

Introduction

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INTRODUCTION

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Manufacturing still matters and will continue to be an important contributor to growth and economic development. Recent research has pointed to this fact. The manufacturing sector creates value added, contributes to a country's exports and innovation (McKinsey, 2012). In the last thirty years the idea that the service sector increasingly was becoming the most important sector in terms of job creation, value added and contribution to growth progressively diffused for a number of reasons.

First, structural changes implied massive re-organisation of firms in many sectors, with vertical disintegration, outsourcing of many production phases to outside suppliers, including services (see Bianchi and Labory, 2011). The importance of the manufacturing sector declined partly as a result of the growth of the business service sector that increasingly supplied the former sector.

Second, as stressed by Andreoni and Gregory in this issue, the manufacturing sector re-organised world-wide and the relative share of manufacturing realised by emerging and developing countries substantially rose relative to that of developed countries.

Third, government policies, at least in the developed countries, contributed to this shift by abandoning industrial policy seen as an inefficient action in favour of competitiveness or enterprise policies (as in the EU) that aimed at providing the conditions for the success of industrial firms without direct intervention. The conditions or context included the provision of services, and measures aimed at favouring the development of services to industry were massively adopted, such as support to R&D, exports, training and so on.

Fourth, the development of the knowledge economy or information society also contributed to this trend, since it was believed that the information technology was a revolution that would create new opportunities in services sectors essentially, while manufacturing would just gain by using them. Related to this is the growing importance of intangible assets which were found to have become the most important assets in the economy from the 1990s onward. Bianchi and Labory (2004) provided an analysis of this growing importance and explained it not by the IT revolution but by the changing competitive conditions in most markets, where competition intensified due to the entry of new players, from emerging and developing economies, implying the need for established firms to change strategy by raising the quality of their products and innovating, which require relatively more intangible assets (human capital, knowledge, organisational and social capital).

Hence policy-makers and scholars became increasingly convinced that the economy was moving to a “tertiary” economy, where the service sector (or tertiary sector) was becoming more important than the secondary or manufacturing sector. As long as growth continued, this was seen as business as usual.

However, when the first signs of crisis arose, in 2001 and 2002 after the Twin Tower disaster, many governments started to question this paradigm of letting the manufacturing sector decline in importance. In Europe, heads of governments started to call for industrial policy (the French President Chirac and the German Chancellor Schroeder in 2003). As a result, the European Commission published a number of communications on the need for an industrial policy in Europe and suggesting possible measures to take, including first and foremost innovation policy that

help the industrial sector upgrade and be competitive, competition policy because firms are more dynamic in competitive environments, trade policy but also including some sectoral measures where needed (see Bianchi and Labory, 2006).

As argued by Calleja and Caballero in this issue, there is still a need for a better understanding of the structural changes arising in the manufacturing sector in order to define appropriate industrial policies. Until now the European Commission has proposed different measures, in 2002, 2004, 2005 up to 2010 and 2012, adapting its suggestions to the evolving context and understanding, in a trial and error process.

The 2008 financial crisis has led to complete this change of mindset, ending the dominant view that the tertiarisation of the economy was good and the relative decline of manufacturing in a country was not worrying as long as the service sector was growing instead. As shown by Bianchi and Labory (2011), the countries which resisted most from the crisis were those which continued to have a strong manufacturing sector, such as Germany and Italy in the EU.

The crisis was essentially due to the excessive growth of a part of the service sector, namely the financial sector, which grew unabated due to financial deregulation.

As a consequence after five years of crisis one can talk about “manufacturing renaissance”, in the sense of a returned interest towards this sector and new visions and analyses needed to understand what has been going on and what are the implications.

In fact, industry has experienced substantial structural changes in the last thirty years or so. First, globalisation has increased the extent of the world-wide market, opening new opportunities to sell products in new and expanding markets but also implying the entry of new competitors, from emerging countries in particular. Firms have in general replied by raising the quality of their products, with more frequent product renewal and more knowledge embodied in products. Second, the ICT revolution has allowed rapid and less costly communication worldwide, hence different organisational forms, in particular global value chains. Third, and related

to the second point, the ICT revolution has eased the possibility to collect, treat and communicate knowledge, creating new jobs with new skills requirements, leading to the advent of the so-called knowledge economy. Knowledge is an intangible asset which firms have increasingly attempted to report because it has become a key asset, like other intangible assets such as the capacity to innovate, human capital and any capital without a physical embodiment. Intangible assets have thus taken growing importance in industries and economies, and industries have made investment and defined strategies to accumulate and exploit these assets. Fourth, production organisation has changed in firms in most industries. Global value chains or global production networks have been widely discussed in the literature, changing the determinants of firm competitiveness.

Production re-organisation has primarily involved the creation of global value chains or global production networks, whereby the different phases of the production process are geographically unbundled and realised in different countries. Whereas industry in the past tended to cluster in specific territories, the whole production process being performed in a geographically limited territory, be it by a large firm and its suppliers or a group of small firms such as in industrial districts, the production process seems to take a global scale. The production process is therefore fragmented across borders (Baldwin, 2006; Feenstra, 1998), and its coherence is ensured by the tendency of centralisation of some functions: strategic functions such as R&D, design and marketing strategies are centralised.

One important implication of this international fragmentation of production is that competition is not only in the final market, but also at the different stages of the production process.

Another implication is that the value of exports of final goods is no longer a good indicator of a firm or a country's competitiveness: "we would like to know the sources of the value added embodied in goods and the uses to which the goods are eventually put" (Grossman and Rossi-Hansberg, 2008, p. 67).

Timmer *et al.* (2012) therefore propose a new measure of competitiveness, based on the value added in production of a country. They compute this measure using a new database, the World Input Output Database (WIOD),

containing time-series of global input-output tables and supplementary labour accounts. They show that production fragmentation (measured as the share of imports in the use of intermediate inputs in the manufacturing industry) has increased in all EU countries (except Cyprus and Luxembourg) over the period 1995 to 2008. Germany is one of the country where fragmentation increased most, while Italy is one where fragmentation increased less. Timmer *et al.* (2012) also compute what they call the GVC income, namely the value added by a country in a production process. They show that the share of global GVC income of the EU fell from 1995 to 2008, but remains the highest in the world (24%). Within the EU, France and the UK lost shares in GVC income in the considered period, while the share rose in Germany, which accounts now to about a quarter of the EU's GVC income. Italy lost shares of GVC income especially in chemicals but maintained a strong position in the production of non-durables (textiles, wearing apparels and footwear), where most Italian firms rose the quality of their product and moved to higher market segments.

Timmer *et al.* (2012) also show that production fragmentation is generally accompanied by rising skill level of the workforce in the home country.

These data on international fragmentation may be underestimated since they do not account for trade within the boundaries of the firm, namely trade among the divisions of the same multinational firm.

These studies assume that a country-sector produces a single homogenous product, whereas sectors typically produce ranges of products. Production processes might differ depending on the use of product, such as for domestic and foreign consumption.

In addition, in the same market firms have different production and overall organisation. Some firms may choose offshoring while others do not, and some firms even re-shore while others do not. In order to get more insights on production organisation firms-level studies are required, at very disaggregated level. This is the reason why a large part of evidence on global value chains is based on case studies (see Bianchi and Labory in this issue).

Last but not least, the increasing gap between the financial and the real spheres of the economy has led different scholars to raise the concern about firm financialisation, namely the pursuit of short-term profit and gains to share-holders at the expense of long-term investments and job creation. Crotty (2003) estimates that well over half of the cash flow of non-financial corporations went to financial markets (interests, dividends, etc.) from 1984 to 2000 (peaking at about 74% in 1998); this percentage was 30% from the mid-1960s to the end of the 1970s.

In fact, the financial sector grew so big and made so high profits that it is legitimate to ask whether it impeded non-financial structural change as a result, by drawing away not only money, but also human capital from the real sector, since many engineers preferred working in the financial sector to get higher wages than in industry. The paper by Salento *et al.* in this issue, although not based on systematic evidence and large samples, confirms at least the need for a reflection on this issue.

This special issue of the *Revue d'économie industrielle* aims at that, namely providing different views and analyses to show the complexity of the manufacturing sector and the need for further research, starting from the different results found and issues raised in the different papers. This is important in order to provide insights into industrial policy. The issue has been designed in an inter-disciplinary perspective, in order to enrich the points of view and understanding of manufacturing structural changes. Thus the issue gathers economists, sociologists, business administration scholars, engineers as well as policy-makers (some of the contributors correspond to more of these categories, being both policy-maker and economist for instance).

This issue highlights that manufacturing still matters, that there are important structural changes and evolutionary processes in need of better understanding. There is therefore a strong need for deeper studies in industrial economics, including a return of analyses at sector level. This need is so strong that this special issue had to be divided into parts, Part 1: General trends, and Part 2: Sector-specific structural changes.

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