Chapter 9
Policies of Science, Technology, and Industry in the MENA Countries and Their Impact on National Competitiveness

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ABSTRACT
This chapter offers an overview about the role of science, technology and industrial policies in the MENA region. It analyses the theoretical foundations of these policies and their changes. In addition, an analysis about the determinants of the state of science, technology and innovation in the MENA countries become interesting and important to be explored. Thus, this chapter is an occasion to explore the role of the national system of innovation in these countries in facilitating the knowledge, skills and innovation process, and to offer some ideas regarding the weaknesses, limitations and constraints of these countries in these areas. The two main ideas of this chapter are: the development of innovation infrastructure and the role of institutions in pursuing these policies. Thus, undertaking a comparative analysis of the MENA countries in the areas of science, technology and innovation is the goal of this chapter.

INTRODUCTION
After the start of the Arab Spring in January 2011, the political and economic situation of the Middle East and North Africa (MENA) region remains critical and current. The protests and demands for reforms have led to varying degrees of economic, political and social changes in many countries of the Arab spring. This structural political demand needs more economic reforms due to many structural challenges such as high unemployment, low female labor force participation rates, low levels of private sector development, weak public and corporate governance, bloated public sectors, limited competition, and pervasive corruption. In fact, after the start of the Arab Spring, in several countries, the transition process is complex and the socio-economic environment continues to hinder the completion of reforms. And the transition to democratic and stable societies in the MENA region is a challenge not only for the countries that compose it, but also for the other countries of the MENA region.

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In fact, the MENA region needs a more effective and sustainable support to promote growth, restore confidence and thus give citizens of these countries the tools they need to build their future prosperity. To promote growth, building competitiveness is a priority for reform. But, there are still barriers to implement competitive policies of science, technology and innovation in the MENA countries. At the same time, it is an opportunity to analyze the role of transparent, target policies and efficient institutions that will lead to an increase in the competitiveness of MENA countries. However, understanding the nature of problems, challenges and opportunities in the region is a very difficult task. Ongoing regional tensions, together with a challenging external environment, have hit the economies of the MENA region.

Some countries forming the Arab spring and other MENA countries are focusing their strategies in promoting competitiveness especially in the area of science, technology and industrial policies, the role of formal and informal institutions in catching-up and the path-dependency of institutions, etc. While some of these countries face an unstable political and macroeconomic environment, the growth slowdown after the Arab Spring creates a unique opportunity to address these structural problems to both create job and develop inclusive growth. In fact, countries in the MENA region have signaled their intent before the Arab spring and actually started to move from resource-based economies to knowledge-based ones. To successfully undertake this transition, MENA countries need to develop their innovation capabilities at the firm, industry, and national levels.

It is possible that MENA countries can make substantial steps towards knowledge-based economy and reach a global competitive edge by building sustainable science, technology, and industrial policies. Many national strategies of industry were developed and implemented in these countries. They articulate the vision of the contribution of science, technology and industry in socio-economic development. Actually, many MENA countries were more explicit about the technological and industrial policies in the past and there is renewed interest and debate about the appropriate role of government in seeking to influence the evolution of the structure of the economy. New goals and new justifications for public action have enriched the range of possible measures. Nevertheless, the political landscape has become more complicated to ensure balance and coherence of the policies.

In recent decades, some MENA countries have adopted instruments to promote science, technology and industry. However, the development of a policy mix combining various measures well adapted to the environment and national targets remains a challenge as: to increase availability and simplify the use of tax incentives for research and development (R&D), the trend in policies to take into account the entire system and the innovation cycle; to increase their financial and structural efforts; to provide a framework to help entrepreneurs and businesses strengthen their scientific specialization, technological and industrial development; to introduce important reforms in patent and market promotion of intellectual property; to facilitate the development of quality infrastructure. And this challenge will continue as the scope and content of government policies evolve over time, as determined by changes in external factors such as globalization, technological progress, economic and institutional development.

The main objective of this chapter is to analyze the science, technology and industrial policies of the MENA countries. In doing so, various theories are used to explain the dynamics and the evolution of these policies in the MENA countries. This chapter also summarizes the observations on the technological and innovation level of Mediterranean countries. Although these concepts are still controversial, this chapter examines the specific issue of science, technology and industrial policies in the context of globalization and explores its theoretical foundations. It follows an analysis from a static approach to a dynamic approach: development theories, neo-classical theories, theories of endogenous growth and conditional convergence and evolutionary theory. This theoretical foundation explains the transition