful for regular updates.

UNWE cooperates with partners to steer policy discussions and ensure consistency of WPs (2-5) policy dimensions. A list of aspects of a policy (purpose, period, level of implementation, preconditions for success) has been prepared, that should be clarified when discussing existing policies and considering new measures in the respective domains of WP2-5.
Members of UNWE team discussed with the members of WU team working papers and discussion documents. As it was decided interview of grain supply chain to be organised in Bulgaria a lot of contacts with producers, millers and exporters have been done.

Coordination with other partners including steering committee members has been very intense during D4.14 in which multiple interviews with local chain partners were undertaken. Partners provided us with appropriate names and, if needed, translation. Feedback on interpretation of ex-post simulation results (D4.16) has also been important, both with partners and steering committee members (especially business stakeholders).

WP5. Evaluation of food price volatility impact on consumers

Progresses per task

T5.1. Review literature on food prices volatility and household's impacts

Work Performed

An extensive literature survey pertaining to developed, developing and emerging countries was performed on the topic of food prices volatility and impacts on consumers and households.

The deliverable D5.17, co-authored by partner FAO and UPM was submitted on time.
The work performed is the following Working document:

> García-Germán, S. et al., 2013. *Literature review of impacts of food price volatility on consumers in developed and developing countries.* Working Paper 2, ULYSSES project, EU 7th Framework Programme, Project 312182 KBBE.2012.1.4-05, http://www.fp7-ulysses.eu/, 52 pp.

This paper reviews and discusses the literature on impacts of food price volatility on developed countries (EU) and developing countries including low income food deficit countries' (LIFDCs) consumers and households. Parts of it were also addressed in the monograph (Ch 7): *Impacts of increased food prices and volatility on consumers and households* (see below).

The literature review was useful to guide subsequent research activities related to food price movements and their impacts on households in EU and in developing countries. As far as developing countries is concerned, partner 6 (FAO) realized that practically no effort has been made to test whether the proportion of vulnerable households in developed countries have increased or not as a result of the food crises of 2006/2008 and the rebound of 2011. To what extent increased food prices have reduced households' living conditions is a still unexplored empirical question.

Final results, potential impacts and use

This work provided the basis for subsequent WP5's work. In particular, it revealed the following:

- The difficulties of differentiating the impacts of increasing consumers' prices and increasing variability of consumers' prices.
- The disagreement in the literature, especially in the context of developing countries, about the actual impacts of the food crisis of 2007-2008. In fact, the literature has evolved in the last years towards a more nuanced view of the impacts in poor households, and even includes recent work that appears to conclude that the rises of food prices eventually had a positive reversal effect on poverty reduction, via fiscal and wage effects.
- In developed countries the literature was even more ambiguous and less clear.
- It opened the scope to look in detail at the percentage of households' income on food consumption, and obtained insights into the vulnerability of EU households to food price increases. This was later developed in policy briefs (4) and (5).

T5.2. Collect and analyse consumer, general food, ands specific-food price indices of all countries of the EU for the period 2000-2011; and LIFDCs across the retail and wholesale level, including domestic price and volatility data for three staple grains: rice, wheat and maize, and for five traditional staples: cassava, sorghum, millet, potatoes and beans.

This task was subdivided into two deliverables, D5.18A (Scientific Paper 7A) and D5.18B (Scientific Paper 7B), *i.e*. regarding EU and LIFDCs contexts:

- *Collect and analyse consumer, general food, ands specific-food price indices of all countries of the EU for the period 2000-2011:* D5.18A (Scientific Paper 7A), performed by Partner 1 (UPM).
- *Collect and analyse consumer, general food, ands specific-food price indices in LIFDCs across the retail and wholesale level, including domestic price and volatility data for three staple grains: rice, wheat and maize, and for five traditional staples: cassava, sorghum, millet, potatoes and beans*: D5.18B (Scientific Paper 7B), performed by Partner 6 (FAO).

D5.18A-Scientific Paper 7A

Work performed

The main objective of the research is to evaluate the extent to and speed at which world agricultural commodity price movements affect consumer food prices in the 28 EU member states.

Data from 2000-2012 were collected from publicly available databases and grouped into a unified data set. World agricultural commodity prices and consumer food prices for all EU member states were analysed. Error correction models between world agricultural commodity prices and consumer food prices were estimated for each EU member state using three different world commodity price indices, each containing different commodities and weighting criteria. These models were augmented with several exogenous variables that enter the models as supply and demand shifters: the unemployment rate, the exchange rate, the world crude oil price index, wages and economic growth. The role of the exchange rate was investigated as a potential factor

explaining the differences in both the consumer food price trends and the price transmission among EU MSs, as some are eurozone members but other use their national currencies.

Work performed resulted in the following deliverable:

D5.18A (Scientific Paper 7A): Evaluating Transmission Prices Between Global Agricultural Markets and Consumers' Food Price Indices in the EU), by Sol García-Germán, Alberto Garrido and Isabel Bardají (July, 2014), accepted for publication in *Agricultural Economics*.

This paper was presented in the 2014 European Association of Agricultural Economists (EAAE) Congress in Slovenia:

- Evaluating transmission prices between global agricultural markets and consumer food prices in the EU. Poster presentation. 14th Congress of the European Association of Agricultural Economists (EAAE), Ljubljana, Slovenia. August 26th-29th 2014.
- Transmission of world agricultural prices to consumer prices in the EU. Pre-Congress workshop. Workshop 2: New developments in understanding price dynamics. 14th Congress of the European Association of Agricultural Economists (EAAE), Ljubljana, Slovenia. August 26th-29th 2014.

Final results, potential impacts and use (D5.18A-Scientific Paper 7A):

- Price indices evolved differently across member states during 2000-2012.
- There is long-run equilibrium relationship between world market prices in half of the member states irrespective of the world index used and up to 21 member states when considering one of the world agricultural commodity price indices.
- There are differences among member states in regard to integration between world agricultural commodity prices and consumer food prices, the extent of price transmission between both price indices and speed to which consumer food prices return to equilibrium. Despite these differences, when member states are grouped into categories according to eurozone membership, differences become more limited.
- The extent of price transmission between world agricultural commodity prices and consumer food prices and the speed to which consumer food prices return to equilibrium is weak.
- Supply and demand shifters –the unemployment rate, the exchange rate, the world crude oil price index, wages and economic growth– play a key role in the process of price transmission between global agricultural commodity prices and consumer food prices in most cases in the EU member states.
- Potential uses: implications for poverty. While the impact of increased price levels and movements in agricultural commodity markets on consumer food prices is limited and temporary, increasing food prices in some member states may have effects on the consumption and health of households taht spend a large part of their income on food consumption.

D5.18B (Scientific Paper 7B):

The study on Low Income Food Depending Countries (LIFDCs) across the retail and wholesale level, including domestic price and volatility data for three staple grains: rice, wheat and maize, and for five traditional staples: cassava, sorghum, millet, potatoes and beans has been performed in deliverable D5.17, but so far the analysis has focused only on maize, rice and wheat.

Regarding developing countries:

- Domestic price indexes were estimated in developing countries at two different levels along the food chain, wholesale and retail. Results provide detailed measurements of wholesale or retail price indexes for staple foods (maize, wheat and rice).
- The results describe the rationale for such an index of domestic staple food prices (as distinct from world prices or domestic food prices in general; the rationale being that staple foods in particular is what the poor spend their money on, and the poor pay domestic prices when they buy food, not world prices.
- Domestic Price indexes at domestic levels are ready and will be available in GIEWS. All series are obtained from the Global Information and Early Warning System (GIEWS) database. On the process of selecting the most appropriate price series, we are required to make choices. Those choices are part of the elements that render our set of index different from the already existing set of indicators. Prices are **real** and expressed in **local currencies**. Using real prices is more important for a domestic food price index than for an international index such as the FAO FPI that deals with international USD prices. When the dollar is strongly depreciating or appreciating, an index in local currency terms will behave differently than an index in USD terms. The paper addresses local effect.

T5.3. Analyse the cross sectional and longitudinal data UDB SILC 2008 with a view to evaluate EU households purchasing power, material deprivation and food access, including causations tests between changes in % households accessing a healthy diet and consumer food price changes.

Work Performed

The main objective of the research is to investigate whether increased food prices had an impact on EU consumer food deprivation, specifically in affording an adequate protein intake during 2003-2011, which coincided with the recent food crises. In addition, we investigated whether increased food prices had affected or worsened other indicators of material deprivation.

We used data from the EU Statistics on Income and Living Conditions (EU-SILC) from 2003 to 2011. We focused mainly on the evaluation of an indicator described in the survey which can proxy food deprivation that measures the capacity of affording a meal with meat, chicken, fish (or a vegetarian equivalent) every second day in EU households. Apart from this indicator we evaluated other material deprivation indicators measured by the survey, as well as other socio-economic variables. A database was compiled from the EU-SILC longitudinal files released from 2005 to 2011. Panel data models using the method of generalized estimating equations were performed. In addition, we generated a composite index of material and economic deprivation, using several material deprivation variables measured in the EU-SILC survey. The evolution of the composite material deprivation and a single material deprivation indicator (ability to keep home adequately warm) were evaluated.

Work performed resulted in the following Deliverables:

D5.19 (Scientific Paper 10)

Analysis of food deprivation in the EU under food prices volatility and rise, by Sol García-Germán, Isabel Bardají and Alberto Garrido (January 2015).

D5.21 (Policy briefing 4)

Analysis of food deprivation in the EU under food prices volatility and rise, by Sol García-Germán, Isabel Bardají and Alberto Garrido (March 2015).

In addition to these deliverables, a scientific paper on the analysis of material deprivation in the European Union has been submitted for publication to the *European Review of Agricultural Economics*: García-Germán, S., Bardají, I., Garrido, A. (2015). Do increasing prices affect food deprivation in the European Union? (under review).

Final results, potential impacts and use

D5.19 (Scientific Paper 10):

- There is a significantly negative relationship between the probability of being less food deprived and the consumer food price index, whose level augmented around the world after the food crises.
- The quantitative effect was not large.
- No clear evidence of increased levels of food deprivation during the crises was found.
- Households belonging to the more recently acceded EU Mss were more sensitive to food price increases and therefore more vulnerable to food deprivation.
- Potential uses: to evaluate food assistance programmes in compensating the negative effect of increasing food prices.

D5.21 (Policy briefing 4):

The policy brief summarizes results of D5.19 (Scientific Paper 10). In addition, it evaluates whether increased food prices has affected or worsened other indicators of material deprivation. The behaviour of the composite index of material deprivation does not seem to respond to changes in food prices. The results of the evaluation of the single material deprivation indicator show that:

- In the wealthiest EU member states it is more common to find households that cannot afford both maintaining their home adequately warm and an adequate protein intake than not affording an adequate protein intake only.
- Whereas in the poorest member states suffering both types of deprivation is more common.
- An indicator of vulnerability is the share of income spent in food consumption. In this sense, the share of food expenditure in total household expenditure in the EU-27 as a whole stood in 2007 at about the same level than in 2000 (14%). And in Germany, UK, Estonia, Hungary, Malta, Greece, France, Finland and Sweden the share increased from 2005 to 2010 for all households indicating that at least in these MSs vulnerability to increased food prices may have increased.

T5.4. Analyse nutritional impacts in households in selected developing countries using RIGA database (FAO).

Partner 6 processed the data from household surveys, estimating the effects of rising food prices in different countries. Many choices have to be made in order to arrive to an empirical estimate of the impact on household and individual level of dietary energy intake.

The main objective of this research is to assess the household-level food security impact of tradable staple food price increases in developing countries. The steps are to adopt a partial equilibrium approach by simulating the food demand response of households to a price shock, thus considering mainly short-term effects or direct effects on consumers.

Results show the effects of the food price crisis were mostly felt by poor households in the developing world where staple foods provide more than forty percent of all caloric intake, much more than any other food group. It is expected that food price increase not only reduces the mean consumption of dietary energy, but also worsen the distribution of food calories further deteriorating the nutritional status of populations. It is also expected that access to agricultural land, plays a big role in assuring adequate nutritional attainments in rural areas, and surprisingly, even in urban areas.

Assessment and significant results

Significant results

The poor bear the brunt of volatile food prices because they spend a larger share of their income on food. Volatile food prices can lead to poverty traps, whereby short-term changes have permanent effects on nutritional status and well-being.

Government policies that are more predictable and that promote private sector participation in trade will decrease price volatility.

While transmission of world price shocks to domestic markets can be destabilizing, international trade should remain a key element of a food security strategy.

Investment in agriculture will improve the competitiveness of domestic production and make domestic prices less susceptible to international price shocks.

Deviations from annex I (DOW)

In the second half of the project there was one deviation from the DOW, i.e. we asked for permission to change the database (new surveys available) and the countries to: Tanzania, Ethiopia, Malawi, Niger and Bangladesh for Deliverable 5.20 (Scientific paper no. 11). The change was approved.

Coordination

Partner 1 (UPM) and partner 6 (FAO) have been highly coordinated in order to have an in-line research and to draft the D5.17.

Partner 4, UNWE, cooperates with partners to steer policy discussions and ensure consistency of WPs (2-5) policy dimensions. A list of aspects of a policy (purpose, period, level of implementation, preconditions for success) has been prepared, that should be clarified when discussing existing policies and considering new measures in the respective domains of WP2-5.

WP6. Policy conclusions and responses

Progresses per task

WP6's objectives were:

- Coordinate and ensure consistency of WPs policy dimensions
- Provide consortium with continuous and timely information on policy developments, initiatives and proposals, for both EU and international spheres
- Select, compile, and screen project's policy conclusions as they are drawn in previous WPs with a view to edit interim and final versions of the project's final policy document

T6.1. Review all policy instruments for managing agricultural markets volatility and supply chain in the EU & developing countries.

Based on the literature review the dimensions and importance of food price volatility have been outlined for both developed and developing countries in the period. A special attention is paid to international activities taken particularly after the 2008 crisis (Millennium Development Goals (MDGs), OECD, FAO, WB). Based on this research, it is concluded that policies that address food price volatility should be universal and could be applied both on international and country levels. Countries could and should supplement them with additional principles (general[2] or country-specific) provided that they do not contradict the basic principles. One example is identification of priorities for global action as in many areas there are clear gains from multilateral action. Historically, from a theoretical point of view the debates were in the field of more "policy" *i.e.* market interventions to keep the price level or more "market" to avoid the distortion caused by the market interventions. Following the developments of the trade liberalisation processes these debates slowed down as the problem became again more severe from the policy and theory points of view over the last years with the 2007-2008 crises.

The policy instruments used by the governments that have impact on price volatility, although not designed primarily to cope with this problem, could be allocated to two main groups: market price policy including trade policy instruments, and support policy (farmer and consumer subsidies, social safety nets, price surveillance policies and competition policies). The policy instruments used in the EU and developed countries in general in the last century refer to market price policy (intervention mechanisms applied at very high intervention prices, output based subsidies, export subsidies, import restrictions etc.). But due to large domestic market

[2] For example, good governance principles.

distortions these instruments were excluded from application as market intervention has become practically a safety net tool for times of crisis.

The review of the all policy instruments used over time showed that 3 groups of instruments have been used to reduce the impact or cope with the volatility problem: interventions through markets including direct state interventions and Interventions through and with civil society. Instruments targeted at reduction of price volatility are: improvements in the information systems and transport and communication infrastructure; increasing competition in domestic market and trade; private sector storage development through improved access to financing, public stocks and price bands schemes. As tools targeted at managing and coping with price volatility the following instruments were used: crop/livestock insurance schemes, investments in agriculture for increase in domestic food production, diversification and resilience of food systems, food storage systems at all levels including community storage, targeted input subsidies (seeds, fertilizer), social protection programme (minimum wage, right to food, cash and food transfers, school feeding programmes), local purchases for food distribution systems, emergency loan programmes, access of importers to trade loans (last 3 instruments were used particularly in the developing countries).

For the final report all ULYSSES working papers, scientific papers and policy briefs of the project were considered and the main results and achievements have been summarized and presented in D6.24. The possible policy implications of the results were investigated and together with the main results were presented to the consortium for consideration.

T6.2. Identify and document best-practice examples of policy instruments, private initiatives and strategies for dealing with price volatility in the supply chain

Literature reviews of different practices and instruments targeted at food price volatility show that contradictions often arise between short and long term effects of a policy, effects on consumers and producers, effects on a country level and on international markets and other countries (for example, the former CAP that was beneficial to the EU farmers, but had distortionary effect on domestic and world markets in the long-run). Negative experiences with some practices in different countries stress the importance of adhering to universal principles when designing and applying instruments dealing with volatility. Best policy instruments that address food price volatility are those that are compatible with the global aim of enhancing food security and the four dimensions (pillars) of food security (i.e. compatible with its principles). The four dimensions[3] (pillars) of food security could be considered as principles with which policies addressing food price volatility should be compatible.

Food price stability is part of one of the dimensions of food security. When developing policies that address food price volatility, all dimensions should be taken into account (food availability, access, utilisation and stability), as well as the micro and macro-economic implications and the short- and long-term consequences of these policies. To ensure a coherent policy framework, the four dimensions (pillars) of the food security could be considered as principles for developing and implementing these policies. Also these principles could be used for evaluating

[3] Food security is defined by the 2009 Declaration of the World Summit on Food Security as follows: "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food, which meets their dietary needs and food preferences for an active and healthy life." Based on this definition, four food security dimensions can be identified: food availability, access to food, food utilization, stability

existing policies and new policy proposals, i.e. whether a certain policy is harmonious or not with all these principles.

Since the estimates showed that one of the most commonly identified driver causing price volatility is reduction in stocks, policies for stocks control, for improving the information systems on public and private storages, and also for supplying regular information on the stocks availability could be applied. Country-specific statistical information systems have an important role to play in the future, as does the global coordination of information on available stocks, which is now pushed forward within the AMIS initiative. Proper dissemination of information on stocks will also contribute to reduction in price volatility. In addition to improving the information on stocks, minimal stockholding of essential commodities and innovative market oriented stabilization mechanisms like virtual reserve holdings could be used.

The estimated uneven biophysical effects of climate change by products require a need of a specific product policy. In particular attention should be paid to these products that are more affected by the specific drivers and more vulnerable toward high world market price uncertainty. Under the current CAP policy toward climate change adaptation is foreseen but there is a need of speeding the process of application of these measures. The same is valid with respect to the insurance policy, introduction of which in some countries is foreseen for a later stage (2017-2018). To allow farm managers to design and apply risk management measures policy targeted at increasing farm manager's capacity could be needed, if not in all, at least in developing countries.

T6.3. Edit interim and final versions of the project's policy document

Interim and final reports of WP6: Policy Responses and Recommendations were submitted on time.

The first part of the WP6 interim report discusses a basic framework for understanding food security issues and connections with policy measures addressing price volatility. It also identifies principles with which policies targeted at food price volatility should be compatible. The second part summarises policy instruments used and their impact on price stabilisation, including different classifications, instruments for preventing volatility and for coping the impacts on producers and consumers, experiences both in developed and developing countries and the actions of the international community. The third part of the report reviews recent developments of policies reflecting the price volatility problem - market measures of the new CAP (2014-2020), WTO agreement in Bali, issues concerning the improvements of the regulation of commodities markets.

The final part of the interim report summarizes the preliminary findings and conclusions of ULYSSES that are relevant to policy recommendations in the selected project domains[4]. It presents results concerning major drivers causing the food volatility and levels at the food chain mostly affected. The problem of the key drivers affecting agricultural price volatility was

[4] The four research domains of ULYSSES are: (a) short-run food prices volatility drivers; (b) long-term underlying market fundamentals, including shocks and projections; (c) value-chain transmission of volatility and agents' strategies to cope with and manage commodity prices volatility; (d) impact on consumers.

discussed at the Madrid seminar in March 2014[5] and selected results of the seminar are given in the report. The interim report summarises also projects results of WP 2-5 concerning literature reviews.

The final report focuses on ULYSSES results (WP2-5) exclusively. The first part is about short-term drivers of price volatility. It covers literature review results, as well as original research results - main conclusions about impact the major volatility drives on 15 agricultural markets, main results for volatility spillovers between oil and agricultural markets, and the elaborated forward–looking risk management tool. The second part covers ULYSSES results about long term drivers of price volatility - main conclusions from the literature review, project results for the major long term drives, project results for mid-term uncertainty and the main results from bioeconomic assessments of climate changes. The third part of the final report presents ULYSSES results about value-chain transmission of volatility and agents' strategies to cope with and manage commodity prices volatility both in the EU and in developing countries. The fourth section of the report summarizes ULYSSES results about the evaluation of food price volatility impacts on consumers in the EU and in developing countries.

Assessment and significant results

Significant results

Main policy implications:

Policy implications of the estimated drivers affecting price volatility

- Price volatility on agricultural markets is largely driven by factors which are specific to each market and to a large extent is country specific. There are two groups of factors affecting agricultural prices volatility: macroeconomic factors and fundamental factors affecting supply and demand. Generally macroeconomic factors affect horizontally prices of different crops at the same time (such as energy and fertilizer prices, exchange rates, interest rate, etc.) and could be addressed only by macroeconomic policy. Agricultural policy could address the second group: climate changes, stocks, biofuel mandates and technology changes, financialisation and speculation, product market interdependence, concentration of production in a few regions, increase in global economic activity, etc. (Brümmer, B. et al., 2013b).

The role of stocks

- Policies for stocks control, for improving the information systems on public and private storages, and also for supplying regular information on the stocks availability could be applied. Country-specific statistical information systems have an important role to play in the future, as does the global coordination of information on available stocks, which is now pushed forward within the AMIS initiative. Proper dissemination of the information on stocks will also contribute

[5] ULYSSES International Seminar Food Price Volatility: Looking for Viable Policy Approaches (27-28.03.2014), hereinafter referred to as Madrid seminar.
For details, see https://www.agriskmanagementforum.org/content/international-seminar-food-price-volatility-looking-viable-policy-approaches

to reduction in price volatility. Minimal stockholding of essential commodities and innovative market oriented stabilization mechanisms like virtual reserve holdings could also be used. There is a need of improvements in the projections on national, as well as on international levels. In some countries there will be a need for capacity improvements/building to get more proper ending stocks projections.

Supply shocks and climate change

- From a policy perspective, the uncertainty attached to yields cannot be reduced. But nonetheless, the identification of these sources allows policy makers to stimulate application of climate change adaptation policy and stakeholders to design and apply risk management measures. Under the current CAP, policies toward climate change adaptation are foreseen but there is a need of speeding the process of application of these measures. The same is valid with respect to the insurance policy introduction of which in some countries is foreseen for a later stage (2017-2018). To allow farm managers to design and apply risk management measures policy targeted to increasing farm manager's capacity could be needed, if not in all countries, at least in developing ones.

- Measures that could be used to mitigate the negative impact of climate changes on the production in some regions of the world market refer to the further trade liberalisation and rational behaviour of the major exporting and importing countries.

- The estimated differences on production lead to interregional adjustments in production structures, changes in consumption and bilateral trade flows as well as for internationally traded products and regional self-sufficiency rates. Variability in oilseed area in the EU is higher than in cereal area, in line with the stronger price variability observed for oilseeds and therefore the oilseeds are perhaps the most important products towards which a specific policy is needed.

- Policies have to be targeted at agricultural productivity improvements, based on technological progress and knowledge, better adaptation of farms and farm restructuring, also at supporting modernisation and extension of the irrigation systems for sustainable water management, stimulating the trade on future markets and improvements in regulations and transparency of future markets, as well as more product specific policies targeted at the most volatile markets and taking into account the spillover effects. For example, for corn the intensive use of the futures market could reduce the corn price volatility and therefore, policies encouraging the trade on future markets could be applied. Since some reduction in income could be expected at least under water stress conditions, an income compensation policy in addition to an insurance policy could be used to mitigate the negative income impact.

- Because the product specific impact of the drivers leads to a change in self-sufficiency ratio (important indicator particularly for low income countries), it is important to develop policies targeted at farm restructuring and investments in sustainable productivity growth.

- Another important conclusion of the project refers to the biofuel and in particular to the biofuel mandates (Artavia M. et al., 2014). Although the

results show negative trend in biodiesel price volatility at least in the short run, it should be admitted that this is possibly a consequence of the policy framework driven by EU Renewable Energy Directive. Therefore maintaining the current renewable energy policy could reduce the price volatility of biodiesel and due to cross effect, particularly for sugar prices, one could expect that that this will lead also to stabilisation in sugar prices. In case of removal of the mandates in the major pricing countries (EU, US, Brazil, Argentina, Australia, and Canada), an adjustment of biofuel prices could be expected which is particularly noticeable for biodiesel. While removing the mandates has a minor impact on the consumption of bioethanol, as well as on its price level and uncertainty (since bioethanol prices are relatively competitive) for biodiesel the incentive for consuming at mandate-levels would disappear. Due to a reduction in production and consumption as a result of the substitution effect, it could be expected that price uncertainty in case of biodiesel would increase. This again supports the continuation of the renewable energy policy.

Early warning systems

- The methodology built up in the project (Brümmer, B. et al., 2014 a) allows estimating the normal and unexpected price moves. Because the results show that the magnitude of large price increases is expected to be larger than the magnitude of large price decreases and the mean probability of a large price move is well above 0.5 for all markets analysed, it is worth to have a tool to predict the expected price spikes, i.e. to set up an early warning system.

- Selection of an appropriate threshold level, that defines “large" price moves, needs to be made. Such a choice should be made in the light of potential consequences of a price change and may be a complex market specific issue. The tool created (forward looking implied estimators of the risk measures) allows flexibility of threshold selection via parametrisation of the threshold level. Limitation of the approach is the requirement of reliable option prices, which limits the number of commodity markets that qualify for an application of implied risk measures. However, the created tool could be a good base for setting up an early warning system.

Value chain perspectives

Developed countries

- Policy measures and instruments targeted at availability of information, trainings to enhance farmers’ ability to manage risk, instruments decreasing risk, as well as the installment of appropriate framework (economic, institutional, legislative) may lower the absence of active futures markets (Assefa, T. et al., 2014, 2015).

- The necessity of coordination and promotion of integration of the legislative framework – different in different countries – is important for the security of the contracts and for the resources needed to conclude an agreement both as a trade contract or an integration contract

- Policy measures influencing risk management activities need to be undertaken at all levels (for all actors) of the food supply chain as harmonization and coordination between them should be taken into consideration.
- It is important to foresee and consider policy measures effects even if the measures are in the other areas (e.g. in banking, oil etc.). The macro-framework may change the responses to the other stimulus/restrictions in the sphere of agriculture and food processing.
- Policy incentives for integration and premium products will further strengthen EU farmers' position in food supply chain and lower price volatility.
- Transmission mechanisms vary across member states even in that with very strong integrated economies. There are differences in the structure and the efficiency of markets among them, differences in eating and purchasing habits, different monetary and exchange rate policies that could provide different cushions for food price stability.

Developing countries

- The appropriate policy response to food price risk and instability will vary across and within countries because of differences in geography, patterns of food production and consumption and institutional capacity to implement alternative policies (Pierre, G. et al., 2014).
- Policies could address structural problems. For example, in case of Africa Pierre, G.et al, (2014) point out three key structural problems as the most important: (i) widening gap between domestic cereal supply and demand, (ii) marketing constraints, and (iii) political instability and policy uncertainties.
- There are six significant options for reducing price risks in Sub-Saharan African countries (Antonaci et. al., 2015): warehouse receipt systems (WRS); commodity exchanges; contract farming; agricultural information systems (market information systems and weather forecast and early warning systems); grain stock management; trade policies. The options to support producers are the following: financial services, insurance, technology development and adoption, farm safety nets. No developing country has successfully reduced poverty without first increasing agricultural productivity, which in turn depends on effective management of price and production risks. Policies should contribute to designing a policy framework for the mitigation of the negative effects of volatile prices and production shocks.
- It is important to have policies aimed at solving weaknesses of market information systems – updated information, better dissemination, etc. Governments should have transparent, credible and effective grain reserve and price stabilization policies. Stock management is an effective short-run policy, but it is not an efficient long-term policy to stabilize prices, because of the high costs to maintain stocks over a long period of time in order to deal with infrequent price crisis. Price stabilization in Africa could be pursued through a

combination of trade policies and grain stocks and the exact nature of the approach should depend on the specific features of each country.

- Governments' interventions are needed in cases of catastrophic events. It would be important to foresee specific interventions that the Government can put in place together with the private sector in order to decrease the losses faced in case of extended drought or other natural disasters.
- It is important to have a supportive policy and institutional environment and strong political commitment to support technology adoption by small farmers.
- Governments should take an approach which utilizes safety nets and is not only confined to input subsidies, but which includes supporting policies that help to maintain incentives for producers, foster technology adoption and promote overall agricultural growth. Due to the limited resources of the existing safety nets, alternative responses to emergencies need to be considered.
- Governments should create a supportive institutional environment for modern risk management tools. Investments in basic services, such as definition of grades and standards, contract enforcement and market information, will help to sustain long-term market development. An effective legal framework and conducive business and economic environment would facilitate the development of solutions for risk-pooling/sharing. Policy makers need to adopt an integrated and holistic approach in support of risk management interventions through incentives and by strengthening agricultural markets and financial institutions. Also it is important to improve transport, communication infrastructure, and customs procedures. Developing countries need to avoid ad-hoc and unpredictable agricultural and trade policies as well as harmonize standards of food safety, quality and products to facilitate regional trade and reduce the high risk of price volatility. Most African governments have yet to include agricultural risk management policies in their national development plans (Antonaci et. al, 2015).

Impacts on consumers and households

Developed countries

- The magnitude of the long term elasticities depends on the MS considered. In euro-zone MS the long term price elasticities are lower than in the new MS. The differences could be rooted in the characteristics of their processing and food retail sector /bigger average size of the firms; more competitive sectors; commodity costs take up smaller proportion of the final products/.
- For a unit increase in the consumer food price index, the probability of being food deprived would increase more in households belonging to the lowest quintile than in the entire sample.
- EU economy has itself quite lot build-in elements to cope with food price surges. One of these elements is the retailer's strategies that allow urban consumers to make use of wide food choice. The poorest households of the poorest EU MSs have problems in affording a meal with meat, chicken, fish every second day which would need very targeted policy measures to support the welfare of these households in time of food price surges.

Developing countries

- Fearing political instability, governments in developing countries may shift their expenditures away from capital accumulation spending to less productive expenditures such universal food subsidies that may negatively impact domestic food production and overall growth. Policy responses have focused on short-term coping mechanism rather than addressing key structural problems, production variability and market underdevelopment and failure (Demeke et al., 2014).
- In developing countries the households would benefit more from preventing or limiting an increase in the level of the cereals /food prices/ rather than reducing their volatility.

Main recommendations and messages

- There is no general approach for managing and coping with excessive levels of price volatility in agricultural markets (Brummer et al., 2013b).
- Price volatility is largely driven by factor specific for each market. Thus policies for limiting price volatility would be fine-tuned to the market in question (Brummer et al., 2013b).
- Price formation for the most important agricultural commodities takes place on a global scale. This suggests that the promising approach is helping producers to cope, instead to prevent price volatility (Brummer et al., 2013b).
- ULYSSES does not provide evidence that financialisation and speculation are among the most important drivers of increasing agricultural price volatility (Brummer et al., 2013b).
- Better prediction of short and long-term drivers of price volatility can be useful to help chain actors better manage the risk from price volatility (Assefa et al., 2014).
- Price fixing contracts and hedging in derivative markets are effective instruments to reduce price volatility faced by chain actors (Assefa et al., 2015).
- Targeted support at low-income households' in EU is an effective policy in times of high agricultural commodities price volatility (García-Germán, S. et al., 2015).
- The appropriate policy response to food price risk and instability will vary across and within developing countries because of differences in geography, patterns of food production and consumption and institutional capacity to implement alternative policies (Demeke et al., 2014).
- Policies in developing countries should address structural problems, among which the most important are: (i) widening gap between domestic cereal supply and demand, (ii) marketing constraints, and (iii) political instability and policy uncertainties (Demeke et al., 2014).

Extra

With the aim of completing the policy documentation and in front of a possible delay in the reception of the WP6 final outcome, the final output of WP6 was broadened with additional materials. Three new policy briefing were developed:

(1) POLICY BRIEFING. *Global and regional perspectives and the Common Agricultural Policies.*

(2) POLICY BRIEFING. *Policy conclusions for developing countries*.

(3) BUSINESS BRIEFING. *Price risk management along EU food chains*.

These three briefings have already being drafted and will be issued and made public by Oct. 15, 2015. These extra pieces of work respond to EC's request to summarise the main finding in shorter documents.

Furthermore, a new extra technical document on the policy way forward was developed by Alberto Garrido, José María Sumpsi and Isabel Bardají. This work was presented at the Project Meetings of Göttingen and Rome and presented at the FAO ULYSSES Special event in Rome (Seminar).

Deviation between actual and planned person-months

WP6 new works and document-developments were reflected in a WP6 higher person-months rate for the whole consortium. For UPM (Partner no.1) the deviation in PM was especially significant. UPM led the new documents proposal and development of the way-forward policy document.

The new way-forward policy document (authored by Sumpsi JM, Bardají I, and Garrido A) was a great effort in research and also was broadly disseminated in the FAO-ULYSSES Seminar at Rome, and Final seminar in Brussels. The doubts about the final outcome of Deliverable D.6.24 ('Final report. Policy conclusions') were reflected in mail exchanges, progress meetings and an extraordinary management meeting called with this regard. The development of the new way-forward policy document and the 3 policy briefs - complementing D.6.24 - was considered the best possible option. Despite the weight of higher number of PM for partner no. 1 it has not been reflected is a significant cost increase.

Three new documents designed as policy briefs were added to the ULYSSES policy outcomes (as stated before). The one referring to the CAP was mainly produced by UPM (Partner no. 1), the one referring to developed countries was developed by FAO (Partner no. 6), and the briefing about business was produced by WU (Partner no. 2).

So, the final policy outcomes available from ULYSSES Project provide complete options: a deliverable summing up the Project policy conclusions, a document with a broader view about the policy issues of ULYSSES and possible trends and future policy developments, and 3 food price volatility policy briefings about: CAP, developing countries and business.

WP7. Dissemination

Progresses per task

T7.1. Establish website and project IT's platform

IT's platform aimed to develop an attractive website for external users and an intranet page for project members (team site) to share (discussion) documents. The website (www.fp7-ulysses.eu) was launched Spring 2013 and allowed external users to quickly grasp the objectives and up to date deliverables. All project deliverables were uploaded on the website on time. Website includes:

- Videos with interviews
- All publications (working documents; scientific papers and policy briefs)
- Seminar presentations

In addition, ULYSSES project's had a twitter account @ULYSSES7FP with 109 followers, and which issued 693 tweets. Through the Twitter account ULYSSES broadcasted the upcoming events of the project, the results obtained, presentations hold in the Seminars, video interviews with project members, and information related to food-price-volatility. Amongst our followers, we counted with general and specialized public, international agencies and institutions, specialized media, agro and food-security trend-settlers, specialized publishers, NGO's, others project's accounts and academic institutions.

Furthermore, "Ecoagra" (http://www.rediris.es/list/info/ecoagra.html) mail list was used to disseminate ULYSSES results and events, with 700 users. It has announced the publication of all working documents and events.

ULYSSES project partner, FARMD (Forum of Agricultural Risk Management and Development , http://www.agriskmanagementforum.org/), an initiative of the World Bank Group, helped also to disseminate the activities and project's outcomes worldwide, especially amongst specialists and researchers working on issues of special interest to developing and emerging countries. Its partnership was especially useful in the dissemination of ULYSSES 1st International Seminar (held in Madrid in March 2014).

The *CommNet* Project (http://commnet.eu) also helped ULYSSES to disseminate the scope and objectives of the project.

A *YouTube* channel was created to help disseminating the ULYSSES video materials (*https://www.youtube.com/channel/UCb0tDbjxoa8i6ctmG87lkjQ*).

T7.2. Organize 2 public seminars, broadcasting it to the general public and disseminating the results and conclusions.

Deliverable 7.25. First Public Seminar in Madrid. March 27-28.

The deliverable was completed. The communication objectives were also achieved: public, scope, speakers, issues of discussion, level of discussion of the different issues, etc. were widely reached.

It was design as a high-level seminar for debating about food agricultural markets volatility and thinking about future developments and scenarios with world class specialists, private and public sector officers from leading public and private institutions.

The event was co-organised by ULYSSES project, the Forum for Agricultural Risk Management and Development (the World Bank), and the Food and Agriculture Organization of the United Nations (FAO). Professionals from intl. Institutions and the European Commission, Ministries, NGOs and leading academic institutions, provided lectures on various topics and participate in the discussions.

The programme was designed to address both up to date research findings, and practical aspects towards developing policy responses to address the cause and effect of food prices volatility.

Goals of the Seminar:

- Present new results and evidence of the 2007-2008 food crises.
- Provide a venue for discussion the relevance and implications of the reassessment and new analyses with expanded and update databases.
- Facilitate a debate with analysts, politicians and practitioners about analytical tools, policy implications and the role of the private sector.
- Bring together researchers and practitioners from different institutions to discuss issues and approaches.
- Provide critical insight into ULYSSES' project approaches and findings.

Once the Seminar was finished, actions for results-dissemination and network development were implemented.

Please, refer to **Annex no.1** to see the programme of the *ULYSSES International Seminar "Food price volatility: Looking for viable policy approaches*".

All papers and videos available from:
https://www.agriskmanagementforum.org/content/international-seminar-food-price-volatility-looking-viable-policy-approaches

D7.27 Final Public Seminar in Brussels

This deliverable was divided in three events, two public: in Rome (Febr. 2015) and in the Expo in Milan (Jul. 2015), and one in Brussels in the European Commission (Jun. 2015).

By date:

Rome. *ULYSSES FAO Special Event. Looking beyond the food price crisis: rethinking the policy framework to address food markets instability* (Wednesday, 11 February 2015 9:30-11:35)

Agenda: 9:30-9:35 - Opening remarks and Seminar Presentation Part I. Project ULYSSES Presentation (Chair, Boubaker Ben Belhassen - Director EST)

9:35-9:50 - The goals and approach of Project ULYSSES (Alberto Garrido, Project Coordinator, Universidad Politécnica de Madrid, Spain) 9:50-10:05 - Decomposing volatility measurements for developing early warning systems (Olaf Korn, Göttingen University, Germany) 10:05-10:20 - The welfare impact of price volatility for consumers and producers in LMIC (Jean Balié/Cristian Morales, FAO, Italy)

10:20-10:35 - Policy approaches to prevent manage and cope with extreme food prices volatility (José M. Sumpsi Universidad Politécnica de Madrid, Spain) Part II (Chair, Kostas Stamoulis - Director ESA)

10:35-11:35 - Panel Discussion: Which prices and which policies for food security? Discussants: – George Rapsomanikis (Senior Economist EST) – Deborah Fulton (Secretariat CFS) – Edward Heinemann (Senior Policy Advisor IFAD) – Steve McCorriston (University of Exeter)

(See the original programme in **Annex no.2**)

Brussels. *Can agricultural policy cope with market volatility? Final dissemination seminar of the ULYSSES project*. June 24th 2015, 12:45-14:15h

First Part

Volatility drivers, Bernhard Brümmer, U. Göttingen
Long-term drivers, Robert M'Barek, Joint Research Centre
Value chain and business perspectives, Miranda Meuwissen, U. Wageningen
Impacts on consumers, Alberto Garrido, U. Politécnica de Madrid
Policy conclusions, José M. Sumpsi, U. Politécnica de Madrid

12:45-13:30 Presentations
13:30-14:15 Open debate and questions

Second Part

Deepening the analysis on agricultural market volatility. Final dissemination seminar of the ULYSSES project

Venue: DG AGRI Auditorium, Loi 102 00/25
Speakers: ULYSSES team

Questions:

- As volatility in word agricultural markets increased in recent years?
- Which interlinks between energy, fertilizers and other inputs, financial markets and agricultural markets?
- Can, and how, the food chain scope with the volatility of agricultural markets?
- Economic and social impact of the volatility of agricultural markets on European consumers
- Economic and social impact of the volatility of agricultural markets on developing countries and on food security

Starting: 14.30
Ending at 16.30

The presentations are available at *http://www.fp7-ulysses.eu/events.html*

Milán. *Scientific Conference at EXPO. Food and agricultural markets instability: Policies and regulation perspectives.* 9-10 July 2015

The symposium was co-organized by the ULYSSES Project, the Università Cattolica del Sacro Cuore (UCSC), and the Joint Research Centre of the EC (JRC).

In front of a possible overlapping of events in the same days and similar speakers during the EXPO, the co-organizers decided to join forces and create a unique event with a broader public.

This conference discussed how food and agricultural markets can become more stable, and what policies and regulatory frameworks should be implemented to make world food systems more efficient, sustainable and predictable. The conference showcased ULYSSES main conclusions and results, discussed issues related to the financialisation of agricultural markets: risk management tools and regulation, and discussed policy approaches.

See **Annex no. 3** for a detailed programme of the event.

Selected presentations are available at *http://www.fp7-ulysses.eu/events.html*

T7.3. Editing & publishing policy 5 briefings, one monograph, and a final report.

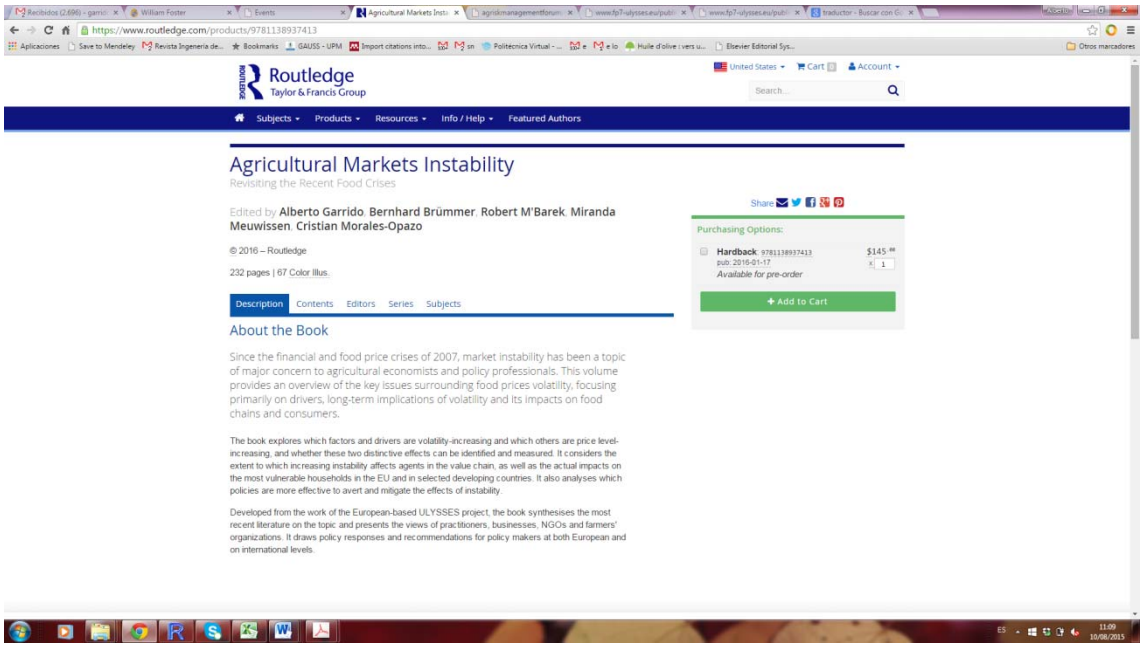
Aimed to publish policy briefs (5) and one monograph.

Policy briefings, all available from the webpage

Policy Briefing (1)	Jul.2013	Food price volatility drivers in retrospect
Policy Briefing (2)	Mar.2014	Long term drivers of food markets variability and uncertainty
Policy Briefing (3)	Jul.2014	Agro-food chain actors' perceptions of price volatility and their management strategies
Policy Briefing (4)	Apr.2015	Analysis of material and food deprivation in the EU under food price volatility and rise
Policy Briefing (5)	Apr.2015	Price Shocks, Volatility and Household Welfare: A Cross-Country Inquiry

The monograph will be published by *Earthscan* as hard copy as well as an open access book on our website. The monograph includes scientific chapters as well as reflections from business and NGOs.

Deliverable 7.26
Monograph. July 2015. Agricultural *Markets Instability. Revisiting the Recent Food Crises.* Edited by Alberto Garrido, Bernhard Brümmer, Robert M'Barek, Miranda Meuwissen, Cristian Morales-Opazo.



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10. Mitigating the Effects of Agricultural Price Volatility: A European Cereal Grower's Point of View
Nicolas Ferenczi
11. Milk and Dairy Products' Price Volatility:The View of a Large EU Cooperative
Wim Kloosterboer
12. Coping with Food Price Volatility: The Contribution of Local Food Reserves
Gabriel Pons Cortès and Itzíar Gómez Carrasco

Part 3: Policy Discussion and Conclusions

13. Assessment of National Policies in Developing Countries to Combat and Mitigate the Effects of Agricultural Markets Excessive Price Volatility
Mulat Demeke and Jean Balie
14. Price Volatility Perceptions, Management Strategies and Policy Options in EU Food Supply Chains
Tsion Taye Assefa, Miranda Meuwissen and Alfons G.J.M. Oude Lansink
15. Book Summary and ULYSSES Project's Conclusions
Plamen Mishev, Alberto Garrido, Nedka Ivanova and Milkana Mochurova

Assessment and significant results

Significant results

Given the route map and achievements for dissemination so far (website, twitter, youtube, seminar) the visibility of Ulysses is regarded as adequate. Visibility is further increased with several presentations and an organised session at the 3-annual EAAE conference (August 2014).

Extras
European Association of Agricultural Economists, Slovenia, 25thAugust, 2014, Pre-Conference Workshop "*New Developments in Understanding Price Dynamics*" Professor Bernhard Brümmer (University of Göttingen, Germany; ULYSSES), Professor Steve McCorriston (University of Exeter, UK; TRANSFOP)

*Motivation***:**
The main motivation for this pre-conference workshop is to highlight recent research addressing food price dynamics both at retail and commodity levels. The research presented in this workshop draws on complimentary EU FP7 projects, "The Transparency of Food Prices" (TRANSFOP) project and the "Understanding and Coping with Food Markets Volatility towards More Stable World and EU Food Systems" (ULYSSES) project where the former addresses issues relating to price formation throughout the EU food chain while the latter focuses primarily on price volatility issues. Taken together, these two projects address pricing issues using new methodologies, new data sources and research establishing links between both domestic and world agricultural and downstream manufacturing and retail food markets and between agricultural, financial and other commodity markets (e.g. oil markets). Aside from bringing these two research groups together, the pre-conference workshop will also have wider appeal as it will not only showcase recent EU research on these issues but highlight the contributions of recent research methodologies to these issues involving both structural and time series econometric techniques and also highlight the use of different sources of data, in particular the use of high-frequency retail scanner data. In sum, the pre-conference workshop will bring together researchers from these

two distinct but complementary EU research groups while-at the same time-generating broader appeal to a wider group of researchers-particularly early career researchers- as it will outline recent methodologies, new data sources and summarise the current state of research in this area.

The structure of the workshop will comprise 6 sessions each highlighting a specific aspect of research in this area with each presentation involving a common structure: highlighting data issues, the use of appropriate econometric methodologies and the main research results. The presenters will also be invited to identify the current research gaps in the specific topic areas.

Programme

9.00-9.15: Introduction: Steve McCorriston (TRANSFOP)

9.15-9.50: Topic 1: Assessing Price Transmission throughout the EU - Methods and Results (Stephan .von Cramon Taubadel)

9.50-10.30: Topic 2: What Factors Drive EU Food Inflation? Lessons from Structural Time Series Analysis (Tim Lloyd)
10.30-11.00: Coffee Break (Foyer of the Marmorna Hall – A2)
11.00-11.40: Topic 3: The Use of Scanner Data to Address Price Dynamics (Paolo Sckokai)
11.50-12.30: Topic 4: "Methodological issues to assess price volatility transmission and risk management practices along EU food chains". (Miranda Meuwissen)
12.30-13.30: Lunch: (Foyer of the Marmorna Hall – A2)
13.30-14.10: Topic 5: "Price transmission of world agricultural commodity price indices to consumers' prices in the EU". (Sol Garcia-German)
14.10-14.50: Topic 6: María Blanco: “Climate change as a key long-term driver for global agricultural market developments”. (María Blanco)
14.50-15.15: Roundtable Discussion: What research issues arise from the topics covered in the day? How does this impact on policy? Bernhard Brümmer (ULYSSES) & Teresa Serra (TRANSFOP)
15.15-15.30: Final Comments: Alberto Garrido (ULYSSES)
15.30: Coffee and Close: (Foyer of the Marmorna Hall – A2)

Extra
ULYSSES project has produced three final short policy briefings, which will be made public in September.

- **Policy Briefing 6a.** Global and regional perspectives and the Common Agricultural Policies
- **Policy Briefing 6b.** Policy conclusions for developing countries
- **Business Briefing 6c.** Price risk management along EU food chains

Extra

ULYSSES actively co-ordinated and participated in the course *METHODOLOGICAL APPROACHES TO ASSESS AND MANAGE FOOD PRICE VOLATILITY – Zaragoza (Spain), 17-21 November 2014*

<table>
<tr><th>Hour</th><th>Monday 17</th><th>Tuesday 18</th><th>Wednesday 19</th><th>Thursday 20</th><th>Friday 21</th></tr>
<tr><td>9:00-10:00</td><td>Opening</td><td rowspan="2">Measuring volatility: Sources and types of data
B. Brümmer</td><td rowspan="2">Measuring volatility: Measurement models
B. Goodwin</td><td>Price level and volatility transmission: Price linkages between futures and spot markets
B. Goodwin</td><td>Mediterranean Agricultural Market Information Network (MED-AMIN)
C. Ton Nu</td></tr>
<tr><td>10:00-11:00</td><td>Volatility and food markets
J.M. Gil</td><td>Price level and volatility transmission: Volatility and household welfare in net food importing countries
M. Demeke, A. Garrido</td><td>Policy options addressing volatility
M. Demeke, A. Garrido</td></tr>
<tr><td colspan="6">Coffee break</td></tr>
<tr><td>11:30-12:30</td><td rowspan="2">Economics of agricultural and food prices
B. Brümmer</td><td rowspan="2">Measuring volatility: Measurement models
B. Goodwin</td><td>Volatility drivers
R. Ihle</td><td>Price level and volatility transmission: Volatility and household welfare in net food importing countries
M. Demeke, A. Garrido</td><td rowspan="2">Private sector responses to price volatility
A. Garrido, J. Cordier</td></tr>
<tr><td>12:30-13:30</td><td>Price level and volatility transmission: Methodological approaches for empirical assessment Spatial and vertical transmission
J.M. Gil</td><td>Policy options addressing volatility
M. Demeke, A. Garrido</td></tr>
<tr><td colspan="6">Lunch break</td></tr>
<tr><td>15:00-16:00</td><td rowspan="2">Economics of agricultural and food prices
B. Brümmer</td><td rowspan="2">Volatility drivers
R. Ihle</td><td>Price level and volatility transmission: Methodological approaches for empirical assessment Spatial and vertical transmission
J.M. Gil</td><td rowspan="2">Policy options addressing volatility
M. Demeke, A. Garrido</td><td rowspan="2">Round table discussion
Public and private responses: synergies or trade-offs?
J.M. Sumpsi, C. Ton Nu
M. Demeke, A. Garrido,
J. Cordier, J.M. Gil</td></tr>
<tr><td>16:00-17:00</td><td>Price level and volatility transmission: Spillovers between food and related non-food markets
J.M. Gil</td></tr>
<tr><td>17:00-19:00</td><td></td><td colspan="3">Practical work on measuring volatility and interpreting results
<u>J.M. Gil, M. Ben Kaabia</u>
B. Brümmer</td><td></td></tr>
</table>

Extra

Paper presented by Alberto Garrido in the *III JORNADA Transferencia en Cereales de Invierno "Perspectivas globales del mercado de los granos más allá de la actual reforma de la PAC:*

implicaciones para las producciones españolas" (Outlook for Global grains Market beyond the current CAP reform: implications for Spanish productions) GENVCE, Valladolid (Spain), June 3- 4. 2015

Coordination activities

There has been broad and intense coordination with other partners including members of the advisory board and EC contacts to have good programs, an adequate number of participants and sufficient broadcasting on all events, specifically the Madrid seminar, the FAO seminar, the Brussels event, the Expo meeting and the ICAE food security seminar (Milan).

3 Project management during the period

Please use this section to summarise management of the consortium activities during the period. Management tasks are indicated in Articles II.2.3 and Article II.16.5 of the Grant Agreement.

Amongst others, this section should include the following:

• Consortium management tasks and achievements;
• Problems which have occurred and how they were solved or envisaged solutions;
• Changes in the consortium, if any;
• List of project meetings, dates and venues;
• Project planning and status;
• Impact of possible deviations from the planned milestones and deliverables, if any;
• Any changes to the legal status of any of the beneficiaries, in particular non-profit public bodies secondary and higher education establishments, research organisations and SMEs;
• Development of the Project website, if applicable;

The section should also provide short comments and information on co-ordination activities during the period in question, such as communication between beneficiaries, possible co-operation with other projects/programmes etc.

For Grant Agreements related to infrastructures (Annex III to the Grant Agreement), the access provider shall include a section in the periodic reports on the access activity, indicating the membership of the selection panel as well as the amount of access provided to the user groups, with the description of their work, and the names and home institutions of users.

Consortium management tasks and achievements

T1.1. Ensuring communication with partners, closed co-ordination and adherence to project's plan and objectives

In the first recording period, the consortium met face to face in the following dates and places:

- Madrid, Nov. 19th, 2012, at the School of Agricultural Engineering of the Technical University of Madrid.
- Seville, 10th and 11th April of 2013, at IPTS - Institute for Prospective Technological Studies Edificio Expo (formerly known as World Trade Center) Isla de la Cartuja, Seville, Spain

- Sofia, October 2-3, 2013, at University of National and World Economy (UNWE) Studentski grad. Sofia 1700 , Bulgaria

In addition, there have been 9 online teleconferences on (1) Sept.19, 2012; (2) Oct 24, 2012; (3) Dec. 5, 2012; (4) Dec. 12, 2012; (5) Jan 21, 2013; (6) April 3, 2013; (7) June 6, 2013; (8) Sept 25, 2013; (9) Nov. 11, 2013; (9) Jan. 8, 2014

Management of meetings in the second recording period:

Date	Type	Place	All partners represented?	Duration	Minutes approved
March 3rd, 2015	Teleconference		Yes	1 hour	March 10th, 2014
March 28th, 2014	Face-to-face	Madrid	Yes (incl. Advisory Board)	2 hours	April 4th, 2014
May 22th, 2014	Teleconference		Yes	1 hour	June 6th, 2014
Sept. 29-30, 2014	Face-to-face	Göttingen	Yes	1 day and a half	Oct. 10th, 2014
Nov. 11th 2014	Teleconference		Yes	1 hour	Yes
Febr 4th, 2015	Teleconference		Only Monograph editors	1 hour	Yes
Febr, 11-12th, 2015	Face-to-face	Rome	Yes (incl Advisory Board)	1 afternoon +1 morning	Febr 27th, 2015
April 15th, 2015	Teleconference (to prepare de Expo event)		Antonella Sciarrone (UCSC), Paolo Sckokai(UCSC), Alberto Garrido (UPM), Robert M'Barek (JRC), Fabien Ramos (JRC), Ayça Donmez (JRC), Ana Felis (UPM).	1 hour	April 30, 2015
June 22th, 2015	Face to face	Brussels	Yes (incl Advisory Board)	2 hours	Yes

In total, the project's consortium met seven times in face-to-face meetings (three during the first reporting period, and four in the second one), and held 16 teleconferences (10 in the first reporting period and six in the second one).

The Coordinator called for **Project Management Team meeting in** *Rome, 11th February 2015.* The details of this meeting are described in the following minutes.

Minutes : Project Management Team meeting

Rome, 11th February 2015
In the course of the 6th Project Meeting held in Rome on Ferb 11th, the Coordinator called for a Project Management Team[6] meeting to discuss the execution of WP6.

Representative of each Party:

- Partner 1 UPM: Alberto Garrido (Coordinator)
- Partner 2 WU: Miranda Meuwissen
- Partner 3 JRC: Fabien Ramos and Sergio Rene Araujo Enciso, substituting Robert M'Barek, as one voice.
- Partner 4 UNWE: Plamen Mishev
- Partner 5 UGOE: Bernhard Brümmer
- Partner 6 FAO: Mulat Demeke

- Also attending and assisting: Ana Felis (Project Manager). No vote.

The Coordinator expressed his doubts about the completion of deliverable D.6.24 (Final Report "Policy conclusions") by partner 4, and some concerns about the fact that no results were presented in the course of the Meeting in Rome from WP6. Coordinator expressed that Partner 4 had not submitted a draft of WP6 by Jan 31, which according to the minutes of Project Meeting in Göttingen (Sept 29-30, 2014), had been agreed upon.
Some deliberations within the Committe ensued about the timing and execution of WP6, in the course of them, Partner 4 (Plamen Mishev) expressed his view about not being any risk in not fulfilling and completing the deliverable.
It was agreed by quorum:

1. A note with the structure of the document is going to be sent by Partner 4 (Plamen Mishev) in the following days.
2. That Partner shall submit by 23rd February 2015 a first version of the document (Final Report "Policy conclusions")
3. Upon receiving the document mentioned in point 2, the rest of Partners will provide written comments by 2nd March 2015

In all meetings, in person and online, deliverables and work-plan has been discussed and agreed upon. Minutes of all these meetings have been drafted, shared, approved and securely archived[7].

T1.2. Manage and execute the budget, edit administrative and project reports and fulfilling management contractual obligations

Coordinator oversaw and performed: budget execution, administration and projects reporting and fulfilled all contractual obligations.

[6] Decision-making body of the Consortium, consisting of one representative of each Party or Member. (Consortium Agreement, section 6)
[7] Minutes of the regular meetings can be seen in the Project's deliverable D.1.2 '*Meeting management*' or requested to coordinator.

T1.3. Coordinating, organizing consortium's activities and public meetings, which will have points in the agenda for administrative and financial coordination.

All project activities and deliveries contractually agreed upon have been planned, coordinated and agreed upon in the consortium. Coordinator has run and executed the project's workprogramme as planned, with slight changes, all approved by the office.

Encountered difficulties

Problems encountered during the project's execution and means to solve them.

Problem	Date	Solution
Delays in the execution of WP6	During the Göttinggen meeting (Sept. 29-30, 2014)	Coordinator called for a Meeting of the Mangement Committee in Rome Febr. 11, 2015. A new timetable for submission was agreed upon Coordinator followed-up interacting with the responsible partner and work with it towards preparing and submitting the deliverables New policy documents were designed 6 added to ULYSSES outcomes to complete policy communication.
Some members of the Advisory Board could not attend the meetings they were invited to	In meetings: - Rome, February 2015 - Brussels, June 2015	Gesa Lampe substituted Torsten Staack (Interest Group of Pig Farmers in Germany (ISN) Adam Prakash substituted Concepción Calpe (FAO) in the Meeting in Rome Gabriel Pons (Oxfam) substituted Teresa Cavero in the Brussels meeting
Member of the Advisory Board, (Prof. Steve McCorriston) could not attend the Brussels meeting due to strike in the Euro Tunnel	Brussels meeting, June 22th	He had to return to his home town, without attending the meeting. Refunding of the tickets were achieved.
The initially planned final international seminar to present results in Brussels in June 2015 did not receive sufficient attraction (few external attendants signed up)	Brussels Seminar, 22th	The Brussels seminar was substituted by: - A larger Seminar in Milan co-organised with the Universitat Cattolica del Sacro Cuore and the JRC - A two-event presentation in front of officers of DG Agri and MS representations
Event and theme overlapping at the EXPO Seminar.	Milan, June 2015	We decided to join forces and made a broader event.
Possible change in the way of reporting in the Participant Portal	By the 1st reporting period (along December 2013– February 2014)	It was agreed by the Consortium to change to the electronic reporting method.

There was not any:

- Changes in the consortium
- In the legal status of any of the beneficiaries

All deliverables were submitted within the Project's life cycle, although some were submitted with some delay (3 months at the latest), always obtaining prior authorization from the Project's Officer.

The monograph (Deliverable 7.26) is not yet published although it has been accepted by the publisher and the proofs and language corrections have already been finished. The payment was done previously to project ending and the timing is agreed upon with the publisher.

Advisory Board

The advisory board is composed of the following individuals:

Steve McCorriston	Professor (Prof.) Coord of TRANSFOP	University of Exeter
Wim Kloosterboer	Corporate Manager Trade & Dairy Affairs	FrieslandCampina
Teresa Cavero	Head of Research	OXFAM
Concepción Calpe	Senior Economist, Secretary, Intergovernmental Group on Rice	AMIS - FAO
Nicolas Ferenczi	Head of Economics and International Affairs	AGPB - Association Générale des Producteurs de Blé et Autres Céréales
Torsten Staack	Manager	ISN - Interessengemeinschaft der Schweinehalter Deutschlands e.V.

An observatory, Adamo Uboldi, from the DG Agric EC has attended all meetings and contributed with valuable suggestions and recommendations throughout the entire duration of the project..

The Advisory Board was invited to the Madrid meeting and the Sofia meeting. Among the 6 members, one could not go (Torsten Staack) to Madrid; and four could not attend the meeting in Sofia (Kloosterboer, Calpe, Ferenczi, Staack).

List of project meetings, dates and venues

Along the project (ULYSSES, Grant agreement no. 312182, KBBE.2012.1.4-05), there have been around 40 meetings:

7 regular meetings:

1. Kick-off meeting. Madrid, 19th November 2012
2. Meeting 2. Seville, 10-11th April, 2013
3. Meeting 3. Sofia, 2nd-3rd October 2013
4. Meeting 4. Madrid, 28th March 2014 (coinciding with the International Seminar)
5. Meeting 5. Göttingen, 29-30th September 2014
6. Meeting 6. Rome, 11th February 2015 (coinciding with the Seminar organized at FAO, Rome)

7. Final meeting. Brussels, 24th June 2015 (coinciding with the Int. Seminar).

One Extraordinary Project Management Team meeting. In the course of the 6th Project Meeting held in Rome on February 11th, the Coordinator called for an extraordinary Project Management Team meeting to discuss the execution of WP6. Doubts about the completion of deliverable D.6.24 (Final Report "*Policy conclusions*") by partner 4, and some concerns about the fact that no results were presented regarding this deliverable were discussed in the meeting.

16 teleconferences and progress meetings. Those were held in: September 2102, October 2012, December 2012 (2), January 2013, April 2013, June 2013, September 2013, November 2013, January 2014, March 2014, May 2014, November 2014, February 2015, April. 2015, May 2015. *GoToMeeting* software was largely used.

Several bilateral meeting. Those were between Project partners (about WP3, WP6, events, etc.), and also amongst other partners of the International Seminars and symposia external to ULYSSES. Helped by *GoToMeeting* and *Skype* in several occasions.
Internal meetings. 15 UPM team internal meetings: Oct.2102, Nov. 2102, Jan. 2013 (2), April 2013, June 2013, Sept. 2013, Oct. 2013, Dec. 2013, April 2104, June 2014 (2), Sept. 2014, Jan. 2015, May 2015.

The agendas were distributed amongst attendants.
Minutes were written and distributed after the meetings.

Attendance of the Advisory Board (EEAB) to the regular meetings
The advisory board attended the meetings in:
Madrid (kick-off meeting), Sofia, Madrid (Intl. Seminar), Rome (FAO Seminar) and Brussels (Intl. Seminar).
In order to economize resources and travels, it was requested a change amongst 4th and 5th meeting EEAB attendance. In that way, the members of the EEAB could attend the Intl. Seminar and participate (their contributions were indeed very relevant). It was agreed by the Project Officer, Dr. Barna Kovacs.

The assessment of the meetings is very positive. Thanks to them, coordination was able and the interaction amongst partners increased. They created stronger links and synergies in research.

The project's planning and status has been implemented as planned.

There has not been any major difficulty or deviation from planned milestones and deliveries, other than the following:

- Title changes in the deliverables to better fit the scope of ULYSSES and describe the implemented research. The content however is the same.
- Deliverables D4.16 (Scientific Paper no. 9) and D5.18 (Scientific paper no. 7) were both split into two scientific papers. The aim was to better explain and implement research in two differentiated areas: traditionally developed countries and low-income countries.
  Regarding D4.16, the first paper impacts along food chains in an EU-context and the second

- Price volatility analyses (ERAE paper) were carried out for tomatoes and pork in Spain, and cheese and pork in Germany. The originally planned commodities were pork, milk, tomatoes, potatoes, and apples. Potatoes and apples were excluded from the list to make the number of commodities to be studied feasible. It is believed that tomatoes can well represent the fruits and vegetable sector. Milk was replaced by cheese since most of the milk produced in Germany and The Netherlands goes for the production of cheese. In the list of countries, Italy was replaced by France because it is easier to obtain data from France since the project has Mr Nicolas Ferenczi (from AGPB) as one of its advisory board members. Price risk management issues (Task 4.2, D4.3) will again have a broader focus, as shown in table above.

There has not been any change to the legal status of any of the beneficiaries

One amendment for changing to electronic-signature was done to the Grant Agreement. The change of the LEAR for the Coordinator partner was also included.

Development of the Project website

The website was developed and implemented (Deliverable D7.24) in December 2012 http://www.fp7-ulysses.eu/. It has been maintained and updated regularly.

ULYSSES's project website http://www.fp7-ulysses.eu/ has been updated continuously during the Project's execution, and is still active and updated. All public documents have been published and all workshops' agenda and presentations are also published in the site.

Project ULYSSES has had a twitter account @ULYSSES7FP has published 693 tweets and reached 109 followers. In addition, "*ecoagra*" (http://www.rediris.es/list/info/ecoagra.html) mail list, with 700 users, has announced the publication of all working documents and events. Finally, the site of the Forum of Agricultural Risk Management and Development (http://www.agriskmanagementforum.org/), an initiative of the World Bank Group, has also disseminated the activities and project's outcomes worldwide, especially amongst specialists and researchers working on issues of special interest to developing and emerging countries.

Kick- off meeting in Madrid

2nd Consortium meeting in Seville

3rd meeting in Sofia, ULYSSES Consortium and Advisory Board

ULYSSES International Seminar and 4th meeting in Madrid.

5th meeting in Göttingen, ULYSSES Consortium

FAO ULYSSES Special Event (Intl Seminar) and 6th meeting, ULYSSES Consortium and Advisory Board

Final meeting and Seminar in Brussels, ULYSSES Consortium and Advisory Board

EXPO ULYSSES International Symposium

List of annexes (following):

Annex no. 1

ULYSSES International Seminar Agenda '*Food price volatility:Looking for viable policy approaches*'

Annex no. 2

ULYSSES FAO Special event. '*Looking beyond the food price crisis: rethinking the policy framework to address food markets instability'*

Annex no. 3

EXPO Milano International Symposium Agenda EU Event, '*Food and agricultural markets instability: policies and regulation perspectives'*

International Seminar "Food price volatility: Looking for viable policy approaches"

ULYSSES 1st International Seminar
Madrid
Venue: Hotel Miguel Angel *****

27th & 28th March, 2014

Organiser:
European Commission "Project ULYSSES" (Coordinated by the Universidad Politécnica de Madrid)

Co-organisers/co-sponsors:
The World Bank (Forum for Agricultural Risk Management and Development)
United Nations Food and Agriculture Organisation. FAO.

Attendance limited, only by invitation. Please contact ✉ ana.felis@upm.es if you are interested.

Goals of the Seminar

- Present new results and evidence of the 2007-2008 food crises
- Provide a venue for discussion the relevance and implications of the reassessment and new analyses with expanded and update databases
- Facilitate a debate with analysts, politicians and practitioners about analytical tools, policy implications and the role of the private sector
- Bring together researchers and practitioners from different institutions to discuss issues and approaches
- Provide critical insight into ULYSSES' project approaches and findings

ULYSSES Food prices volatility

POLITÉCNICA ceigram FARM D FAO

Day 1
27th March 2014

Registration	
8:30 - 9:00	
Welcome Chairperson: Prof. Dr. Carlos Conde, Rector, Universidad Politécnica de Madrid	
9:00 - 9:30	Isabel García-Tejerina, General Secretary of the Spanish Ministry of Agricultural, Food and Environment Alberto Garrido, CEIGRAM-UPM Jean Balie. Representative of FAO
9:30 – 10:00	Policy Statement: Tassos Haniotis. European Commission. Director Economic Analysis, DG AGRI
Session 1: Setting the global context Chairperson: Alberto Garrido. Leader ULYSSES. Universidad Politécnica de Madrid.	
10:00- 10:35	Keynote: Pr. Bertrand Munier, Sorbonne Bus. Sch. and Momagri "Commodity Markets as Complex Systems: Uncertainty and Excess Price Volatility"
10:35 - 11:00	Open discussion
11:00 - 11:30 coffee break	
Session 2: Volatility drivers and causes Chairperson: Alfons Oude Lansink. Wageningen University	
11:30 - 11:50	Bernhard Brümmer. Georg-August-Universität Göttingen. “Food price volatility drivers”
11:50 - 12:20	Franck Galtier. CIRAD. “Critical assessment of the dominant doctrine on managing food price instability”
12:20 - 12:45	Felix Baquedano, FAO. “Developing a price warning indicator as an early warning tool”
12:45 - 13:30	Open discussion
13:30 - 14:30 Lunch	
Session 3: Looking into future market fundamentals Chairperson: Mulat Demeke. United Nations Food and Agriculture Organisation	
14:30 – 14:50	Robert M’Barek. Joint Research Centre (EC). “Projection merging biophysical and economic modelling”
14:50 - 15:10	Harald von Witzke. Humbold University.
15:10- 15:30	Hans Van Meijl. Wageningen University. “Foodsecure: An interdisciplinary research project to explore the future of food and nutrition security”
15:30-15:50	Nicolas Ferenczi. AGPB, Association générale des producteurs de blé et autres céréales. “European farming in a world of volatility”
15:50-16:30	Open discussion
16:30 – 16:50 coffee break	
Session 4: Coping with volatility Chairperson: Robert M’Barek. Joint Research Centre	
16:50-17:10	Jean Balie. FAO. “Price incentives and disincentives to agricultural production in selected African Countries”
17:10-17:30	Eckart Guth. Global Forum for Food and Agriculture Berlin. "How to cope with price volatility? An EU perspective"
17:30-17:50	Alexandros Sarris. University of Athens. "International responses to vulnerabilities of developing countries to food commodity price risks"
18:50-18:20	Open discussion
Adjourn	

Day 2
28th March 2014

Session 5: Transmission

Chairperson: Bernhard Brümmer. Georg-August-Universität Göttingen

9:00 - 9:20	Steve McCorriston. University of Exeter. "What determines price transmission?"
9:20 – 9:40	Miranda Meuwissen. Wageningen University. "Transmission and management of price volatility in food chains"
9:40 – 10:00	George Rapsomanikis. FAO. "Volatility transmission in developing countries"
10:00 -10:20	Torsten Staack. ISN - Interessengemeinschaft der Schweinehalter Deutschlands."The German pig sector: a story of success?"
10:20-10.45	Open discussion

10:45 - 11:15 coffee break

Policies

Chair – Panel moderator: José María Sumpsi. Universidad Politécnica de Madrid.

11:15 - 11:25	Plamen Mishev. University of National and World Economy. "Policy instruments against price volatility - myth and reality"
11:25 - 13:10	Panel discussion

1. Concepción Calpe. AMIS-FAO
2. Tassos Haniotis. European Commission, DG Agriculture
3. Gabriel Pons. OXFAM
4. Paulo Gouveia. COPA- COGECA
5. Gonzalo Eiriz, ENESA, Spanish Ministry of Agriculture, Food and Environment

13:10 -13:30	Alberto Garrido. Final remarks

13:30 Adjourn

Food and Agriculture Organization
of the United Nations

Wednesday, 11 February 2015

9:30-11:35

German Room (C269)

ES Special Event

Looking beyond the food price crisis: rethinking the policy framework to address food markets instability

Agenda:

9:30-9:35 - **Opening remarks and Seminar Presentation**

Part I. Project ULYSSES Presentation (Chair, Boubaker Ben Belhassen - Director EST)

9:35-9:50 - **The goals and approach of Project ULYSSES**
(Alberto Garrido, Project Coordinator, Universidad Politécnica de Madrid, Spain)

9:50-10:05 - **Decomposing volatility measurements for developing early warning systems**
(Olaf Korn, Göttingen University, Germany)

10:05-10:20 - **The welfare impact of price volatility for consumers and producers in LMIC**
(Jean Balié/Cristian Morales, FAO, Italy)

10:20-10:35 - **Policy approaches to prevent manage and cope with extreme food prices volatility**
(José M. Sumpsi Universidad Politécnica de Madrid, Spain)

Part II (Chair, Kostas Stamoulis - Director ESA)

10:35-11:35 - **Panel Discussion: Which prices and which policies for food security?**

Discussants:

- ***George Rapsomanikis*** *(Senior Economist EST)*
- ***Deborah Fulton*** *(Secretariat CFS)*
- ***Edward Heinemann*** *(Senior Policy Advisor IFAD)*
- ***Steve McCorriston*** *(University of Exeter)*

For more information please contact:

mafap@fao.org

ULYSSES Food prices volatility

European Commission

UCSC *for* EXPO

Food and agricultural markets instability: policies and regulation perspectives

Thursday 9 July 2015

Università Cattolica del Sacro Cuore, Largo Gemelli 1, Room Pio XI

14.30 Registration

15.00 Opening addresses

Franco ANELLI, Rector, Università Cattolica del Sacro Cuore

Alberto GARRIDO, Coordinator of Project ULYSSES, Universidad Politécnica de Madrid

Session 1 - The challenges of agricultural and food markets instability

Moderator: Paolo SCKOKAI, Università Cattolica del Sacro Cuore

15.20 The functioning of agricultural commodity markets and the role of price volatility

José M. GIL, Universitat Politècnica de Catalunya

15.40 Why agricultural markets instability is important for innovation and well-functioning food value chains

Krijn POPPE, LEI Wageningen UR

16.00 The new CAP after Lisbon: ever green TFEU objectives and new institutional regulatory models

Ferdinando ALBISINNI, Università degli Studi della Tuscia

16.20 Coffee break

16.40 Panel discussion - Navigating unstable food markets: the role of policy vs. the innovation of the private sector

Alessandro BORIN, Banca d'Italia

Diego VALIANTE, European Capital Markets Institute, ECMI

Piero CONFORTI, FAO

Wilbert HILKENS, ABN AMRO, Sector Advisory

18.00 Questions from the audience

18.20 Moderator main remarks in view of the policy session

18.30 Adjourn

Friday 10 July 2015

European Union Pavilion at Expo

11.00 Opening address

Giancarlo CARATTI, Deputy Commissioner General of the EU Pavilion at Expo Milan 2015

Session 2 - The financialisation of agricultural markets: risk management tools and regulation

Moderator: Giovanni PETRELLA, Università Cattolica del Sacro Cuore

11.20 Volatility in agricultural commodity markets: speculation or scarcity?

Helyette GEMAN, Birkbeck University of London

11.40 EU Regulation of agricultural commodity derivatives markets

Antonella SCIARRONE ALIBRANDI, Università Cattolica del Sacro Cuore

12.00 Which regulation and which regulator for agricultural commodity derivatives markets?

Martin ODENING, Humboldt-Universität zu Berlin

12.20 Panel discussion - Why good markets regulation can help reduce agricultural markets volatility

Myriam VANDER STICHELE, Centre for Research on Multinational Corporations, SOMO

Tim WORLEDGE, Platts

Ennio ARLANDI, Borsa Italiana

Richard MILLER, Columbia Law School

13.20 Questions from the audience

13.30 Moderator main remarks in view of the policy session

13.40 Lunch

Session 3 - Way forward: issues and research priorities

Moderator: Alberto GARRIDO, Universidad Politécnica de Madrid

14.30 Long term drivers of food markets variability and uncertainty

Robert M'BAREK, European Commission - Joint Research Centre IPTS

14.50 Impact and policies of markets instability in low income countries

Emiliano MAGRINI, FAO

15.10 How should good market regulation look like?

Andrea PERRONE, Università Cattolica del Sacro Cuore

15.30 Thinking about CAP post 2020, how EU policy should be redefined

Isabel BARDAJÍ, Universidad Politécnica de Madrid

15.50 Questions from the audience

16.00 Moderator main remarks in view of the policy session

16.10 Coffee break

Session 4 - Policy challenges arising from the increasingly unstable global food markets

Moderator: Chris GILBERT, Johns Hopkins University, SAIS

16.30 Tassos HANIOTIS, European Commission - DG AGRI

16.45 Jean-Pierre HALKIN, European Commission - DG DEVCO

17.00 Fabrizio BRESCIANI, IFAD

17.15 Panel discussion - What policies should countries, EU and the international community pursue?

José M. SUMPSI, Universidad Politécnica de Madrid

Xavi PALAU, OXFAM

Tomás GARCÍA-AZCÁRATE, European Commission - DG AGRI

18.30 Concluding remarks

International Symposium

9 July 2015

UCSC Largo Gemelli 1, Milan

10 July 2015

EU Pavilion - Expo Milano 2015

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For more information and registration:
http://www.unicatt.it/ucscforexpo/expo-luglio-food-and-agricultural-markets-instability-policies-and-regulation-perspectives?rdeLocaleAttr=en

European Commission

ULYSSES Food prices volatility

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