

# The Italian Manufacturing Sector During the Covid-19 Pandemic: Some Lessons for a “New Industrial Policy”

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This paper analyzes the Italian manufacturing sector before and during the Covid-19 pandemic crisis. We analyze the behavior of Italian manufacturing sectors before the crisis, according to their competitiveness - the ISCO indicator, elaborated by the Italian National Institute of Statistics (ISTAT) - and their technological content, jointly elaborated by Eurostat and OECD. We observe the reaction from different sectors during the crisis and suggest to adopt, as industrial policy, a mix of the “new horizontal approach”, proposed by ISTAT, and differentiated vertical interventions for groups of sectors identified according to their technological content.

## 1 Introduction

The health crisis caused by the Covid-19 disease has created major problems to Italian manufacturing sectors. To understand and face the future challenges it is necessary to define a clear picture of the Italian manufacturing sectors in two different moments: before the Covid-19 impact and after a year in which the economy was disrupted by the pandemic.

In elaborating a recovery and restart strategy for the Italian manufacturing sectors it is important to highlight the elements of weakness and competitive advantages of the Italian manufacturing sectors, in the wake of a “New Industrial Strategy for Europe”<sup>1</sup> that identifies (for Europe) the strategic sectors in which to invest, in order to face future challenges and reduce the dependence from foreign countries, in particular from the People’s Republic of China. These sectors are food, infrastructure, robotics, microelectronics, pharmaceuticals, 5g communications networks, nanotechnologies, quantum technology, biomedicine, biotechnology.

It is very important for Italy during and after the Covid-19 crisis to detect the economic sectors to be supported, without top-down approaches, in coordination with the choices made by Europe. This will allow Italy to play a greater role in Europe and will enable Europe to strengthen its role in a world with

geopolitical changes due, in particular, to the growing political and economic weight of China.

These selective interventions for groups of sectors must be accompanied by a “new kind of horizontal policies” as suggested by the Italian National Institute of Statistics (ISTAT) “for setting up a fine-tuned policy to drive the Italian firms towards profiles characterized by structural higher performance and growth potential”.<sup>2</sup>

## 2 Literature Review

In the past any attempt to intervene into markets, and, especially, in certain sectors was highly criticized. Only since 2012, in conjunction with the Obama’s US presidency, it has been possible to speak about industrial policies without problems.

Usually, it has been conventional to make a distinction between “horizontal” and “selective” (or vertical) industrial policies.<sup>3</sup> The selective policies were specifically aimed at improving the performance of specific industries, firms or sectors, while the horizontal policies were designed to benefit the economy more generally and improve the framework conditions of the policy. However, this distinction was not always clear-cut\*. The “old” industrial policy consisted of vertical or sectoral top-down interventions. This has been for long-time criticized, in particular by the supporters of a liberal approach because these interventions could lead to favouritism and rent-seeking behaviours.

For all these reasons, before the financial crisis in 2008-2011, the mainstream avoided any interventions that could alter the economic structure and the principal interventions, from 1990 onwards, were only horizontal, i.e., mainly pro-competitive measures.

Subsequently, due to the high unemployment in many European countries caused by the financial crisis in 2008, arguments in favour of a new industrial policy emerged. The trade-off between a vertical and a horizontal definition of industrial policy was a sterile controversy for many scholars. Several conceptual developments and contributions have made it possible to go beyond this apparent trade-off: the “technological systems” identified by Carlsson and Jacobsson,<sup>5</sup> the “sectoral systems of innovation” proposed by Malerba,<sup>6</sup> and the development of industrial clusters, i.e., the promotion of institutions linking industries and universities (see<sup>7,8</sup>).

Another important contribution to overcoming the old dichotomy comes from the evolution of the globalisation process: the “global value chains” have

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\* The OECD<sup>4</sup> stresses that horizontal industrial policies often have a selective equivalent, e.g. targeted inward investment promotion or targeted skills policies, or sector-specific advisory services. Also, horizontal policies may turn out to be highly selective in their impact, for example, when favoring a general support for an input or activity that is used more intensively in some sectors than others (e.g., the impact of R&D tax credits is highly concentrated in the manufacturing sector).

been restructuring across countries and continents (3,9). This prompts companies to invest in skills enhancement and requires government interventions to support higher education and increase human capital skills. In this regard, a recent focus has been placed on capabilities; with the achievement of strong globalisation, companies are stressed by fiercer competition, so competing in capabilities is one way of dealing with the globalization process<sup>10</sup> and is one way of rethinking industrial policies.

This follows from the belief that increasing investment in education is necessary to compete in a globalised world, where human capital and capabilities<sup>†</sup>, embedded in the workforce of each company, will increasingly be the key assets with which to compete.<sup>10</sup>

The increasing role of capabilities as a competitive tool for companies shows the connection between investments in higher education and companies' market results.

Another important contribution to the rethinking of industrial policy is the "matrix approach" proposed by Aiginger and Sieber.<sup>12</sup> This approach, proposed for Europe, provides specific incentives for a number of key macro-sectors. This could reduce the risks connected with random intervention in specific sectors and allow policy makers to take into account differences among EU countries. According to Aiginger and Sieber<sup>12</sup> an industrial policy for Europe should act considering the whole situation, focus on the environment and on innovation, and aim to generate systemic impacts (see<sup>3,6,12-16</sup>). The approach should influence the structure of the economy as a whole, not just the manufacturing sector. Industrial policy is a "series of 'high-road competitiveness strategies' based on advanced skills, innovation, supporting institutions, ecological ambition and activating social policy".<sup>12</sup>

Another particularly relevant dichotomy in the European case is the supposed opposition between pro-competitive measures and industrial policies. Because of the lack of significant employment results in the EU, obtained only by pro-competitive policies implementation, after the end of the financial crisis some scholars are finally considering competition and industrial policy as synergetic tools, no longer as opposing elements. Synergies appear to be particularly achievable in the most competitive sectors (see the interesting paper by Aghion et al.<sup>17</sup>).

An active industrial policy for the more competitive sectors can foster growth. This shows that especially in the long run there is no conflict of competition and industrial policy.<sup>17</sup> The weight and impact of public spending on GDP

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<sup>†</sup> The capabilities consist of a team of people who work together, within some framework of rules, routines and tacit understandings that have been put in place or have evolved over time.<sup>11</sup>

For example: food and life science, machine and systems industries, fashion and design industries, basic and intermediary industries.

have been reconsidered<sup>¶</sup>. Moreover, during the Covid-19 crisis, because of huge and relevant economic damages, the attitude to a new state intervention in the economy has completely changed and the lesson by Mazzucato,<sup>8</sup> arguing that the US economic success is a result of public and state investments in innovation and technology, rather than a result of the small state, has obtained an increasing attention. Now the debate about the definition of new industrial policies is widespread worldwide.

### 3 The Italian Pre-Covid-19 Manufacturing Sectors

To understand the impact of Covid -19 on the Italian manufacturing sectors, it is useful to analyze the manufacturing sectors in Italy before the arrival of the Covid-19 pandemic.

To give a broad picture of the manufacturing sectors we consider the analysis done by ISTAT according to the ISCO indicator in.<sup>19</sup>

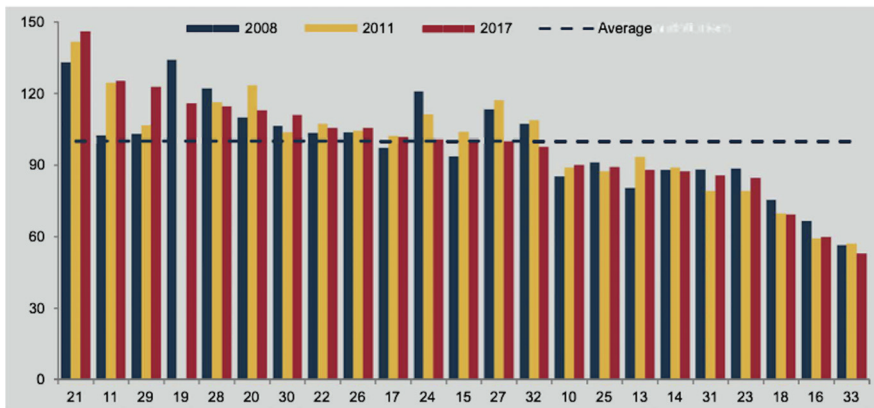
The ISCO indicator, assessed by ISTAT, is a “synthetic indicator of competitiveness that synthesizes different variables: cost competitiveness (i.e. the ratio between added value per employee and unit labour cost), gross profitability (i.e. the ratio between gross operating margin and added value), propensity to export (i.e. the percentage of exported turnover), variation in exports and incidence of the share of innovative firms.

The threshold value that identifies the most competitive sectors is set at 100 (see Figure 1); this helps to identify the sectors with a greater competitive advantage in adopting measures to strengthen the sectors that can create new jobs and potential growth. Moreover, according to Anderloni and Giorgetti,<sup>20</sup> it is important to cross-reference the information obtained by ISCO with the classification made by Eurostat-OCSE, according to the level of technology of each sector<sup>§</sup>.

The most competitive Italian sectors, classified according to the technological content, are: for the high technology group: Pharmaceuticals (C21) and Manufacture of computer, electronic and optical products (C26). As for the medium-high tech group we find the manufacture of motor vehicles, trailers and semi-trailers (C29), the manufacture of chemicals and chemical products (C20) and the manufacture of other transport equipment (C30).<sup>21</sup> In the medium-low tech group Italy has other very competitive sectors: the manufacture of coke

<sup>¶</sup> According to Florio,<sup>18</sup> a proper industrial policy at EU level should include huge public demand for infrastructure, high technology industries and services by revising the magnitude and the allocation of the EU budget, and learning the lesson of the impact of federal procurement on high-tech industries in USA.

<sup>§</sup> See.<sup>21</sup> The Eurostat-OECD classification divides the various manufacturing sectors into four subclasses based on the technological content: (i) high technology sectors; (ii) medium-high technology sectors; (iii) medium-low technology sectors; (iv) low technology sectors



**Figure 1:** ISCO Synthetic Index of competitiveness Years: 2008, 2011, 2017. Source: ISTAT.<sup>19</sup> Average = 100. Sectors: 10 = Food; 11 = Beverages; 13 = Textile; 14 = Clothing; 15 = Leather; 16 = Wood; 17 = Paper; 18 = Printing; 20 = Chemical; 21 = Pharmaceutical; 22 = Rubber and plastic; 23 = Non-metallic mineral; 24 = Metallurgy; 25 = Metal products; 26 = Electronics; 27 = Electrical equipments; 28 = Machinery; 29 = Automotive; 30 = Other means of transport; 31 = Furniture; 32 = Other manufacturing; 33 = Repair and maintenance of machinery and equipment.

and redefined petroleum products (C19), the manufacture of rubber and plastic products (C22) and the manufacture of basic metals (C24). Finally, in the group of low-tech sectors in Italy presents other highly competitive sectors: beverages (C11), the manufacture of paper and paper products (C17), the manufacture of leather and related products (C15).

By merging the classification made by ISTAT according to ISCO and the quoted Eurostat OECD classification we can see the technological content of more competitive sectors. This can help to give a picture of the competitive advantage of Italy and establish a framework for policies of groups of sectors.

#### 4 The Italian Manufacturing Sectors: One Year with the Covid-19 Crisis

The Covid-19 crisis has affected the whole Italian economy and in particular the industrial sector. One of the most important break-grounding analysis on the Covid-19 crisis has been conducted by ISTAT using a new integrated company-level database.

This database benefits from the integration of several administrative sources such as the ISTAT Permanent Census of Enterprises, the ISTAT Integrated System of Registers, and two *ad-hoc* surveys, carried on in May 2020 and in November 2020, about the resilience of Italian firms towards the Covid-19 crisis.<sup>22</sup>

From the observed data through a multivariate analysis ISTAT proposes the identification of different profiles for Italian enterprises according to their resilience to shocks, i.e. a “new horizontal” approach based on firms heterogeneity “to identify drivers (both endogenous and exogenous to firms’ choice) of the transition of Italian firms towards profiles characterized by structural higher performance and potential growth”<sup>2,23</sup> (see in particular the position papers presented at the Forum on line on “The New European Industrial Strategy after the great financial crisis and the Covid crisis oriented to new citizens needs and territory”<sup>24</sup>).

Our proposal is to combine the analysis presented in the previous section on data and indicators constructed by ISTAT with the new ISTAT’s horizontal approach.

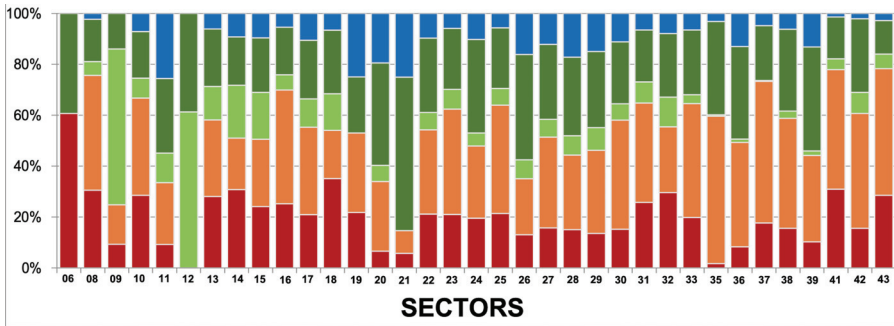
In particular, ISTAT<sup>22</sup> identifies five different firm profiles in different sectors, based on their reactions to the Covid-19 crisis:

1. *static firms in crisis*: firms with no response strategies, heavily affected by the health emergency;
2. *static resilient firms*: firms with no reaction but not suffering any strong damage;
3. *suffering proactive firms*: heavily affected firms but with reaction strategies;
4. *proactive firms in expansion*: slightly affected firms with no change along their previous expansion trajectory;
5. *advanced proactive*: slightly affected firms that increased their investments in 2020 compared to 2019.

Figure 2 shows the distribution of different company profiles in different sectors, according to the different level of resilience. The distribution is somewhat similar, with a few exceptions (manufacturing refers to sectors with the Nace classification ranging from sector 10 to sector 33). The Food sector (sector 10) presents a high percentage of “static firms in crisis (in red) together with Printing and reproduction of recorded media (sector 18) and Manufacture of furniture (sector 31), Other manufacturing (sector 32), Repair and installation of machinery and equipment (sector 33).

Sectors with the highest percentages of “advanced proactive firms” are beverages (sector 11), manufacture of coke and refined petroleum products (sector 19), manufacture of chemicals and chemical products (20), manufacture of basic pharmaceutical products and pharmaceutical preparations (sector 21), manufacture of computer, electronic and optical products (sector 26), manufacture of electric equipment (sector 27), manufacture of machinery and electric equipment (sector 28), manufacture of motor vehicles, trailers and semi-trailers (29).

Comparing this information with the previous paragraph results about the employment ISCO indicator, we may detect the most competitive sectors in



**Figure 2:** Percentage distribution of enterprises in the profiles by division of economic activity. Source: ISTAT.<sup>22</sup> Red: “Static firm in crisis”; Orange: “Resilient static”; Light green: “affected proactive”; Green: “proactive in expansion”; Blue: “advanced proactive”. Sectors:

06 = Extractive energy; 08 = Other Extractive; 09 = Support for extractive; 10 = Food; 11 = Beverages; 12 = Tobacco; 13 = Textile; 14 = Clothing; 15 = Leather; 16 = Wood; 17 = Paper; 18 = Printing; 19 = Petroleum; 20 = Chemical; 21 = Pharmaceutical; 22 = Rubber and plastic; 23 = Non-metallic mineral; 24 = Metallurgy; 25 = Metal products; 26 = Electronics; 27 = Electrical equipments; 28 = Machinery; 29 = Automotive; 30 = Other means of transport; 31 = Furniture; 32 = Other manufacturing; 33 = Repair and maintenance of machinery and equipment; 35 = Energy; 36 = Water; 37 = Sewage; 38 = Waste; 39 = Other waste; 41 = Construction; 42 = Civil engineering; 43 = Other construction.

Italy in the pre-Covid-19 situation. The highest percentage of advanced proactive firms is mainly distributed in the most competitive sectors according to the ISCO Indicator. Therefore, there is a strong correlation between the most competitive sectors in a pre-Covid-19 situation and the sectors showing the highest percentage of proactive firms during the Covid-19 crisis.

This result, therefore, gives support to the new kind of analysis carried out by ISTAT in which the focus for future policies is on new horizontal policies that should increase the transition of each company to the closest group with greater resilience: for example, the transition to group 2 from group 1 firms, to group 3 from group 2 firms, and so on.

## 5 Conclusions

The crisis has highlighted the strengths and weaknesses of the Italian manufacturing sector. After a comparison between the situation before the crisis and the picture of the manufacturing sectors during the Covid crisis, we may observe a strong correlation between the most competitive sectors before the crisis and the distribution of the more resilient and proactive companies among the most competitive sectors, during the crisis. So, the “new horizontal approach” proposed by ISTAT based on firms’ heterogeneity, irrespective of sectors, is not opposed to differentiated measures for different sets of sectors. An analysis based on the ISCO indicator, (also computed by ISTAT, see section 3) allows the

identification of the most competitive sectors. By cross-referencing this information with the classification (based on the technological content) computed by Eurostat and OECD, according to<sup>20</sup> it is possible to define different measures for the groups of the most competitive sectors. The measures will change according to the R&D intensity level: different policies for high-tech and low-tech industries. Our suggestion, therefore, is to join the “new horizontal industrial policy” suggested by ISTAT during the crisis, with different policies for macro-sectors, i.e. group of sectors with a higher level of competitiveness (with the ISCO indicator greater than the benchmark level equal to 100). Last but not least, every Italian policy makers’ decision must be planned taking into account the New Industrial Strategy for Europe,<sup>1</sup> pointing out the strategic sectors for Europe.

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