

FARMS *VERSUS* FIRMS IN ECONOMIC DEVELOPMENT: THE ASSUMPTIONS AND CONSEQUENCES OF LEARNING DYNAMICS IN AGRICULTURE AND MANUFACTURING

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This article analyzes the technological dynamics of modern production and the coexistence of “modern” and “backward” sectors, the roots of such theorizing and the implications for more dynamic frameworks of learning in economic development. The arguments rest here on how learning is represented, what assumptions are made of the relationship (dynamic or not) between agriculture and manufacturing, and the ways in which science, technology and productivity growth are claimed for manufacturing *versus* agriculture. These issues have become ever more crucial in the era of climate change, the pressures of industrial growth, food scarcity, employment opportunities, and fluctuations in commodities trade. Furthermore, land has become ever more scarce which sets limits to more sustainable and efficient farming and requires more attention to the political economy of learning.

The study is motivated by the following questions: How can we understand the role of agriculture in an industrial transformation process of interdependence? In what ways are institutional models for technical change and learning in agriculture diverse? Under what conditions do models of agriculture in economic development hold potential for regional growth? Thus, how much reliance should be placed on manufacturing as an engine of growth? Furthermore, if technological learning is to offer learning and productivity gains, in what way do learning dynamics connect agriculture and manufacturing?

In most economic development models, agriculture is seen as a more passive supplier to manufacturing. We argue that this arises from a debatable economic two and three sectors stages model of growth and

development. Specifically, the gap between agriculture and manufacturing lies in the skew of how we read learning in 2-sector models and their “fit” in a history read as economic development stages. In our view, a small part of all technological development and new knowledge in agriculture come with the acquisition of inputs. Moreover agricultural producers are not simply receptors of technology. Agri-industrial innovation depends on an institutional framework that stimulates public knowledge and technological opportunities in the entire economy. In addition, the producers’ absorptive capacity of accumulating knowledge determined on-site also drives innovation in the agricultural sector.

The paper concludes with the implications of the distinctive learning dynamics within and between farms and firms. An evolutionary approach has potential for understanding both manufacturing as well as agriculture, but should be more carefully extended to consider the inter-linkages between the two to extract the maximum developmental benefit. It is clear that models that connect learning and innovation to growth require closer attention and have important developmental consequences through policy design.

EXECUTIVE SUMMARY