

## Chapter 21

# Producer Services, Division of Labor, and Innovation in Semi-Industrialized Countries: A Study of Argentine Naval Workshops

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### ABSTRACT

*The chapter contributes to the literature on innovation and producer services by suggesting that the division of labor and the forces that shape it in semi-industrialized countries may limit innovation and the acquisition of new firms' capabilities. This chapter argues that a better understanding of production systems in semi-industrialized countries can be gained from an examination of producer services. The focus of the chapter is placed on the degree of vertical integration and the linkages that connect producer services with other agents. The chapter has two specific intentions: (1) to characterize the linkages that connect naval workshops with other agents and (2) to describe the characteristics of a group of suppliers of specialized industrial services. The chapter is grounded on a rich empirical base that makes possible a detailed analysis of producer services firms (naval workshops) but also of their main demand (shipyards). One central contribution of the chapter is to show that in semi-industrialized countries a significant proportion of producer services are still integrated in the demanding agents, and this is an obstacle to specialization and the achievement of economies of scale. The chapter is based on interviews and visits to 20 workshops, 26 shipyards, and 14 naval design studios.*

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## INTRODUCTION

### Statement of the Problem

This paper makes a contribution to a better understanding of production systems in semi-industrialized countries through an examination of producer services. In particular, the article focuses its attention on a key part of the morphology of these systems: the degree of vertical integration and the linkages that connect producer services firms with other businesses and institutions. As a way to advance the understanding of the morphology of production systems in semi-industrialized countries, the paper has two specific intentions: (i) to characterize the linkages that connect naval workshops with various companies and institutions, and (ii) to describe the characteristics and dynamics of a group of suppliers of specialized industrial services.

The paper aims to contribute to the literature on innovation and producer services by suggesting that the division of labor and the forces that shape it in semi-industrialized countries may limit innovation and the acquisition of new firms' capabilities. Thus, the paper connects the literature on the division of labor, a traditional concern of economics and organizational studies, with the literature on innovation. More specifically, the argument is that the development of firms' capabilities for innovation is closely linked to the morphology of production networks (Erbes, Robert, and Yoguel, 2010).

The paper is grounded on a rich empirical base that makes possible a very detailed analysis not only of the characteristics and linkages of firms supplying specialized producer services (naval workshops) but also of their main demand (shipyards). Moreover, one of the central methodological contributions of the paper is to illustrate through empirical evidence that in semi-industrialized countries a significant proportion of producer services are still integrated in the demanding agents

and this is an obstacle to specialization and the achievement of economies of scale.

There are few academic examinations of the process of the division of labor and the creation of externalities in the emergence of specialized suppliers in a developing-country context; and there are virtually no studies of naval workshops in Argentina (but see, Garrido et al, 2006).

The empirical data on which this paper is based come from visits and interviews. It also draws on other writings completed by the authors on the shipbuilding industry (see Section 1.3 below).

In the next section we present a brief review of the literature on the division of labor and associated processes. This review shows both the importance of the division of labor to fuel economic growth as well as the particular shape it takes in semi-industrialized countries. The following section briefly describes the data used. The second part of the paper advances a succinct characterization of the shipbuilding industry in Argentina. The third part characterizes naval workshops and the services they provide to the construction and repair of vessels as well as to other economic activities. The fourth part is the core section of the article and it analyzes the levels of integration / disintegration and the relations of the naval workshops with other agents. The final section makes some reflections on the operation and characteristics of the Argentina naval production system as a way to show the problems of developing a more complex and innovative production network in a semi-industrialized context.

### Division of Labor and Externalities

In Latin America, the division of labor and the creation of externalities are part of a larger process, still incomplete, of building a more complex production system. As several authors have pointed out clearly, companies that are the backbone of Latin American economies tend to be more integrated than firms in more industrialized countries (Katz, 1987). This greater integration translates

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