

*Work Patterns and Capital Utilization: An International*

*Comparative Study*. By Dominique Anxo, et.al.,(eds.). London: Kluwer Academic Publishers (1995).

This book is a collection of essays edited by six editors who are also authors or coauthors of many of the essays. The novel contributions of the book to the topic are: a description and an initial analysis of recent data sources with information on capital operating times and labor working time in the industrial sectors of several European countries and in the U.S.: and, an insightful discussion of these two items in the car industries of Europe and Japan.

Decoupling of the working time of capital from the working time of labor is a fundamental economic process that has been taking place since the nineteenth century. Part of the practical importance of the topic today, especially in Europe, stems from the introduction of shift systems that allow capital to operate longer hours while having shorter workweeks and higher compensation for workers. Examples of institutional devices accomplishing this trade off in the European car industry of the 1990's are legislation and collective agreements. These are documented in Ch. 12 of the book.

A similar issue arose in the development literature of the 1970's when economists juxtaposed the extent of the unemployment problem in developing countries with their capital scarcity. Discussions of policy implications of shorter working times in Europe could benefit from this earlier literature and this book ( especially Ch. 14) is no exception. For instance, one of the principal economic implications of high legislated or agreed upon shift differentials is the same in both settings: an incentive for highly capital intensive operations in shift-working factories built to operate under these new systems. This point

is absent from the analysis in the book.

The book consists of 14 chapters, including a brief introduction. The theoretical and policy chapters cover a broad set of issues. Micro foundations (Ch. 2) is a comprehensive discussion of the determinants of labor supply and labor demand for workers during abnormal hours. Macromodelling (Ch. 3) is an unabashedly new Keynesian simulation exercise, which also serves as the basis for the policy analysis in Ch.14. The main shortcomings of these chapters are ignoring the role of substitution possibilities at the micro level and the existence of general equilibrium effects when capital utilization changes. These two shortcomings raise serious questions about the reliability of the rosy growth and employment implications in the policy analysis.

Particularly useful among these general chapters is the one on measurement issues ( Ch. 4). The authors conclude that the theoretically appropriate aggregate measure of capital operating time, which they label  $U(1)$ , is one that weighs the utilization of any unit of capital by the relative capital weight of that unit in the aggregate. This measure, which is a direct one, can be difficult to obtain at times and the authors consider a number of indirect measures and evaluate their strengths and weaknesses.

Extended discussion and the results of the individual country studies suggest that the following measure is the most likely to be useful among the indirect ones:

$$U(3) = HS_n n e_n,$$

where  $H$  is the duration of the shift system, for example an eight-hour shift ,  $n$  is the number of shifts employed, an  $e$  is the percentage of workers out of the total number of workers employed in the  $n$ th shift of the system. If the capital-labor ratio is constant across shifts in a system,  $U(3)$  and  $U(1)$  will coincide. While the authors acknowledge that economic theory suggests a different capital-labor ratio in the

different shifts, they do not use it to correct for this bias in U(3).

Chapter 5 provides an international comparison of these measures for the countries included in the study. It shows a greater degree of capital utilization in the USA than in Europe and that these differences are not due to differences in the composition of the manufacturing sectors of these countries, or to which of the above two measures one uses in those cases where a comparison was possible. The country studies vary quite a bit in terms of their usefulness. The chapters on Germany (7), Norway (8) and Sweden (9) are the most useful for three reasons. The richness of their description of the institutional environment, their cataloguing of the availability of relevant information in various data sources and the explicit calculation of capital operating times based on the more recent data sources according to the above two measures. In the case of Sweden there is also a detailed illustration of the use of an alternative measure based on electricity generation.

By contrast the chapters on France (6) and the UK (10) are the least useful. The chapter on the UK discusses extensively the incidence of shiftworking and presents tables on this incidence. This concept, however, does not correspond to any of the measures developed in Ch. 4! Another idiosyncrasy affects the French chapter: insufficient attention to the description of the institutional environment or the data in France. For instance the tables in the text are unintelligible unless one reads carefully the appendixes to the chapter, and in one case even that does not help. The chapter on the U.S.(11) is more useful than the previous two. Its main contribution is in the updating of earlier work with better sectoral data for 1976-1988. It shows an increase of about 8% in capital operating time, measured by U(1), for the US manufacturing sector over this period.

Last but not least are the two chapters on the European (12) and the Japanese (13) car industries. These are useful pieces rich in institutional detail and based on recent data, which are analyzed carefully. We learn, for example, that the gross operating time of a BMW plant in Munich is 4,000 hours per year while the gross working time of a worker in that plant is 1,630 hours per year. In the same year (1990), the average Toyota plant in Japan has a gross operating time of 4,850 hours while the average Toyota worker has an actual working time of 2,323 hours. There are a variety of shift systems in the European car industry with a trend toward the introduction of new ones that depart from the standard two-shift system while there is a fairly rigid pattern of using the standard-two shift system in Japan. In both chapters there is a detailed discussion of the implications of these alternative situations.

To conclude, this book is a valuable reference for researchers interested in capital utilization or shift-work. For the general economist who wants to learn about these topics, however, this book is of limited use, because it has serious gaps in coverage and inconsistent treatment of what it covers across different chapters. Indeed, it is full of traps for those who are easily confused or in a hurry.

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