CHAPTER FOURTEEN

CHARACTERIZATION OF TECHNOLOGICAL CHANGE IN THE SHIPPING INDUSTRY, 1350–1800

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The present volume includes contributions to our understanding of the nature, the sources and effects of technological change on the European shipping industry between the fourteenth and the nineteenth centuries. Several different angles are explored. Some authors study the process of change in the ships themselves: design, sails, construction, and organisation of work within and outside the ship. Others investigate the effects of the institutional environment on the evolution of the ships. Others focus on the development of multilateral trade and its effects on capacity utilization. Many other angles are explored as well.

Most of the contributions included in the volume have been presented in the form of narratives. As the form of communication most frequently used by historians, narratives are particularly appropriate to tell a story immersed in a specific historical context. However, the process of delivering a narrative sometimes blurs the identification of the general social mechanisms that underlie the processes described. The different contributions in this volume do, however, make it possible to identify some of the key mechanisms that characterised the process of technological change in the shipping industry during the period and suggest a speculative interpretation of the process within an economic framework.

Moreover, once the problems studied have been cast in terms of a theoretical framework, it is also natural to point to future research opportunities using the typical methods of analysis of economics: econometrics and modelling. A bridge between narratives and the tools of economic analysis makes more explicit the issues discussed and allows different groups access to insights coming from both sides of the disciplinary bridge. Contributions of the different chapters included in this volume are organised within a set of categories useful for economic analysis. The categories aid the translation from the
narratives included in the volume to economic mechanisms. In turn, the economic mechanisms identified prove useful for the development of a framework of economic analysis for studying the changes in shipping technology during the period. Finally, a general narrative is provided using the framework developed.

The different technical changes identified by the contributors to this volume make it possible to develop a simple taxonomy of key technical changes experienced during the period. The next paragraphs present the taxonomy. The main changes leading to increasing productivity in shipping may be classified into three main groups. The first group is directly connected to the arrival of peace in a given trade. The second group is connected to improvements already available and easily implemented when peace arrives but that had not been implemented during war. The third group is connected to improvements not available when peace arrived but which were developed subsequently. The taxonomy of innovations omits at least one class of changes and that is in navigational instruments. Since the discussion is based on the research presented in the previous chapters of the volume improvements in way-finding at sea are ignored as they are in the other contributions. There is no intention to provide a general taxonomy of technological change in shipping but rather to give a new structure and form to the findings laid out above.

The most important single event boosting shipping productivity growth in a given trade seems to have been the transition from war to peace. Mijla van Tielhof and Jan Luiten van Zanden indicate that it is not possible to identify a clear and representative aggregate trend of productivity growth for the entire period. The patterns of productivity growth on different routes were different and sometimes even went in opposite directions. The main explanation among other potential explanations they suggest for these different patterns of productivity change is the timing of peace and war on each of the routes. As peace was experienced in a specific trade, productivity grew on that specific route.¹

There are two different ways in which peace directly led to shipping productivity growth. First, peace had positive effects on ship-

¹ Van Tielhof and Van Zanden’s conclusion is also in line with previous research on the transatlantic trade by North, ‘Sources of productivity change in ocean shipping, 1600–1800’, and Walton ‘Sources of productivity change in American colonial shipping, 1675–1775’.