Kline and Rosenberg wrote in their influential 1986 article (p. 279): “There is no need to belabor the point that technological innovation is absolutely central to economic growth and to improvements in efficiency. If there is any residual doubt, one need only think back 100 years to 1885 and ask, ‘Would any commercial firm operating as it did then survive in today’s economy?’ The answer to this question is undoubtedly no. Similarly, a firm operating as it did in 1985 would not survive in today’s global economy. Although it is now well established that innovation and technological change are essential in enhancing long-term economic growth and standards of living, the study of the impact of innovation on economic performance has long been partially neglected in mainstream economics.

The aim of this chapter is therefore to present those main theories and empirical studies that have gradually formalized the relationship between innovation and economic performance. To that extent, this chapter is articulated around three main sections. The first section reviews the traditional theories which investigated the role of innovation in contributing to economic and social change throughout the history of economic thought. The second section is devoted to the analysis of the relationship between innovation and economic growth, which has received the most scholarly attention by far. Finally, the third section looks at the impact of innovation on catching-up and employment before emphasizing how competitiveness can be a unifying concept in the evaluation of the economic significance of innovation. By investigating the link between innovation and competitiveness Section 3 proposes a new perspective on how recent developments in the field of competitiveness can provide a relevant analytical framework to integrate the different findings emerging from the literature presented in previous sections. The introduction of the concept of competitiveness also allows us to approach theories which address the economic impact of innovation at different levels of analysis (firm/micro level vs. regional/country/ macro level) under a single umbrella.
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In so doing, this chapter will not only contribute to recalling the economic virtues of innovation but also go beyond the formal precepts of growth theories to better underline the importance of innovation in an increasingly knowledge-oriented economy. While many countries are currently facing major economic challenges (unemployment, low growth rate, high levels of debt, and so on), a focus on the key role of innovation in the stimulation of competitiveness should offer today's leaders a source of inspiration to implement the most suitable policies for once more achieving a high level of growth and to sustain prosperity in the long term.

2.1 Innovation through the history of economic thought

Although the study of innovation as a separate field of research only really started in the second half of the 20th century, some pioneering insights on the economic impact of innovation had already been expressed by some of the major thinkers in the history of economic thought. As suggested by Guellec and Ralle (2003, p. 26), two classic British economists, Smith (1776) and Ricardo (1819), laid the groundwork for the growth theory. They both depicted growth as the result of an accumulation of capital, namely the quantity of production means available to workers. In other words, they explained the growth of wealth per capita as the result of the growth of capital per capita. Although their vision of the long term was relatively pessimistic – they predicted that growth would progressively disappear and plunge the economy into a “stationary state” – they formulated some valuable intuitions about the potential economic importance of innovation. For instance, Smith, in his classic treaty “The Wealth of Nations”, introduced a famous chapter emphasizing the virtues of the division of labor on productivity growth. By using the example of pin manufacture, Smith demonstrated that the breaking down of large tasks into many tiny activities allows each worker to become an expert in one isolated area of production, thus increasing his personal efficiency as well as the efficiency of the firm as a whole. The specialization of the work force and the division of labor induce different types of innovation. By specializing in one precise task, a worker is more likely to anticipate the specific need of his field of expertise by introducing product or process innovations (such as the invention of new tools or the development of new production techniques) likely to increase his productivity. The division of labor also implies a whole reorganization of the firm, prompting major organizational innovations both at the firm level and at the industry level.

Although innovation and technological change were present in these classic theses, they remained confined to a peripheral position and were not seen as a way to avoid a stationary economy in the long run. As noted by Guellec and Ralle (2003, p. 29), the marginal role occupied by innovation