

## Chapter 1.

### Introduction

Agricultural production is subject to many uncertainties. Any farm production decision plan is typically associated with multiple potential outcomes with different probabilities. Weather, market developments and other events cannot be controlled by the farmer but have a direct incidence on the returns from farming. In this context, the farmer has to manage risk in farming as part of the general management of the farming business. Hazards and unforeseen events occur in all economic and business activities and are not specific to agriculture. However, farming risk and risk management instruments in the sector may have a certain number of specificities.

Many risks directly affect farmers' production decisions and welfare. In response to the potential impact of these uncertain events farmers implement diverse risk management strategies in the context of their production plans, the available portfolio of financial, physical and human capital, and the degree of aversion to risk. These risk management strategies may include decisions on-farm, changes in portfolio structure, use of market instruments, government programs, and diversification to other source of income. Many general agricultural support policies have risk management implications and influence risk management decisions. Because of the complexity of these interactions governments need to make significant efforts to achieve coherence, particularly among different policies and between policies and market strategies. Agricultural risk is an interrelated "system" in which markets and government actions interact with risks and farmers' strategies. Government programs may underpin the development of market strategies, but they may also crowd out market developments or on-farm strategies. The result of these interactions is the set of risk management strategies and tools that is available and used by farmers. The available strategies are not the simple addition of government programs, market instruments and on-farm decisions; they are mutually interdependent and constitute a unique system.

Chapter 2 analyses some of the most important linkages in this system and to develop a holistic framework for its analysis. The main focus of the analysis is on the different strategies and options available to farmers to manage risk and the potential need for and shortcomings of government action. It begins with a section that lays out the basic framework and develops the main driving idea behind the holistic approach: accounting for the interaction between three axes in the risk management system: sources of risk, risk management strategies and tools, and government policies. The three subsequent sections develop each of these three axes by analyzing and organizing the main issues of each axis, emphasizing the interrelations between the elements within and across the axes. These include characteristics of agricultural risk, possible classifications of sources of risk, the implications of correlation among them, and some discussion on the links between agricultural risk and climate change. Risk management strategies are discussed, including market tools such as future markets and insurance, but also strategies to deal with non insurable risk and segmenting risk into layers. The fourth section focuses on the role of government in dealing with potential market failure or re-distributional (vulnerability) concerns. The last section provides a template to apply the holistic conceptual

framework. This template is structured in five clusters to be analyzed when studying a risk management system in a given country. Additional concepts related to the economic analysis of risk are discussed in Annex 2.1, while Annex 2.2 is a stand alone analysis of price risk and price stabilization policies.

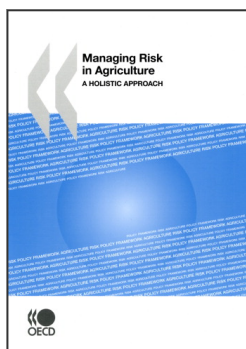
Farm households adopt diverse strategies to manage risk affecting their income and consumption. These strategies depend on the characteristics of risk they face, their attitude to risk and the risk management instruments and tools available. The potential contribution of governments to risk management includes: 1) ensuring a stable macroeconomic and business environment, with competitive markets and clear regulations; 2) facilitating access to market-based instruments such as insurance systems; and 3) providing specific measures to help farmers reduce their risk exposure or deal with the consequences of adverse events. The latter group of measures is considered here as risk-related as they impact directly to reduce price, yield or income variability, or to smooth consumption following an adverse event. At the same time, it should be kept in mind that all agricultural policies affect farm households' risk environment and behaviour.

Drawing on the conceptual framework developed in Chapter 2, Chapter 3 reviews various types of policy measures that directly affect price, yield or income variability, or smooth consumption and, as such, have a direct risk-related dimension. It provides an overall picture of the magnitude and type of price and budget transfers generated by those measures in various OECD countries and selected emerging economies, in the context of overall support and government intervention affecting farm households. It does not attempt to evaluate the risk-reducing impact of those measures, which will be the subject of future work on risk management. It does analyse how different types of policy measures can affect price, yield or income variability and provides an overview of their occurrence in various countries. Those risk-related policies identified in the OECD Producer Support Estimate (PSE) database<sup>1</sup> and the price and budgetary support they generate are discussed in the context of overall support estimates. The following section draws on World Trade Organization (WTO) notifications on domestic support commitments to identify the risk-related policies discussed earlier. The final section focuses on policies that are not specific to the agricultural sector and/or do not necessarily generate budgetary transfers such as regulations.

Chapter 4 assesses the exposure to risk in agriculture through a review of the empirical literature. It introduces the concept of risk and how can it be quantified and then examines the variability of the different components of farm income: input and output prices, yields, production, and off-farm income and investment. Information on variability of different sources of risk is completed with information about correlations and an overall assessment of the major factors affecting farm income risk. These observed variabilities are due to different underlying causes of risk: from weather, diseases and market shocks, to new concerns such as biotechnology, climate change or policy reform. Farmers may perceive these risks differently and their main concerns need not to be the sources of risk that generate most income variability. These perceptions and risk preferences are revised, and in the final section extracts from the main conclusions on the magnitudes of risks, correlations, causes, perceptions and needs of research and data are presented.

#### *Note*

1. Since the mid-1980s, OECD estimates support to agriculture and publishes results in annual reports for OECD countries and every two years for a number of emerging economies. Indicators of support for OECD countries are published in OECD (2008) and available on OECD web site at [www.oecd.org/statisticsdata/0,3381,en\\_2649\\_33773\\_1\\_119656\\_1\\_1\\_37401,00.html](http://www.oecd.org/statisticsdata/0,3381,en_2649_33773_1_119656_1_1_37401,00.html)



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