



Munich Personal RePEc Archive

## **Coping with Risks in the Mediterranean Countries? Let the experts explain**

Santeramo, Fabio Gaetano and Adinolfi, Felice and  
Capitanio, Fabian and Contò, Francesco and Sasala, Piero

University of Naples "Federico II"

2013

Online at <https://mpra.ub.uni-muenchen.de/49852/>  
MPRA Paper No. 49852, posted 17 Sep 2013 22:48 UTC

# *Coping with Risks in the Mediterranean Countries?*

## *Let the experts explain*

*Santeramo F.G.<sup>1</sup>, Adinolfi F.<sup>2</sup>, Capitanio F.<sup>1</sup>, Contò F.<sup>3</sup>, Lasala P.<sup>3</sup>*

<sup>1</sup>*University of Naples “Federico II”*

<sup>2</sup>*University of Bologna*

<sup>3</sup>*University of Foggia*

### ***Abstract***

*A decade of major political, institutional, economic and societal changes is challenging the Mediterranean Area: in a more and more globalized Europe the primary sectors of Mediterranean Partner Countries (MPCs) are largely influenced by recent trends. The resulting exposure of Mediterranean Countries' agriculture to risks has called great attention on risk management strategies and public intervention. We explore their role in three selected Countries, namely Syria, Tunisia and Turkey with a view to a unified policy framework. The analysis is conducted through a field activity that has allowed to understand the key issues. The experts' opinions draw a clear picture of retrospect and prospects and stimulate a comparative analysis that widens the current knowledge of risk management in the Mediterranean Countries.*

*Keywords: Agricultural Policy, Delphi, Mediterranean Countries, Risk Management*

*JEL Codes: Q01, Q18, Q19*

*Corresponding author:*

Fabio G. Santeramo,  
Via Università 96, 80055 - Portici (Italy)  
[fabioqaetano.santeramo@unina.it](mailto:fabioqaetano.santeramo@unina.it)  
+39 081 2539084

# *Coping with Risks in the Mediterranean Countries?*

## *Let the experts explain*

### **Introduction**

Over the last years the Mediterranean Countries have been interested by great political changes and wind of renovation, the so called *Arab Spring*. To what extent the new, and still evolving, political equilibria will benefit the population is still hard to say, indeed it is certain that such a break with the history represent a great opportunity for the Mediterranean to move towards a more integrated system. As widely known, the economy of Mediterranean countries largely depend on primary sector; it is also true that the European Union is one of their main trade partners and has stipulated numerous trade agreements that strengthened those commercial linkages. Thus, the EU is not only alert on the dynamics of agricultural trade from the Mediterranean Partner Countries (MPCs), while also interested in monitoring the *status quo* and the evolution of MPCs' agricultures.

In particular the increasing exposure of agricultural sectors to price volatility and market risks, and the adoption of efficient strategies and policies to cope with risks has been largely indicated as a major priority in the EU agenda (De Castro *et al.*, 2012). The recent scientific debate has largely investigated the relevance and the synergies deriving from a correct implementation of risk management strategies at farm level and interventions supported at national or regional scale. In developing countries several factors need to be taken into considerations for a correct analysis of risk management strategies and policy intervention, such as farming systems, climate conditions, specific policies, institutional settings (Larson *et al.*, 2006). Despite a vast literature is investigating the peculiarities of risk management strategies in developing countries, the topic is still under-investigated topics in the Mediterranean Countries for which in which the lack of adequate risk management strategies and policy interventions call for *ad hoc* studies aimed to a comprehensive understanding for a better policy management.

The present paper expand the analysis presented in Santeramo *et al.* (2012) to a broader set of Countries in the Mediterranean Area: we analyze and compare the status quo of risk management strategies and the policy interventions in Syria, Tunisia and Turkey by mean of a field survey. Several experts have been interviewed in order to provide valuable information to policymakers and to farmers. We conclude our paper with a discussion of the implications of our results for the design and administration of policies to cope with risks in the Mediterranean Countries. The remainder of the article is as follows: next section is aimed to describe the current situation and the challenges for risk management in developing Countries; the third paragraph is dedicated to present the results of our field survey; the last section provide final remarks for policy implications.

## Risk management in developing Countries: an overview

Developing Countries are exposed to a numerous set of risks; a simple classification might distinguish them in three categories: production risks, price and marketing risks, and financial risks (Table 1). The nature of agriculture, dependent on climate conditions, exposes the sector to production risk such as droughts, heavy rainfalls, frosts, storms, floods; pests infection and diseases which determine unexpected bad harvests are also relevant risks in developing agricultures and, in particular, affect field crops (*e.g.* wheat, barley, cotton and sugar beet, vegetables) and also trees and animal productions. Price risks challenge the production side of free marketed crops; losses in products quality and decreases in final price are the main risks faced by wholesalers and sellers. Finally, financial (*e.g.* the inability to access credit market) and institutional risks (*e.g.* risks of unexpected changes in the policy framework) are relevant to farmers decisions (Santeramo *et al.*, 2012).

Table 1 – Principal risks in Developing Countries primary sectors

<i>Type</i>	<b>Production risks</b>	<b>Price-marketing risks</b>	<b>Financial risks</b>	<b>Institutional risks</b>
<i>Causes</i>	Adverse climate conditions, pests and diseases.	Inputs and output price changes, bad quality of harvested produce.	Lack of liquidity.	Sudden and unexpected policy changes.
<i>Crops interested</i>	<i>Field crops.</i>	<i>Field crops; Livestock.</i>	<i>All crops.</i>	<i>Subsidized crops.</i>

*Source:* Classification modified from Santeramo *et al.* (2012)

A different classification pertains the nature of risks: systemic risks are collective risks, economy-wide, that is covariate risks that strike the majority of the community members or the entire homogenous region; idiosyncratic or individual risks in general affect only a particular individual like illness or asset loss. Previous studies in developing countries suggest that the idiosyncratic fraction of income risk is relatively high: for instance, Dercon (2002) found that little correlation in incomes in different villages in India which indicates the prevalence of idiosyncratic risks rather than systemic risks; Morduch (2002), analyzing the same dataset, found that an idiosyncratic risk forms 75-96 percent of the total variance in income. The identification of the nature of risk is crucial in risk management; it is widely known that common risks are harder to be avoided as forms of risk-sharing fail. cannot be shared, while idiosyncratic risks can be insured within the community more easily.

Formal and informal insurance transfers (credit or insurance) from outside the community or inter-temporal transfers such as depletion of individual or community level savings are very important to treat with common shocks and risks (Dercon 2004). Moreover, Alderman and Paxson (1994) demonstrate that common (covariate) shocks cannot be insured by risk-sharing as all members of the insurance pool would require payouts at the same time. As a result, the design of appropriate risk management policy interventions must take into account the relative magnitude of idiosyncratic and covariate shocks.

## The experts' opinions

The Delphi method consists of structural surveys and is based on a priori information of experts or agents involved at various stages in the primary sector. The methodology is designed as a group communication process aiming at achieving shared consensus on specific real-world issues through rounds of questionnaires delivered to a panel of experts (Hsu and Sandford, 2007).

Experts, policymakers at several Institutions, and farmers have been interviewed through the Delphi surveys conducted in Syria, Tunisia and Turkey during 2011 and 2012: explorative questionnaires provided insights on relevant issues such as types of risks, spatial and temporal dimensions of risks, private strategies and policies to manage and cope with risks, policy suggestions; successive rounds allowed to consolidate experts' opinions and reach consensus.

### *Syria*

We conducted the surveys in three distinct agro-climatic zones, respectively located in the Latakia Governorate and the Aleppo Governorate, which are the main Farming Systems in Syria for their contribution to the national production of agricultural products. The selected Farming Systems are also representative for the main Syrian agricultural systems (NAPC, 2011).

Wheat, cotton, vegetables, olive, and apples are the crops most exposed to price and market risks and experts argue that the lack of marketing culture and facilities are underlying problems. Production and yield risks - particularly frost, pest and diseases, and storm - are secondary problems, while policy change risks and financial risks are perceived as negligible risks. The influence of international dynamics on income and expenditure are rather limited and local economies are currently barely affected by international dynamics. However the increasing liberalization is expected to expose farmers to a broader and more severe competition to the detriment of revenue stability.

The main strategies for risk-coping are the diversification of crops and income sources while more complex strategies (*e.g.* income skewing, specialization, precautionary savings and production/marketing contracts) have limited adoption. In particular, many experts argue that the diversification is attractive as it is perceived to be the most effective. Moreover, farmers tend to cultivate specialized crops – such as crops resistant to pest or drought – and to adopt specific agronomic techniques in order to cope *ex-ante* with risks. At the *status quo* it is also true that farmers have weak knowledge of alternative strategies, and mostly benefit from the government policies. As far as *ex-post* strategies is concerned, accessing to informal and formal credit seem the most adopted, followed by consumption smoothing: the former is popular due to its simplicity and the absence of alternatives. Among the secondary strategies, recurring to formal credit and occupying householders in jobs out of the agriculture sector are the most preferred. Finally strategies such as safety nets, support programs and welfare policies are rather negligible. According to the Delphi Method, farmers cope with price risks selling the products in distant markets, selling the products before harvesting or changing the containers to less quality in order to reduce the marketing cost. Alternative strategies include

changing crops or seeds and reducing the cultivated hectares. Moreover, farmers are skeptical to adopt advanced agronomical techniques to improve or stabilize yields.

As far as the exposition to risks, a vast majority of experts argue that fruits are the most exposed specialty crops to price risks. In particular citrus, apricots, apples, peaches are largely exposed mainly due to their perishability and the lack of storage facilities. During the last decades, the introduction of new species and varieties helped to reduce price risks, showing a feasible and efficient way to cope with price risks (Wattenbach, 2006). Olive oil, an important cultivated crop in the Farming Systems under consideration, is the least exposed specialty crop to price risks: this is not surprising as olive oil can be easily stored for years. Farmers cope with price risks by selling their produce to distant markets, or by contracting the sale before harvesting. Moreover, as marketing cost account for a significant portion of realized price, marketers tend to reduce the quality of transportation facilities such as the containers- to avoid losses due to unsold produce. Differently, farmers cope with olive oil production and yield risks by adopting agronomical techniques aimed to stabilize yields reducing inter-seasonal fluctuations. Finally, farmers cope with policy changes risks by reducing inputs usage, in particular using reduced quantities of waters and fertilizers.

According to experts farmers who do not have savings accounts usually save money in alternatives ways - *e.g.* buying houses, land, cars. Some experts argue that savings through bank account is limited by the necessity of (sufficient) liquidity to manage and improve farm infrastructures.

Agricultural cooperative banks are the main institution to access to formal credit, while receiving personal loans from non-agricultural sectors is the most common way to access to informal credit. As argued by a vast majority of experts, informal credit is likely to be costly, thus farmers are keener to access formal credit. However there are several limitations in the formal market: firstly it is poorly managed; secondly, the lack of collaterals due to excessive land fragmentation limit the access to credit; thirdly, the complexity of procedures is a further friction in markets for formal credit. As far as informal credit, experts argue its main limitation is due to excessively high interest.

## ***Tunisia***

The survey has been conducted interviewing experts involved at different stages of the supply chains, namely producers, input suppliers, wholesalers, credit providers, and insurers, and covered the two main areas in Tunisian agriculture: the Northwestern and the Central Western areas which produce the vast majority of cereals in the Country. We investigated main topics: the perception of risks, the risk-coping strategies and the policies implemented to reduce negative externalities.

Experts argue that production and yield risks represent the main threats; market and financial risks are less important because the strong market intervention to ensure fixed prices limit market risks faced by farmers and consumers. A marginal role is played by policy changes and personal risks. Another significant source of risk is the increasingly limited availability of labor. Drought is the main climate risk affecting production, followed by rainfall, frost, storms which are closely related to the characteristics of the regions or

the production systems. Finally, there is a vast consensus that the lack of inputs, particularly labor forces, farm organizations, and adequate facilities limit the potentiality of Tunisian agriculture.

The strategies adopted by farmers to cope with agricultural risk consist in *ex-ante* and *ex-post* strategies (Gurenko and Mahul, 2004). Among the set of *ex-ante* strategies, experts argue that diversification is the most adopted, followed by crops specialization and income diversification<sup>1</sup>. As far as the latter, interviewees argue that the lack of funding limit investments in alternative businesses. Farmers tend to not prefer hedging while the adoption insurance contracts is rather marginal. Consumption smoothing is the main *ex-post* instrument adopted by Tunisian farmers, followed by the access to informal and formal credit. Experts stress the importance of bank and financial networks, as well as of programs of public interventions. Finally a marginal but significant role is played by mitigation instruments such as diversification and acquisition of inter-temporal loans and rollover strategies.

According to experts perishable products such as fruits and vegetables are the most exposed to price risks, while subsidized and storable crops (e.g. cereals) are the least exposed. International prices dynamics may affect farmers' income, and food expenditures: volatility in international prices may have a negative impact on farmers income, particularly on net sellers due to the high uncertainty they would face for input prices. In order to cope with price risks farmers tend to adopt several strategies: storage, diversification and production contracts are the most adopted. Production and yield risks are faced by adapting agronomic techniques as well as by selecting resistant and low-inputs crops. As far as institutional and idiosyncratic risks experts argue that a barely effective strategy is the constitution in farmer unions: however those associations are yet not well developed and surely their contribution to risk management is limited.

Investments in livestock units, land or real estates are commonly adopted as form of savings; financial savings through the formal banking system are rather limited. The main limits to savings are the low levels of farmers income and its high variability.

Access to agricultural credit has particular salience in the context of Tunisian rural development (Foltz, 2004). The Tunisian government established a national agricultural bank (the *Banque Nationale Agricole*) to provide credit to farmers, especially seasonal agricultural loans; farmers may get seasonal loans also from input suppliers or processing factories. Finally they may access to loans from other non-agricultural banks, particularly for long-term loans devoted to investments: experts argue that access to the credit granting system is limited by the complicated procedures, such as the requirement of land guarantees, slow processes and long delays occurring between the bank credit requesting and the actual availability of funds; moreover the national cadastral recording covers only a small spectrum of the agricultural landscape. Finally the high interest rates, accumulated indebtedness of farmers towards the bank and the subjective religious beliefs are the other typical problems faced by farmers in need for credit. As far as the informal credit, widely adopted by farmers, the major problems are the high implicit interest rate and the long repayment period: this type of credit is therefore destined to cover some specific farm activities.

---

<sup>1</sup> Diversification is commonly adopted strategy in developing countries: small holders typically tend to diversify the gene pool of crops in order to cope with adverse shocks and to preserve the biodiversity (OECD, 2009).

Experts conclude that Tunisian rural credit markets is not operating efficiently: most farmers are receiving credit from the informal sector, while only a small proportion are borrowing from banks. In fact, farmers with small land holdings do not hold land titles, and low household incomes are often excluded from the formal financial sector for agricultural credit (Foltz, 2003).

Insurance contracts are weakly adopted by framers. Hail and fire are the main insurance damages covered by such contracts. However, the use of insurance contracts is still limited to a few cases, particularly when required by bank procedures. Interviewees consider that the high cost of the insurance contract and religious reasons are the main reasons explaining the low use of insurance programs. It is worth mentioning also that the insurance contracts available through insurance companies do not seem to adequately cover the wide range of risks and disasters perceived by farmers.

### ***Turkey***

Numerous farmers and several experts from main institutions (e.g. Ministry of Food Agriculture and Livestock, Agricultural Bank, Union of Agricultural Chambers, Agricultural Credit Cooperatives, Ege University) have been interviewed in order to explore main issues in risk management: types of risks, their perception, strategies involved to cope with them and the policy interventions.

Price and market risks are the main challenges for Turkish agriculture. In particular, the recent agricultural policy reforms towards decoupled payments and the alignment with international agreements, in addition to the inexistence of well-organized and well-operated agricultural markets have exposed the primary sector to main risks<sup>2</sup>. Price risks are sourced by fluctuations in input and output prices, although the former are less volatile. International dynamics affect domestic prices and export revenues: this results in net decrease in farmers' incomes and purchasing power. Financial risks, second category for importance, arise from the inability of farmers to access credits: the high and volatile interest rates, and the liquidity constraints play a dominant role. Production risks are the third type of risks; the category includes natural disasters, pest and diseases, and quality of final products.

Income skewing (e.g. dilute harvest and marketing operations), specialization (e.g. the adoption of advanced agronomic techniques), and insurance contracts are the main ex ante strategies; asset liquidation is indeed the main ex post strategy. Farmers assert that making a prompt and right decision is the most efficient way to avoid risks; moreover their attention is devoted to plan farm operations rather than benefit from technical assistance or farm recording systems. A vast majority of farmers is still interested in volumes of output disregarding the production processes and, in limited cases, are assisted by research institutions for technical assistance.

The irregularity of the production and the variability of the quality exposes the industries of fruits and vegetables and of cotton to price risks: in order to avoid excessive losses farmers tend to destroy fresh products in case of overproduction. The use of insurance contracts and the diversification of crops to reduce

---

<sup>2</sup> In particular strategic crops, namely wheat, cotton, barley, sugar and tobacco, that are regulated by the Government support policies, are exposed to excesses of supply, raising stocking costs, fall in output prices and yields.



yield risks are increasing more and more. The farmers cover fire, landslide, storm, whirlwind and, of course, damages due to hail. The latter is however limited by lacking extension services and adoption of traditional agronomical practices.

A vast majority of farmers do not save: the richest entrepreneurs in agriculture adopt investments in land and other industries as main forms of savings. Despite the credits provided by Agricultural Bank benefit of support policies, farmers show an intrinsic scarce attitude in stipulating insurance contracts due to several reasons: lack of confidence in insurer companies; complicated procedures required by credit companies; high premiums; solvency problems<sup>3</sup>. On other hand informal credits are limited by the high interest rates and the restricted periods for repayments.

## Conclusions

The exposure of agricultural sector to several sources of risks challenges developing Countries and affect the primary sector of the Mediterranean Countries. The present paper analyzes the *status quo* in three selected Countries, namely Syria, Tunisia and Turkey and explore the role of risk management strategies and public interventions. We commented the results of extensive Delphi surveys conducted in the above mentioned countries.

The primary source of risks in the Mediterranean Countries are prices and markets risks due to the increasing volatility in input and output prices (De Castro *et al.*, 2011). In particular, experts argue that the process of trade liberalization and the bilateral agreements between MPCs and the European Union might tend amplify the price volatility of domestic markets, rather than stabilizing prices (Cioffi *et al.*, 2011). In agreement with previous studies (Santeramo *et al.*, 2012) we found that the lack of facilities, especially for storage and transportation, is a major problem and lead to the insurgence and the intensification of market crises (Santeramo and Cioffi, 2012).

Diversification of crops and diversification of income sources, such as smoothing consumption and self-insurance (Dercon, 2002), tend to be the preferred strategies to cope with risks. Moreover, farmers cultivate specialized crops (*e.g.* resistant to extreme weather conditions, pests or diseases) in order to stabilize yields and avoid low harvests. On the other side, the lack of liquidity and the poor access to formal and informal credit are major problems. The policy considerations in Cafiero *et al.* (2007) are still valid: promoting the constitution of precautionary saving account, through direct or indirect incentives, in order to increase the ability of self insuring

---

<sup>3</sup> Our results find support in previous studies that found that “the majority of small farmers prefer to borrow using a profit and loss sharing credit system rather than an interest based system, whereas larger farms and farmers with higher incomes prefer the interest based credit system” (Yazdani, 2006, p. 13).

against frequent risks should be a priority in the policy interventions agenda. Furthermore, a solution for Mediterranean Countries would be to establish policies supporting weather index insurance in order to eliminate the moral hazard problem and reduce adverse selection (World Bank, 2005; Barnett and Mahul, 2007).

Lastly, in Mediterranean Countries the lack of experience in risk management strategies and the absence of effective public interventions expose the agricultural sector to severe risks: reduction in productive potential, vulnerability, and food insecurity. It is advisable to improve the current setting of agricultural policies through interventions directed towards the stabilization of incomes and in particular a special role needs to be played by the tools of risk management: the access to opportunities offered by devices for risk transfer, such as insurance contracts, should be improved.

### **Acknowledgments**

The analysis has been funded by the European Union 7FP project Sustainable agri-food systems and rural development in the Mediterranean Partner Countries (SUSTAINMED). The authors thanks Selim Cagatay Moncef Ben Said, Abderraouf Laajimi, and Boubaker Thabet for their contributions. The authors are grateful to the anonymous referees and the editor for the helpful comments.

## References

- Alderman, H., and C. Paxson** (1994) "Do the Poor Insure? A Synthesis of the Literature on Risk and Consumption in Developing Countries". In D. Bacha, (ed.), *Economics in a Changing World. Vol. 4: Development, Trade and the Environment*. London: Macmillan.
- Barnett, B. and O. Mahul** (2007), Weather Index Insurance For Agriculture And Rural Areas In Lower Income Countries, *American Journal of Agricultural Economics*, 89(5), 1241-1247.
- Cafiero C., Capitanio F., Cioffi A., Coppola A.** (2007). Risk and Crisis Management in the Reformed European Agricultural Policy. *Canadian Journal of Agricultural Economics*, 55(4), 419-441.
- Cioffi, A., Santeramo, F. G., & Vitale, C.** (2011). The price stabilization effects of the EU entry price scheme for fresh fruit and vegetables. *Agricultural Economics*, 42, 405–418.
- De Castro P., Adinolfi F., Capitanio F., Di Falco S.** (2011), "Building a new Framework for the Common Agricultural Policy: A Responsibility Towards the Overall Community", *Eurochoices*, 10(1), 32 - 36.
- De Castro, P., Adinolfi F., Capitanio F., Di Falco, S., Di Mambro A.** (2012). *The Politics of Land and Food Scarcity*. Routledge - Earthscan, October 2012.
- Dercon, S.** (2002). Income Risk, Coping Strategies, and Safety Nets. *World Bank Research Observer* 17(2): 141–66.
- Dercon, S.** (2004). *Insurance against poverty*. Oxford University Press 2004.
- Foltz, D. J.** (2003). MICRO-ECONOMIC PERSPECTIVES ON TUNISIA'S AGRO-EXPORT STRATEGY. *Food, Agriculture, and Economic Policy in the Middle East and North Africa*, Volume 5, pages 209–230.
- Foltz, D. J.** (2004). Credit market access and profitability in Tunisian agriculture. *Agricultural Economics* Vol (30), 229–240.
- Gurenko, E. and Mahul, O.** (2004). Enabling Productive But Asset-Poor Farmers to Succeed: A Risk Financing Framework. World Bank Policy Research Working Paper 3211, February 2004.
- Hsu, C., Sandford, B. A.** (2007). The Delphi Technique: Making Sense of Consensus. *Practical Assessment Research & Evaluation*, 12(10).
- Morduch, J.** (1995) Income Smoothing and Consumption Smoothing. *Journal of Economic Perspectives*, 9: 103-114.
- NAPC** (2011). *The State of Food and Agriculture (Sofas)*. National Agricultural Policy centre (NAPC), Damascus, unpublished periodical report.
- Larson D. F., Anderson J. R., Varangis P.** (2004). Policies on managing risk in agricultural markets. *The World Bank Research Observer*, Vol 19(2), 199-230
- OECD** (2009). *Managing Risk in Agriculture: A Holistic Approach*. Paris.
- Santeramo F.G., Cioffi A.** (2012) Market crises transmission in the European vegetables sectors, *PAGRI - International Agricultural Policy*, Issue 2: 37-46
- Santeramo F.G., Di Pasquale J., Contò F., Tudisca S., Sgroi F.** (2012) Analyzing risk management in Mediterranean Countries: The Syrian perspective. *New Medit, Mediterranean Journal of Economics, Agricultural and Environment*. 3: 35-40
- Wattenbach, H.** (2006). *Farming Systems of the Syrian Arab Republic*. NAPC.
- World Bank** (2005), *Managing Agricultural Production Risk: Innovations in Developing Countries*, Washington D.C.

**Yazdani S.** (2006), Analyzing the Impact of Structural Change in Iranian Agricultural Credit System. *Agricultural Economic Review*. 7: 5-14.