1. Introduction

The increasing economic international integration that we have witnessed over the past fifteen years, lead many economists to study, from both the theoretical and empirical point of view, the existence and the determinants of convergence among the economies of different countries. In fact, at the basis of the hypothesis of convergence lies the role of international trade as a vehicle for the diffusion of technological progress among countries. Trade in goods and services should favour the transmission of technical innovation from one country to another, helping to explain an increasingly homogeneous set of knowledge. If countries are endowed with identical or very similar production technologies, then in the long run international trade should also guarantee that convergence in the productivity is reached.

In the recent past, a lot of attention has been devoted to economic literature to test if labor and or capital productivity tends to converge among countries at the same steady state value. This literature
stems from the analysis of the classical Solow growth model and its stochastic generalization due to Brock and Mirman (1972). As we will discuss at some length later on, the tests of convergence have mainly been performed as tests of the catching-up hypothesis, using mostly cross section data. Recent work by Bernard and Durlauf (1992) has, however, proposed a test procedure based on the long run properties of time series, that appears appropriate to analyze economies that have a similar economic structure.

While large part of the literature is interested in analyzing if and to what extent less developed countries “converge” to more advanced economies, here we are interested in assessing convergence among developed countries. In particular we focus our attention on the group of the G-7 (with the exception of Canada) and on two small open economies like Denmark and Finland.

In this paper we extend previous work into two directions. On the one hand we do not consider aggregate output, per capita or per unit of capital, but we analyze separately manufacturing and selected service industries. On the other hand, we test for convergence not only in the level, but also in the rate of growth of productivity. By dis-aggregating among industries we pursue two aims: to test whether rejection of convergence could be due to the fact that the output of some industries, namely that of the service industries, is not or is less tradable than the output of the manufacturing sector and then, to assess the possible difference in productivity behaviour of the service sector with respect to the manufacturing sector. In fact the rejection of the hypothesis of convergence can be due, besides other reason, to the fact that all the studies we know, with the exception of Dollar and Wolff (1993), have tested it by employing aggregated output data. To the extent that services are not tradable or less tradable than manufactured products, and given the growing share of GNP that the service sector has in developed countries, failure to accept convergence can be due to the fact that production technologies in the service sector differ among countries. We have therefore tested convergence by considering separately manufacturing and some industries of the service sector. By proceeding in this way we are also able to verify if a different behaviour emerges in the service sector with respect to the manufacturing one. Moreover, as