Paper for the ASSA-URPE conference, San Diego, 3-5 January 2020

Session " In Search of a New Social Model for the EU"

Can Europe Reshape Its Production Activities towards Convergence and Sustainability?

Mario Pianta*, Matteo Lucchese, Leopoldo Nascia****

* *Scuola Normale Superiore, Department of political and social sciences, Firenze*

** *Istat, Italian National Institute of Statistics*

Abstract

Europe's economies have experienced a long stagnation, increasing divergence between 'core' and 'periphery' and a lack of environmental sustainability. In spite of the urgency of such challenges, Europe is missing appropriate policy tools for reshaping its production systems. There is, however, a return of debate on industrial policies which could be used to that end. This article examines the main actions in the field of industrial, investment and innovation policy currently carried out at the European level, starting from the changes in Europe's manufacturing production since the 2008 crisis. Current actions by the EU in this field are assessed – including funding programmes, fiscal rules, competition policy, the Juncker Plan-InvestEU initiative and the activities of EIB. The present and potential space for such initiatives is examined in the light of the growing debate on the need for a return to a greater role for public policies in favouring sustainable growth and support investment. A proposal for policy actions in this direction is also advanced. Such moves would be highly relevant in renewing Europe's social model.

JEL codes

E6, L5, O4

Keywords

Industrial policy, Investment, European Union

1. Introduction[i]

In recent years the policy debate on the role of industrial policy has led to a rethinking of the importance of public initiatives in this field. Arguments have pointed out that the question is not whether industrial policy makes sense, but the way in which it can be carried out (Rodrik, 2008). This debate has been particularly important in new industrialised countries, where extensive public policies have been effective in combining public and private efforts to develop knowledge, acquire technologies and expand foreign markets (Cimoli, Dosi and Stiglitz, 2009).[ii]

Today, the European Union (EU) is far from having an effective industrial policy. Since the 1990s, European policy pushed back government involvement in the economy and reduced the role of public intervention. The early 1990s have seen an acceleration of European integration, with the Single Market, the European Monetary Union and the Maastricht Treaty that have progressively limited the policy space for industrial policy. This trajectory was deeply embedded in European institutions. A new consensus emerged against the State as a 'producer', limiting its role to that of market 'regulator'. 'Selective' policies, targeting particular fields, were to be abandoned as the market 'knew best' which industries and firms were more efficient. The result has been a general loss of policy influence on the direction of industrial change in Europe, dragging down EU competitiveness and leading European countries towards a serious divergence in terms of industrial production and investments. According to UNCTAD statistics, from 2007 to 2017, the fall in Europe's world share in manufacturing value added has amounted to 6.8 percentage points; over the same years, the United States and Japan lost 2.2 points: Europe's loss, in fact, accounted for much of the rise of China's production. Moreover, since the outbreak of crisis, industry patterns across Europe started to diverge significantly (Figure 1): few economies recovered quickly from the recession (mainly in Eastern Europe), some others only recently returned to pre-crisis level (Nordic countries),

while Southern Europe suffered a prolonged stagnation: Italy and Spain experienced dramatic losses of 25% of output in the aftermath of the crisis and had timid improvements in the last years; in France, at the beginning of 2019, industry production is still about 9 points below the 2008 level. For Europe as a whole this pattern has had wide-ranging consequences. Market mechanisms - and a defective institutional setting - operated in a way that has increased concentration in industrial production, leaving Europe with a manufacturing base that is more polarised between a 'centre' - a system centred in Germany and increasingly involving firms of a ring of surrounding countries (Central-East European economies) - and a 'periphery' - which includes Southern Italy, Spain, Greece and Portugal - whose possibility to survive as a European player in industrial production is critically put in question (Stollinger et. al, 2014, Celi et al., 2018). In addition, the changing balance of power in industrial production in Europe seems to be particularly affected by the technological intensity of output: according to Eurostat national account estimates, over ten years (2007-2016), Germany has increased its share of European value added in high-tech manufacturing by about 6 percentage points (from 36% to 42%), while Eastern economies have increased their shares only slightly; in the same period losses emerged in most other countries - France (-1.1 percentage points), Finland (-0.9), Italy (-0.8), Sweden (-0.6), Spain (-0.4), suggesting a deepening technological divide within Europe.

Insert Figure 1 here

Figure 1. Volume index of production in EU28 and in the main European countries from 2008 to 2019. Monthly data, Seasonally and calendar adjusted data, index 2008=100.
Source: Eurostat, Short-term business statistics.

Facing these challenges, in the last decade, the European Commission has shown a renewed interest in industrial policy, stressing the centrality of manufacturing to Europe's future (European Commission, 2012a, 2014a, 2017a).[iii] The slowing down of growth and investments, together with an increased awareness of the need to address the challenges posed by

globalization and the rapid advance in ICTs, have opened up a policy debate on the development of a new industrial policy at the European level and its role in promoting innovation and economic development. Yet, even the very mild tools of current European policies remain rooted in a poor institutional framework, with unclear objectives and limited resources.

Thus, in this article we investigate the main initiatives in the field of industrial and investment policy currently in place at the European level; then, we discuss the possibility of a novel approach, able to expand the policy space for an effective industrial policy. Our argument is that a 'transformative' public action in innovation and industrial change is a necessary condition for Europe's industrial and economic recovery.

In view of the debate on the new EU budget - the EU's Multiannual Financial Framework for 2021-2027 (MFF) (European Commission, 2018a) - there is a need to achieve a new political and social consensus on reshaping Europe's economies and on setting up the appropriate institutional context to attain innovative growth, addressing industrial decline and supporting a more even development of European countries and regions. As we shall see, the policy measures for industrial policy already exist in current European initiatives but they remain too narrow in scope. Industrial policy is still considered less of a priority than other EU policy objectives such as strict compliance to EU fiscal rules, cutbacks on state aid to industry and competition policy. This represents a major limitation for the development of a solid strategy, including the ability to confront the US and China in fast rising digital technologies. With regard to the US, Europe is showing a continuing inability to confront the monopolistic power at the global level of large US digital firms – Amazon, Apple, Facebook, Google, Microsoft – in fields such as technological and platform development, 5G technologies, control over data. With regard to China, the launch of the 'Made in China 2025' plan has showed its determination to foster innovation at the technological frontier, while it is already among the

top-five economies developing technologies in fastest growing ICT fields and it has overtaken the European Union in the share of R&D expenditure (2.1% of GDP in 2017, against Europe's 2%), although remaining below the United States (2.8) and Japan (3.2) (OECD, 2019).

Finally, the European Union has to address the direction innovation and industrial change are taking (Mazzucato, 2018a). In particular, the seriousness of the ecological crisis means that all policies – and most notably, the policies aiming to reshape Europe's production structures - must give priority to the ecological sustainability of economic activities. This challenge goes far beyond Europe 2020 goals on the environment and requires a more radical departure in the reshaping of economic activities over the next decades.

2. Current initiatives relevant for industrial policy at the European level

2.1 European funding programmes and the new budget proposal for 2021-2027

The Europe 2020 framework[iv] has included several policies and funding programmes that are relevant for innovation and industrial policy and that, however, have proved inadequate to face the challenges discussed above (Pianta et. al., 2016; Stehrer et. al, 2016). The conceptual basis of the main EU programmes - supporting research and innovation activity with *Horizon2020*[v], infrastructure provision with *Connecting Europe Facility*[vi], regional and cohesion policy, and SMEs[vii] - has remained rooted in a narrow mainstream view, limited to 'horizontal' measures that should not 'distort' the operation of markets: an approach hardly adequate for fast changing technologies and 'Schumpeterian' industries. Current actions are characterized by a fragmentation of initiatives and responsibilities and a lack of resources that make them unlikely to have a significant impact on the evolution of the European industry, while a supply-side focus has prevented an effective use of demand pull measures and targeted initiatives (Pianta et. al., 2016; Mazzucato 2017b).

A clear shortcoming of these programmes is a poor awareness of the need to ensure real economic convergence among European countries and regions. While they exclude funding for specific firms or economic activities, EU resources for Structural Funds and Cohesion Policy - conditioned to the co-financing by national governments and local authorities – are designed to 'compensate the losers' in market competition and address imbalances at the regional level.[viii] Their overall impact as tools for supporting economic convergence among EU regions has been, however, questionable. Cohesion funds have helped reduce to some extent disparities between 'old' EU regions and the regions of newly accessed countries of Central and Eastern Europe, but, since the start of the crisis, national and regional disparities have increased all over Europe - in particular between the Southern European regions and the rest of the EU (Eurostat, 2014).

Such difficulties in reducing disparities are often the result of a weak or declining industrial structure - including a poor sectoral specialization - and a lack of institutional capabilities that often characterize 'peripheral' regions - often worsened by a lack of connection between decision making at the EU, national and regional levels that prevents a consistent and effective policy to emerge. In many countries, Cohesion funds have either not been fully used, or have been characterised by waste, excessive bureaucratic burden and, sometimes, corruption. Ten years ago, a different model of governance and a reform of EU Cohesion Funds was proposed by the 2009 Barca Report (Barca, 2009) that argued for a "place-based" development strategy, a multilevel governance of funds, a focus on selected core priorities and an effort to favour better design, implementation and evaluation of projects, also imposing a stronger control at the national and EU level. Since the start of the crisis, however, the rethinking of Cohesion funds has made little progress. The need to reinforce - or even build - a solid regional innovation system and an efficient institutional set-up - which should take into account the nature of different (national and often foreign) players operating in a region - means that no one-size-

fits-all policy can address a process of convergence and reduction of territorial disparities among European regions (Iammarino et al., 2019, Bruszt and Vukov, 2017). In many cases, the need to favour the coordination among investments will necessarily require a stronger presence of national government (Rodrik, 1996).[ix]

Another weakness of EU initiatives is their lack of effectiveness in promoting investments in new technological areas in the context of the uneven diffusion of innovation capabilities in European countries and regions. Although several EU documents in the last ten years have identified key priorities in technological and industrial activities that are expected to have a pervasive impact across the economic system - arguing for a 'sector-specific dimension' of its policy – the EU has never mobilised additional resources to be invested in these fields. A number of exceptions to the 'horizontal' approach have emerged with the initiatives associated to Industry 4.0 - such as 'Digitizing European Industry' - and promoting the creation of 'Digital Innovation Hubs' (European Commission, 2016) on the model of Germany's Fraunhofer Institute or the US 'National Network for Manufacturing Innovation'. Criticisms to these actions have pointed out that, without a broader strategy, their benefits are likely to go to firms that are already technology leaders, failing to favour a broader upgrading of digital capabilities in the economic system and spread ICTs and innovation in backward regions.

The proposal for the new EU's Multiannual Financial Framework (MFF) for the period 2021-2027, planned by the EU Commission (European Commission, 2018a), maintains a 'conservative' approach. It is based on a long-term budget (1.11% of the EU27's gross national income) which is broadly comparable with the 2014-2020 MFF and that is therefore hardly adequate to sustain an effective industrial policy. The structure of the new budget should reduce the number of programmes and fragmented funding, streamlining the use of financial instruments, but it is not clear how this would increase the efficiency and effectiveness of current programs (Bachtler et al., 2019, Darvas and Wolff, 2018). No additional sources of

revenues are envisaged in order to increase the EU budget. Constrained by the different positions of the Member States and by the political uncertainty at the time of the 2019 European elections, the new MMF does not offer answers to the challenges of European growth and divergence, nor it is clear how negotiations and the voice of the EU Parliament could improve the proposal.

A more radical and questionable departure from EU policy concerns the inclusion of military research and production in the activities funded by EU's MFF.[x] The European Defence Research Programme will receive 500 million euros per year for weapons research; the Europen Defence Industrial Development Programme will obtain 1 billion euros per year for technological projects related to arms acquisitions while member states are expected to provide additional funding for such initiatives. This is likely to take limited financial resources away from the research and innovation needs of European economies, favouring activities that are aiming at military power as opposed to economic development and sustainability. This would bring Europe along the road of the US model of military-industrial complex, a highly inappropriate and ineffective model for Europe. In fact, in the late 1980s this policy alternative had already presented itself, at the time of the New Cold War and of the US 'Star Wars' programme, heralded as a sign of US superiority in advanced technologies. Europe responded with the civilian programmes Eureka and Esprit that strengthened the cooperation among corporations and governments in selected areas of civilian high technology and were at the root of Europe's research and innovation policy, from the Framework Programmes to Horizon Europe (Pianta 1988).

In July 2019, the new president of the EU Commission has made some proposals to increase the EU's financial potential and channel EU resources towards climate-friendly policies, including the launch of a 'Green New Deal', the setting up of a 'Sustainable Europe Investment Plan' and a 'Just Transition Fund' to support the regions that have been most affected by the

crisis; finally, she has envisaged the partial transformation of the European Investment Bank into a Climate Bank that should mobilise 1 trillion euros of investments over the next decade.[xi] Although it is not clear how these proposals will be implemented and whether they can find the support of EU Member States, they document an increasing awareness of these challenges and a step in the right direction. However, in order to move towards a green economy and reduce inequality, the EU would need a more coherent and comprehensive strategy. The current EU programme to promote energy efficiency and decarbonization and fostering the transition towards a circular economy, set out by the EU Commission in 2015 - the Energy Union Strategy (European Commission, 2015a) - appears too modest and inadequate to effectively move Europe beyond its old model of dependence on fossil fuels and non-renewable energy resources (Fiedler, 2015).[xii] In part, this is due to the opposition of many countries - especially Central and Eastern Europe countries - that resist any change in this direction. Turning Europe into a sustainable economy and society (reducing the use of non-renewable resources, developing renewable energy sources and energy efficiency, protecting ecological systems and landscapes, lowering CO2 and other greenhouse gas emissions, reducing waste and generalising recycling) asks for a combination of direct public action with the provision of environmental services and appropriate regulations for private activities, including environmental taxation, incentives, public procurement and organisation of new markets, that cannot be found in the current EU strategy. The only adoption of monetary incentives - market-based policies - may be not sufficient to foster industrial change: public direct investments, that in these sectors are complementary - and not substitute - for private investments, should drive cross-sectoral investments and imply a greater role for government (Lamperti et. al. 2018). As we shall see, a new EU-wide industrial policy could provide the framework for integrating the different policy tools needed for making Europe sustainable. With a pioneering role along the road to ecological transformation, Europe could also substantially increase its role at the global

level and support a transformation that concerns the whole economy and society.

2.2 From the Juncker Plan to the InvestEU programme

Investments in Europe failed to recover after the crisis and 2008 levels have been reached only ten years later (Figure 2). This pattern has been much worse than the performance of the US and other advanced countries; it has worsened the lack of demand, Europe's economic stagnation and industrial decline and has slowed down the process of accumulation and innovation of firms. Moreover, the same 'centre-periphery' divergence found for industrial production in Europe is becoming entrenched with a parallel polarisation in the evolution of total investments.

Insert Figure 2 here

Figure 2. Gross fixed capital formation, percentage of gross domestic product (GDP) in EU28 and selected countries from 2008 to 2019.
Quarterly data, Seasonally and calendar adjusted data, index 2008=100.
Source: Eurostat, National Accounts.

Facing these challenges, in late 2014 the EU Commission President has launched the 'Juncker Investment Plan', with the aim to support the recovery of public and private investment in Europe (European Commission, 2014b). In 2015 the European Fund for Strategic Investments (EFSI), the main tool of the Juncker Plan, was created and 'located' in the European Investment Bank (EIB) (European Union, 2015). EFSI was provided with rather small EU funds acting as source of leverage for large private financial resources, aiming at a total investment of 315 billion by 2018 - the target being expanded to 500 billion of total investment by 2020; original EU funds amounted to 21 billion: 8 billion coming from EU funds, 8 from the EU guarantee on the projects and additional 5 billion from EIB funds.

Five years later, the success of the EFSI programme showed how serious was Europe's

investment gap and the mismatch between public investment needs and idle private financial resources. The 'Independent Evaluation of the EFSI Regulation' (European Commission, 2018b) confirmed the relevance of such a programme: from mid-2015 to May 2018, EFSI financing for 57.5 billion has facilitated 287.4 billion of investment spending (91.2 per cent of the original target).[xiii] EFSI was particularly successful in involving private sector investment (64 per cent of total funds in 2017), including through an increased cooperation with the national 'promotional' banks; however, while operations were characterized by a higher level of risk than standard EIB funding, EFSI failed to meet expectations in the financing of more innovative start-ups and early stage growth SMEs. Designed as a 'demand driven instrument' with no goal of economic convergence among Member States, funds were concentrated in few major countries: at the end of 2017, three Member States, France, Italy and Spain, accounted for the 44.5 per cent of total investment.

Since its inception, several criticisms have been made to the Juncker Plan and EFSI. First, EU available resources consist of a repackaging of funds from previous EU programmes, relying on a huge leverage effect. Second, there is an imbalance between private and public interests; projects funded exclusively by public agencies are excluded from the plan; private investors are provided with the EU guarantee, mainly investing in projects under public authority that may generate greater income paid by users but that is unlikely they will have the potential to foster high risk activities and support start-up initiatives. Third, it envisages a collection of disparate projects without a clear framework and public coordination (De Masi et al. 2015). Finally, the plan does not set specific guidelines on the location of planned investment, with the possibility to enhance - rather than reduce - the divergence in economic performances within Europe.

Despite all criticisms, the creation of EFSI and the role assumed by the EIB in managing it - that includes the European Investment Fund (EIF) for investing in SMEs - opened up an

important policy space for a European industrial policy: for the first time there is a EU-level programme that can obtain public and private resources to be invested for improving countries' infrastructures and production systems and recognizes that markets cannot be considered capable of identifying appropriate investment opportunities. Both these aspects are important starting points for an evolution of industrial policy proposals.

Given the success of the EFSI in mobilizing investment across the EU, the EU Commission has defined a new investment plan, InvestEU, valid for the next long-term EU budget 2021-2027 (European Commission, 2018c), with the aim of reaching 650 billion of investment over seven years. Based on the same structure of the Juncker Plan, the Commission is proposing 15.2 billion for the core InvestEU Fund, adding 47.5 billion as EU guarantee; with a leverage of 13.5, these funds are expected to mobilize 650 billion. The InvestEU Fund will focus initially in four policy areas: small and medium-sized businesses (11,25 billion guarantee), research and innovation (11,25 billion), sustainable infrastructure (11,5 billion), and social investments and skills (4 billion) - building on the arguments developed by the recent report of the European National Promotional Banks on social infrastructure that pointed out the a gap of 170 billion per year in the fields of education, health and affordable housing (Franzen et al., 2018).[xiv]

Finally, it should be noted that, in most key initiatives and new proposals on Europe's industrial and investment policy, an expanded role is envisaged for the European Investment Bank. In fact, its role within the European Union have changed over time (Clifton etl al., 2017): from a bank devoted to foster regional development projects in poor areas in the 1950s and 1960s, to the promotion of energy independence in the 1970s, to a role in the liberalization and privatization policies in the 1980s and 1990s, through investment in cross-borders infrastructural projects. In the light of European industrial policy, the EIB is basically developing a wide range of competences and tools based on a partnership between public institutions and private actors that enable it to operate effectively in financial markets. It still

maintains some constraints that made it structurally inadequate to fund a wide range of investments, especially when there is a strong public nature of activities and a high uncertainty of technological and market developments (Pianta et al., 2016). A further evolution of EIB in this direction could give it a crucial role in the evolution of a new industrial policy, coherent with the mandate of reshaping economic activities in Europe.[xv] In fact, in the last decades, the action of Public Investment Banks has played an increasingly role in industrial development in many countries, providing long-term financing to firms and infrastructural projects (including intangible ones) in areas where private financing would have been reluctant to invest due to high uncertainty and costs (Mazzucato and Penna, 2014).[xvi]

2.3 The policy space for investments in European fiscal rules

European fiscal rules - from the Maastricht Treaty to the Stability and Growth Pact, to the Fiscal Compact - have been a corner stone of the neoliberal trajectory of European integration. Their rigidity has contributed to the fall in public expenditure and in public investment in particular. The European inability to change such rules even after the 2008 crisis has contributed to the long depression and stagnation that has hit European economies.

In recent years, very modest openings have emerged in this regard. The first one is the "investment clause", concerning the opportunity to exclude investments for co-financed public investments from the deficit/GDP ratio; although the European Parliament had supported the idea to push for a more ambitious plan and has revised the conditions for using the 'investment clause' to take better account of country-specific situations, its use was associated with restrictive conditions and its implementation for Member countries has been strongly limited (Truger, 2015). The second measure is the opportunity to obtain a temporary deviation from the path of consolidation of public deficit for countries involved in structural reforms. These two measures have provided some degree of 'flexibility' in managing public resources, but

they did not allow significant counter-cyclical expenditure, nor did they appear able to foster additional investments.

An important debate has emerged on the introduction of a 'golden rule' that excludes public investment from the restrictions on public deficits (Feigl and Truger, 2015). The argument is that public investment will mainly benefit future generations and is therefore reasonable to fund it not through tax receipts but through public debt. Moreover, current cuts in public investments can be detrimental to future economic growth, with negative effects on future wellbeing and fiscal budgets. A specific proposal for a 'golden rule' that excludes (some) public investment from deficit calculations has been developed by Truger (2015). The public financing of intangible investments (innovation, patents, software and education) could be exempted from fiscal restrictions; such a 'golden rule' could be introduced without a change in treaties.[xvii] In order to avoid the accumulation of excessive debt, an upper limit to the investment exempted from deficit restrictions could be established considering also the parallel evolution of GDP (Feigl and Truger, 2015). A parallel proposal has concerned the extension of the built-in flexibility of the current fiscal pact with a 'silver rule' for investments. Member countries could be allowed to spend more than is allotted for two years by the Fiscal Pact for debt-financed investments that are highly relevant for long-term growth and for slowing down climate change, when structural reforms are undertaken (Aiginger, 2014).

The adoption of a 'golden rule' would allow a significant reduction of austerity in public budgets and would tackle the issue of demand shortage. In the short term a significant extension of 'flexibility' in the calculation of allowed budget deficits for EU countries could represent the most immediate and easier possibility for counter-cyclical fiscal policy supporting investments and innovation. This is what several EU governments have demanded, opening up occasional confrontations with the European Commission. The problem is that austerity policy risks to be self-defeating as it reduces innovation and growth potential in the short-term, while

leading to little or no improvement in fiscal balances in the long-run (Dosi et al., 2016). In addition, too much relevance on fiscal consolidation appears to have left little room for other objectives and policies, worsening – as it happened - the real divergence among European countries and regions (Dosi et al., 2017).

In September 2019 the Ecofin meeting has provided an important opening in this regard, with an explicit discussion on the possibility of allowing investment for sustainability projects to be exempted from the constraints of the Stability Pact. This shows how topical is the policy discussion on a novel EU policy in these areas. In fact, a relaxation of fiscal rules could indeed be the most feasible way for giving a new priority to investment expenditure associated to industrial policy and sustainability. The extent of this policy change, however, depends on the balance of power within European institutions, among national governments and political forces.[xviii]

2.4 European competition and state aid rules

The prospect of a European industrial policy puts in question the current way European competition rules are enforced. A discussion is already developing - including an influential 'German-Franco Manifesto for a European Industrial Policy' - in the context of the US protectionist turn and the rising trade war between the US and China.[xix] Criticisms to current EU competition policies have pointed out that the prohibition of 'distortion of competition' measures could represent a serious obstacle to the consolidation of European 'champions', able to compete with large firms in the US and China: a major case in 2019 was the stop by the EU Commission to the merger of Alstom and Siemens advanced train businesses. In addition, the EU relative weaknesses in key digital technologies – such as ICT providers and platforms and e-commerce (OECD, 2019), exposes Europe to the market power of US and Chinese dominant firms, gradually imposing a novel approach to competition rules in high technology fields -

where externalities and network effects are stronger, moving beyond the usual reliance on the benefits of Europe's Single Market.

A key aspect of EU competition policy are the rules on the provision of funds and support by national public authorities to firms - that highlight the ongoing retreat of industrial policy over the last decades. The general principle of EU legislation is the prohibition of any kind of selective government support, providing any advantage to a firm over its competitors. The Treaty of Rome in 1957 stated the limitations and the exemptions to State aid (Artt. 81-89), which have been revised by the Lisbon Treaty in 2008 (Artt. 101-109). EU legislation offers the possibility to implement some specific derogations, as enlisted in the Art. 107 of the Lisbon Treaty, while some interventions are possible with the exemption of the *de minimis* measures. Indeed, the elimination of barriers to the operation of markets and the drastic reduction of State aids have been key elements of EU policies in the last two decades: they have built a complex system of regulations and rules that have weakened the effectiveness of national strategies.[xx] Such rules have often been enforced by the European Court of Justice and now appear as a cornerstone of European integration. The principle of the European Single Market is being extended to services with plans for the removal of existing barriers (European Commission, 2015b). Moreover, the waves of privatisation of public services have created new areas of competition, especially for companies providing publicly subsidized services and private market services, extending the range of application of State aid legislation.[xxi]

As a result of EU competition policy, between 1992 and 2013, state aid as a share of GDP has been progressively reduced in most countries (Figure 3). The fall of state aid has only slowed down after the economic crisis of 2008, but it has played no counter-cyclical role in supporting demand and investment (as documented in Stöllinger et al, 2013). Within this overall pattern, Italy and Spain have reduced State aid fastest. In Germany, the adjustments that followed unification explain much of the reduction compared to the 1990s.

Insert Figure 3 here

Figure 3. Non-crisis state aid as a percentage of GDP in European countries.
Source: State Aid Scoreboard 2019, DG Competition.

In Southern economies, the long-established role of public enterprises and the extensive support that the State had provided to relatively weak private industry was rapidly reduced under the pressure of new European rules, contributing to the fall in industrial activities. Conversely, Nordic countries maintained higher expenditure and, together with Germany, shifted most measures towards environmental protection and energy saving objectives, documenting an important direction for the evolution of public action; an evolution that has been limited in Southern economies that have continued to devote most of resources to regional development and measures to support SMEs.

There is, actually, a clear contradiction between the pursuit of short-term efficiency gains through competition policy and longer term dynamic efficiency associated to industrial policies, protecting and expanding economic activities (Greenwald and Stiglitz, 2014). Moreover, since the 2008 crisis, in a growing number of cases, the EU has allowed exceptions to competition and State Aid rules, including aid to failing banks with the goal to ensure financial stability, public actions for saving major industrial plants and policy preventing foreign takeovers in strategic sectors. A major weakness of current State aid legislation is the lack of consideration of favourable tax treatment of firms by EU member states: the global tax planning of transnational companies aiming to minimise tax payments represents a major 'distortion of competition' that is ignored by the European Commission. In fact, for some countries a favourable tax policy has been an effective tool for implementing a national industrial policy.[xxii] Moreover, the lack of a unified regime for ensuring tax compliance by dominant US - and Chinese - digital firms represents an additional weakness of current

competition policy, reducing public revenue and allowing extra-profits of foreign corporations that may contribute to a further worsening of Europe's technology gaps in these fields.

These contradictions in European policies have to be addressed with a more complex and consistent framework which has to allow - in specific cases and for a limited period of time - for the priority of the expansion of production activities over narrow competition rules. The possibility to introduce more flexibility into rules and enlarge the space for industrial policy goals in the fields of production activity, public procurement and trade - to protect Europe from foreign competition - will depend, again, on the balance of forces within European institutions, among national governments and political forces.

3. Reframing European actions for a novel industrial policy

The analysis of these four policy areas has highlighted the constraints coming from current European policy, the slow move towards new actions and the opportunities existing for a novel industrial policy. In this section, we integrate the most interesting elements of current policies discussed above with key ideas that could enlarge the existing industrial policy space in the European context. The range of policies so far described has documented the fragmentary and contradictory approach that has so far characterized European action and, at the same time, the need for an integrated policy agenda that may provide a consistent framework to the variety of initiatives supporting technological change, industrial modernization, digital capabilities, production convergence and the transition to a sustainable economy. This is the content that a new industrial policy may have and this is, in fact, a key tool for achieving the fundamental goals that Europe has chosen for its future.

Bringing together the above findings, a novel framework for a European industrial policy could be based on the following six principles, as an alternative to persisting in the old paradigm of fragmented and ineffective policy. While some of these principles and the necessary tools for

implementation may appear far from the dominant policy framework in Brussels and in most European capitals, we have to acknowledge how fast policy views have changed on this subject - and none would have anticipated developments such as the 'German-Franco Manifesto' or the call by the new Commission president for a 'Green New Deal'.

First, a new industrial policy has to be firmly set within the European Union and – if required – within the institutions of the Eurozone; 'variable geometry' initiatives in this field, with 'enhanced cooperation' agreements among selected countries, could open the way to broader actions. The European dimension is needed in order to coordinate industrial policy with macroeconomic, monetary, fiscal, trade, competition, regulatory and other EU-wide policies, providing full legitimation to public action at the European level for influencing what is being produced. At the same time, a broader policy space should be allowed to national actions. Close integration - and a clear division of responsibilities - has to be developed between the European dimension (providing policy coherence, overall priorities and funding), the national dimension (where public agencies have to operate and an implementation strategy has to be defined) and the local dimension (where specific public and private actors have to be involved in the complex tasks associated with the development of new economic activities) to allow the potential for new production capacities to emerge at the local level and take into account the different pattern of development.

Second, changes in some rules and interpretations are required in current EU regulations, in particular those on competition which prevent public action from 'distorting' the operation of markets: the design of industrial policy should be evaluated on the basis of how it affects learning and innovation across the society, especially when dynamic benefits outweigh static costs (Greenwald and Stiglitz, 2014). The key economic question is how public action can support dynamic efficiency through research, innovation, investment, education and acquisition of new competences and skills (Mazzucato, 2013; Pagano, 2014; McKelvey and

Saemundsson, 2018). The objective is to develop activities that markets are unable to carry out and expand: this should also include the possibility that targeted firms – with either private or public ownership – are supported in various ways, including public procurement, in order to restructure economic activities and reshape market competition (Crespi and Guarascio, 2018).[xxiii]

Third, the disconnection between targets described in the major policy documents of the European Union and the above funding programmes is a clear shortcoming of current (and future) EU policy. A specific budget line on industrial and investment programme should be specified and be significant in terms of the size of new resources that are mobilised. Considering the size and power of European institutions, an investment programme mobilising resources for about 2% of EU GDP appears to be feasible. This is the order of magnitude of most proposals that have emerged so far;[xxiv] such an amount would make an impact in terms of macroeconomic effects, production activities and technological changes and would be big enough to compensate for the lack of private investment. Funds for a Europe-wide industrial policy should also come from Europe-wide resources. For the group of Eurozone countries, financing through Economic and Monetary Union mechanisms could be considered. Eurobonds could be created to fund investment and industrial policy (Quadrio Curzio, 2017); the EIB or a new European Public Investment Bank could borrow funds directly from the European Central Bank (ECB); the ECB could directly provide industrial policy funds to the spending agencies concerned. An alternative may come from a deeper European fiscal reform, introducing an EU-wide tax on corporations, thus effectively eliminating fiscal competition between EU countries. At the same time, national governments should be provided with a much greater policy space, relaxing the constraints on public investments, especially in the mobilisation of national resources financing investments for sustainability and innovation, whose benefits extend to all of Europe, building on the report of the European Fiscal Board

and on the discussion started at the Helsinki Ecofin meeting of September 2019.[xxv]

Fourth, industrial policy has to move beyond the exclusive focus on 'horizontal' measures and identify activities characterized by high knowledge and learning processes, high productivity, high growth of demand, strong backward and forward linkages and integration in global value chains, moving the economy towards a sustainable and equitable trajectory.[xxvi] Mazzucato (2018a, 2018b) has proposed to adopt a 'mission-oriented' approach, based on 'systemic public policies that draw on frontier knowledge to attain specific goals' and a 'long-term commitment from public and private actors'. The European industrial policy should contribute to define a new model of growth orienting the evolution of the European economy. The specific activities that could be developed and supported include:

a) the protection of the environment, the limitation of climate change, sustainable transportation, energy efficiency and renewable energy sources; an increasing number of proposals for a 'Green New Deal' have now made this challenge a policy priority in Europe as well as in the US and China.[xxvii]

b) the expansion of Information and Communication Technologies (ICTs) with the production and dissemination of knowledge, an appropriate path towards a digital economy, Web based activities encouraging the practice of innovation as a social, cooperative and open process, reducing the social and employment risks related with digitalization;

c) health and welfare systems that are rooted in their nature as a public service outside the market, and characterized by a high innovation potential, high skills and important effects on welfare for the aging population of Europe.

All these fields are strongly connected, contributing to a higher quality of growth and sustainability; innovative technologies can favour new environmental solutions and improve health and welfare, which in turn may reduce pressures on the environment. They are also characterised by labour-intensive production processes and by a requirement of medium and

high skills, with the potential to provide 'good' jobs.

Fifth, a fundamental objective of a novel industrial policy should be the reduction of the divergence in economic activities among European countries and regions. A practical way of assuring this is to pre-determine criteria for regional and national distribution of resources. For instance, 75% of funds could go to activities located in "periphery" countries (Eastern and Southern Europe, plus Ireland). At least 50% of the funds should be devoted to the poorer regions of such countries and 25% could go to the poorer regions of the countries of the "centre". This approach would ensure that industrial policy has a positive impact in the reduction of disparities among regions within countries and Europe as a whole. It would help create support for a sustainable industrial policy also in Eastern European countries that are currently resisting some of these proposals, as they would be set to benefit significantly from the opportunities to increase growth and convergence.

Finally, Europe's industrial policy cannot be reduced to financially-based investment decisions. It has to be rooted and legitimised by a broad democratic process centred in the European Parliament, where key decisions on objectives, tools, guidelines and funding of industrial policy will have to be made. The political process and democratic participation have to take centre stage in the shaping of Europe's industrial policy. A key role has to be played by the European Parliament in debating and deliberating the objectives, tools and guidelines of industrial policy. The European institutions in this field should be accountable to the European Parliament and, in their board, representatives from business, research organisations, trade unions, environmental groups, civil society organisations should be included. No "revolving door" between institutions and private firms and banks should be allowed. European institutions should engage in consultation with EU political, economic and social actors for developing the proposed industrial policy. A major challenge for the effective functioning and legitimation of a European industrial policy is the development of a new governance system

that overcomes the problems of lack of efficiency, collusion between political and economic power and corruption that have emerged in the past.[xxviii]

Figure 4 summarises a proposal for a new framework for European institutions, funding and policy-making that could be associated with a new European industrial policy based on these principles.

Insert Figure 4 here

Figure 4. A reframing of industrial policy in the European Union
Source: Pianta (2014)

A system could be envisaged where the EU Council and the European Parliament agree on the objectives, tools, guidelines and funding of industrial policy, calling the EU Commission to implement appropriate policy tools and spending mechanisms. In each country, a specific institution – either a National Promotional Bank or a new institution – could assume the role of coordinating the implementation of industrial policies at the national level, interacting with the existing national innovation system, policy actors, the financial sector, etc. More specific agencies, consortia or enterprises, with flexible institutional arrangements but with a strong public orientation, could be created (or adapted, if already in place) for action at the local and regional level and for initiatives in particular fields. The institutions at the national and local level would take responsibility for the selection of the new public activities that are required, of the appropriate policy tools, of spending decisions and projects to be developed. They would be subject to the strict monitoring and evaluation procedures currently used for EU Structural Funds. National initiatives would be able to use assigned resources from European industrial policy and will be encouraged to combine them with additional national public funds and private capital that could be attracted to invest in key areas identified by industrial policy.

The industrial policy of the European Union should target relevant areas of new economic activities and provide funds for a variety of policy tools: support for existing public enterprises

and creation of new private firms in key areas and emerging sectors; new public-private partnerships; demand-side support and public procurement programmes for the goals of industrial policy; mission-oriented innovation programmes guiding R&D and technological change in investments characterised by high-uncertainty, high-risk, low short-term private returns and potentially high long-term public benefits. Such initiatives could set in motion a new trajectory of European development, orienting R&D and technological change, attracting private investment, reshaping business organizations and expanding skilled employment. A new European industrial policy could create and organize markets that the short-sighted, risk-averse decisions of private firms and banks are unable to develop. Public support could stimulate financial markets and private actors to invest in firms and non-profit organisations developing "desirable" market activities that could more easily repay the investment. A greater ability could be developed to obtain longer term returns on the basis of agreements with private firms exploiting the results of the public investment made in uncertain R&D and innovation activities, thus reducing the current private appropriation of the gains from public investment (Mazzucato, 2013). Existing institutions could be renewed and integrated in such a new industrial policy, including – at the EU level – Structural Funds and the European Investment Bank (EIB). However, their mode of operation should be adapted to the different requirements of the role here proposed. While, in the short term, adapting existing institutions is the most effective way to proceed, in the longer term there is a need for a dedicated institution – possibly a European Public Investment Bank – coherent with the mandate of reshaping economic activities in Europe. Moreover, attention should be paid to the different institutional capabilities in different countries, making sure that arrangements for decision making and funding may assure that policy implementation is transparent, accountable and effective.

In all cases, the rationale for financing industrial policy cannot be reduced to the financial logic of the "return on investment". The benefits for the EU as a whole in terms of environmental

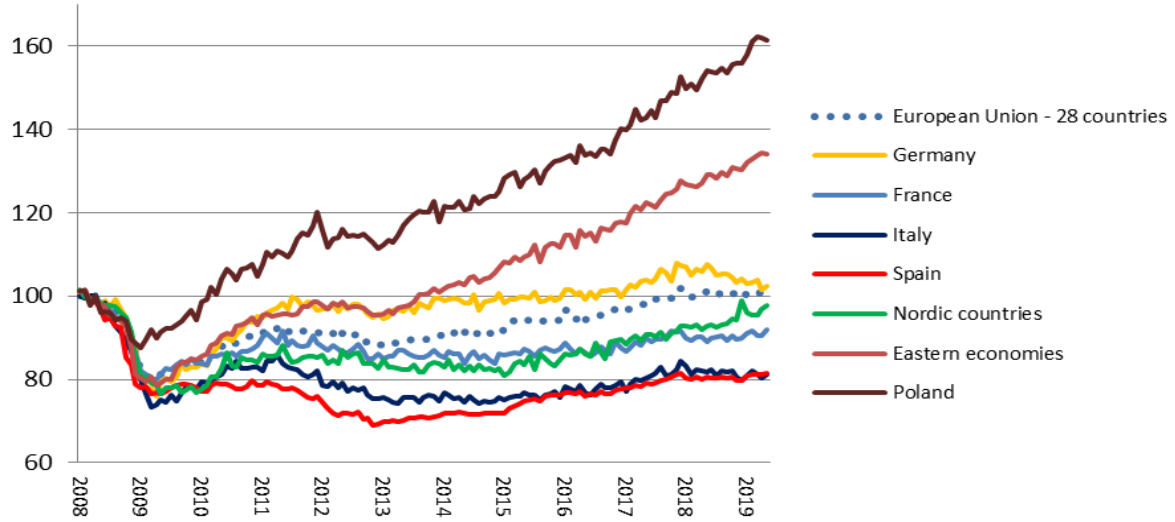
quality, social welfare, greater territorial cohesion, and more diffused growth at the European level have to be considered, and the costs have to be shared accordingly.

4. Conclusions

The EU is increasingly involved in actions typical of industrial policy, without having a comprehensive, consistent and accountable policy framework in this field. With the new European Commission appointed in 2019 a novel interest in policy changes in these fields and on a 'Green New Deal' has emerged. This opportunity should lead to a novel European industrial policy integrating objectives, policy programmes and greatly expanding the resources available. It could also combine the use of different, complementary tools and change the direction of European growth and integration.

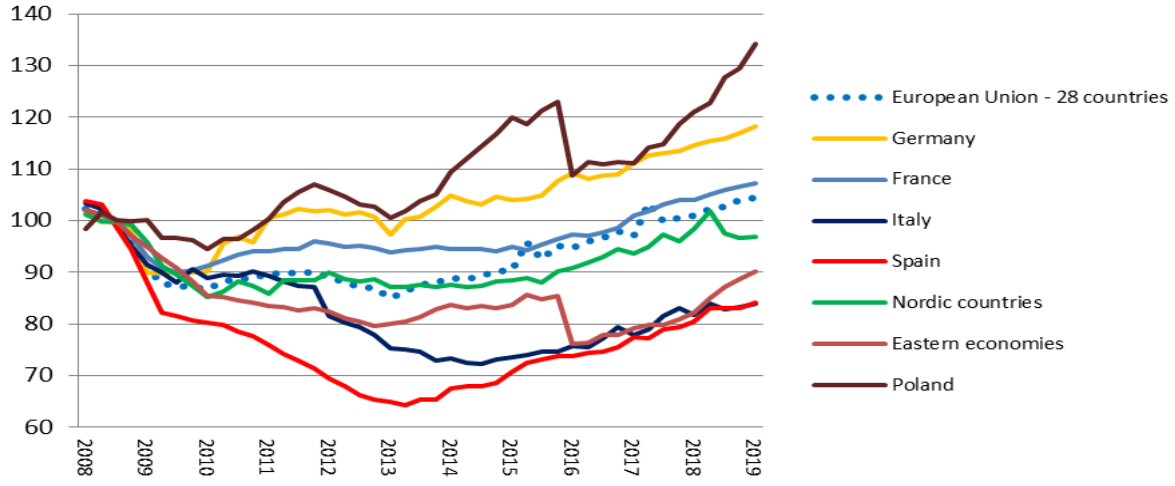
Europe is facing a growing discontent due to lack of growth and legitimacy, increasing inequalities, growing divergence among regions. Building on current policy openings, a broad debate on what and how we produce, how the benefits are distributed, how a sustainable future could be built should be a priority in Europe's agenda. It would also be a key opportunity for renewing EU policies, extending democratic processes, increasing social cohesion and the consensus for the European project.

Figure 1. Volume index of production in EU28 and in European countries from 2008 to 2019.
Monthly data, Seasonally and calendar adjusted data, index 2008=100.



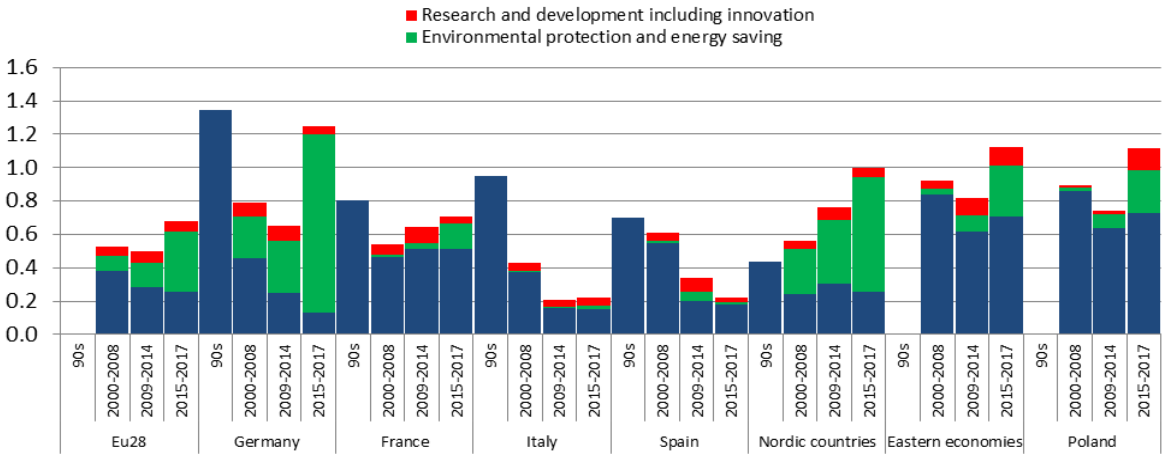
Source: Eurostat, Short-term business statistics.

Figure 2. Gross fixed capital formation, percentage of gross domestic product (GDP) in EU28 and selected countries from 2008 to 2019.
Quarterly data, Seasonally and calendar adjusted data, index 2008=100.



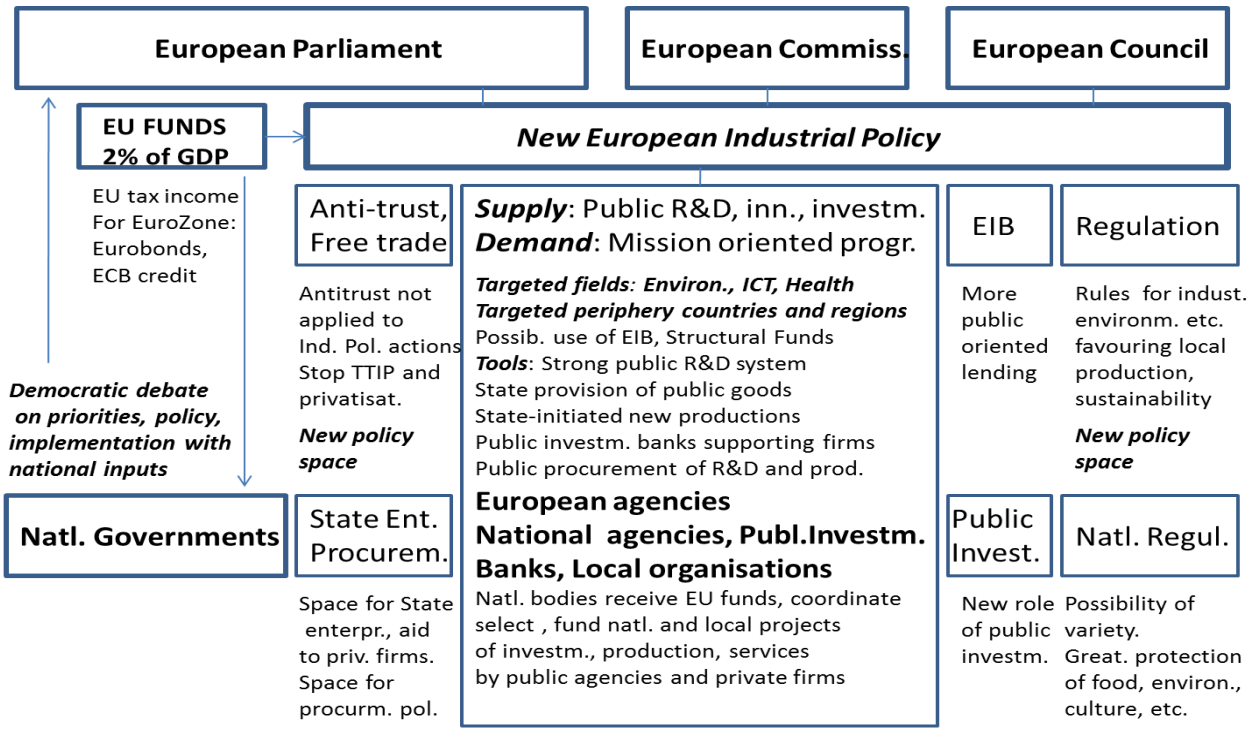
Source: Eurostat, National Accounts.

Figure 3. Non-crisis state aid as a percentage of GDP in European countries.



Source: State Aid Scoreboard 2019, DG Competition.

Figure 4. A reframing of industrial policy in the European Union



Source: Pianta (2014)

References

Aghion, P., Boulanger, J. and Cohen, E. (2011), 'Rethinking industrial policy', *Bruegel Policy Brief*, Issue 4.

Aiginger, K. (2014), 'A silver bullet for restarting growth in Europe', *EurActiv.com*.

Andreoni, A. (2016), 'Varieties of industrial policy: models, packages and transformation cycles', in A. Noman and J.E. Stiglitz (eds), *Efficiency, Finance, and Varieties of Industrial Policy*. Columbia University Press: New York.

Andreoni, A. and Chang, H.J. (2018), 'The political economy of industrial policy: Structural interdependencies, policy alignment and conflict management', *Structural Change and Economic Dynamics*, Available Online 29 October 2018, https://doi.org/10.1016/j.strueco.2018.10.007.

Bachtler, J., Mendez, C. and Wishlade, F. (2019) 'Reforming the MFF and Cohesion Policy 2021-27: pragmatic drift or paradigmatic shift?', European Policy Research Paper No. 107.

Barca, F. (2009), 'An agenda for a reformed cohesion policy', *Independent Report. prepared at the request of Danuta Hübner, Commissioner for Regional Policy*, April.

Battiston, S., Guerini, M., Napoletano, M., Stolbova, V. (2018) 'Financialization in EU and the effects on growth, inequality and financial stability'. ISIGROWTH WP no. 36, July.

Bianchi, P. and Labory, S. (2018), *Industrial Policy for the Manufacturing Revolution Perspectives on Digital Globalisation*, Edward Elgar: Cheltenham.

Bruszt, L. and Vukov, V. (2017), Making states for the single market: European integration and the reshaping of economic states in the Southern and Eastern peripheries of Europe, West European Politics, 40:4, 663-687.

Celi, G., Ginzburg, A., Guarascio, D. and Simonazzi, A (2018), *Crisis in the European Monetary Union: A Core-Periphery Perspective.* Routledge: London.

Chang, H.J. (1994), *The political economy of industrial policy*. Macmillan: Basingstoke.

Cimoli, M., Dosi, G. and Stiglitz, J. (eds) (2009) *Industrial policy and development.* Oxford University Press: Oxford.

Clifton, J., Diaz-Fuentes, D. and Gomez, A.L. (2017) *The European Investment Bank: Development, Integration, Investment?*, Journal of Common Market Studies, 56, 733-750.

Crespi, F. and Guarascio, D. (2018), 'The demand-pull effect of public procurement on innovation and industrial renewal', *Industrial and Corporate Change*, Published online November 12, https://doi.org/10.1093/icc/dty055.

Darvas, Z. and Wolff, G. B. (2018), *Rethinking the European Union's post-Brexit budget priorities*. Bruegel Policy Brief no. 01.

Dellheim, J. and Wolf, F.O. (2013), *Alternative European Economic Policy, Industrial Policy, and Socioecological Reconversion*. Available online at: http://www2.euromemorandum.eu/uploads/dellheim_wolf_alternative_european_economic_policy_industrial_policy_and_socio_ecological_reconversion.pdf.

De Masi F., Lopez, P. and Viegas, M. (2015), *Juncker-Voodoo: Why the "Investment Plan for Europe" will not revive the economy*. Available online at: http://www.fabio-de-masi.de/kontext/controllers/document.php/15.d/4/de7f7b.pdf.

DGB - German Trade Union Confederation (2012), *A Marshall Plan for Europe: Proposal by the DGB for an economic stimulus, investment and development programme for Europe*. Available online at: http://www.dgb.de/themen/++co++d92f2d46-5590-11e2-8327-00188b4dc422/#.

Dosi, G., Napoletano, M., Roventini, A. and Treibich, T. (2016) 'The Short- and Long-Run Damages of Fiscal Austerity: Keynes beyond Schumpeter', in J. Stiglitz and M. Guzman, (eds.), Contemporary Issues in Macroeconomics, Palgrave Macmillan UK.

Dosi, G., Guarascio, D., Mazzucato, M., Roventini, A. (2017) 'Investing out of the crisis', European Policy Brief for the Isigrowth Project. Available online at: http://www.isigrowth.eu/2017/04/07/investing-out-of-the-crisis-isigrowths-first-policy-brief/

Edler, J. and Fagerberg, J. (2017), Innovation policy: what, why, and how, *Oxford Review of Economic Policy*, 33, 1, 2–23.

Eichengreen, B. (2008), *The European Economy Since 1945: Co-ordinated Capitalism and Beyond*. Princeton University Press: Princeton.

ETUC – European Trade Union Confederation (2013), *A new path for Europe: ETUC plan for investment, sustainable growth and quality jobs*. Available online at: http://www.etuc.org/sites/www.etuc.org/files/EN-A-new-path-for-europe_3.pdf.

European Commission (2010), *Europe 2020. A strategy for smart, sustainable and inclusive growth*. COM (2010) 2020 final.

European Commission (2012a), *A Stronger European Industry for Growth and Economic Recovery*. COM(2012) 582 final.

European Commission (2012b), *Guidance Paper on state aid-compliant financing, restructuring and privatisation of State-owned enterprises*. swd(2012) 14 final.

European Commission (2014a), *For a European Industrial Renaissance*. COM (2014) 14 final.

European Commission (2014b), *Communication from the Commission to the European Parliament, the Council, the European Central Bank, the Economic and Social Committee, the Committee of the Regions and the European Investment Bank: An Investment Plan for Europe*. COM (2014) 903 final.

European Commission (2015a), *State of the Energy Union 2015*. COM(2015) 572 final.

European Commission (2015b), *Upgrading the Single Market: more opportunities for people and business*. COM(2015) 550 final.

European Commission (2015c), *Completing Europe's Economic and Monetary Union*. First published on December 6.

European Commission (2016), *Digitising European Industry Reaping the full benefits of a Digital Single Market*. COM(2016) 180 final.

European Commission (2017a), *Investing in a smart, innovative and sustainable Industry. A renewed EU Industrial Policy Strategy*. COM(2017) 479 final.

European Commission (2017b), *LAB-FAB-APP Investing in the European future we want*. Report of the independent High Level Group on maximising the impact of EU Research & Innovation Programmes.

European Commission (2018a), *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the Committee of the Regions: A Modern Budget for a Union that Protects, Empowers and Defends. The Multiannual Financial Framework for 2021–2027.* COM(2018) 321 final.

European Commission (2018b), *Independent Evaluation of the EFSI Regulation. Final Report*. Directorate-General for Economic and Financial Affairs.

European Commission (2018c), *Establishing the InvestEU Programme*. COM(2018) 439 final.

European Fiscal Board (2019), Assessment of EU fiscal rules, with a focus on the six and two-pack legislation, Brussels, August 2019.

European Parliament (2015), *EU industrial policy: Assessment of recent Developments and Recommendations for Future policies, on behalf of DG for Internal Policies*. Policy Department A: Economic and Scientific Policy, Study for the ITRE Committee.

European Union (2015), *Regulation (EU) 2015/1017 of the European Parliament and of the Council of 25 June 2015 on the European Fund for Strategic Investments, the European Investment Advisory Hub and the European Investment Project Portal and amending Regulations (EU) No 1291/2013 and (EU) No 1316/2013 — the European Fund for Strategic Investments*. Official Journal of the European Union, L. 169(58).

Eurostat (2014), *Investments for jobs and growth. Promoting development and good governance in EU regions and cities*. European Commission Report.

Feigl, G. and Truger, A. (2015), 'The Golden Rule of Public Investment: protecting fiscal leeway and public infrastructure in the EU', *ETUI Policy Brief*, 12.

Fiedler, M. (2015), '*The Energy Union: what is behind it? Rosa Luxembourg Stiftung Brussels Office'*, Policy Paper Rosa Luxembourg Stiftung.

Florio, M. (2014), 'The return of public enterprise', *CSIL Centre for Industrial Studies Working Papers, 1*.

Foray, D. (2018), Smart specialization strategies as a case of mission-oriented policy. A case study on the emergence of new policy practices, *Industrial and Corporate Change*, 27, 5, 817–832.

Franzen, L., del Bufalo, G. and Reviglio, E. (2018), *Report of the High-Level Task Force on Investing in Social Infrastructure in Europe*, European Economy Discussion Paper.

Gloser, J, Baker, P., Giustozzi, L., Hanzl-Weiss, D., Merkus, E., Molemaker, R.-J. and Stehrer, R. (2017), 'The European Construction Value Chain: Performance, Challenges and Role in the GVC', *WIIW Research Report*, 418.

The Greens, European Free Alliance in the European Parliament (2014), *A Green Investment Plan for Europe*. Available at: www.greens-efa.eu/a-green-investment-plan-for-europe-13152.html.

Greenwald, B. and Stiglitz, J. (2013), *Creating a learning society. A new approach to growth, Development and Social progress*. Columbia University Press: New York.

Hausmann, R. and Rodrik, D. (2003), 'Economic development as self-discovery', *Journal of Development Economics*, 72, 2, 603-633.

Iammarino, S, A Rodríguez-Poseand M Storper (2019), *Regional inequality in Europe: evidence, theory and policy implications*. Journal of Economic Geography, 19, 2, 273–298.

Intereconomics Forum (2015), 'Which Industrial Policy Does Europe Need?', Intereconomics, 50.

Jacobson, D. (ed.) (2018), '*Upsetting the Apple Cart. Tax-based Industrial Policy in Ireland and Europe*'. Glasnevin Publishing: Dublin.

Lamperti, F., Mazzucato, M., Roventini, A., Semieniuk, G. (2018) 'The Green Transition', European Policy Brief for the Isigrowth project. Available online at: http://www.isigrowth.eu/2018/06/25/the-green-transition/

Lucchese, M., Nascia, L., Pianta, M. (2016), 'Industrial policy and technology in Italy', *Journal of Industrial and Business Economics*, 43, 3, 233–260.

Mazzucato, M. (2013), *The entrepreneurial state.* Anthem Press: London.

Mazzucato, M. (2018a), *Mission-Oriented Research & Innovation in the European Union. A problem-solving approach to fuel innovation-led growth.* European Commission, CN: KI-02-18-079-EN-N.

Mazzucato, M. (2018b), 'Mission-oriented innovation policies: challenges and opportunities', *Industrial and Corporate Change*, 27, 5, 803-815.

Mazzucato, M. and Penna, C. (2014), 'Beyond market failures. The market creating and shaping roles of state investment banks', *SPRU Working paper*, 21.

McKelvey, M., Saemundsson, R.J. (2018), 'An evolutionary model of innovation policy: conceptualizing the growth of knowledge in innovation policy as an evolution of policy alternatives', *Industrial and Corporate Change*, 27, 5, 851-865.

Kettel, R. and Mazzuccato, M. (2018), 'Mission-oriented innovation policy and dynamic capabilities in the public sector, *Industrial and Corporate Change*, 27, 5, 787-801.

OECD (2019), Measuring the Digital Transformation: A Roadmap for the Future, OECD Publishing, Paris, https://doi.org/10.1787/9789264311992-en.

Pagano, U. (2014), The Crisis of Intellectual Monopoly Capitalism, *Cambridge Journal of Economics*, 38, 6, 1409-1431.

Pianta, M. (1988) 'High Technology Programmes: For the Military or for the Economy?', *Bullettin of Peace Proposals*, 19, 1, 53-80.

Pianta, M. (2014) 'An industrial policy for Europe', *Seoul Journal of Economics*, 27, 277-305.

Pianta, M., Lucchese, M. and Nascia, L. (2016), *What Is to Be Produced? The making of a new industrial policy in Europe*. Rosa Luxembourg Stiftung: Bruxelles.

Pianta, M., Lucchese, M., Nascia, L. (2019) 'Reshaping the economy. An industrial and investment policy for Europe', in Gabellini T., Gasperin S. and Moneta, A. (eds) (2019), *Economic Crisis and Economic Thought. Alternative Theoretical Perspectives on the Economic Crisis.* Routledge: London.

Quadrio Curzio, A. (2017), Eurobonds for EMU stability and structural growth, in Cardinale, I., Coffman, D., Scazzieri, R. (eds), *The political economy of the Eurozone*. Cambridge University Press: Cambridge.

Rodrik, D. (1996), 'Coordination failures and government policy: A model with applications to East Asia and Eastern Europe', *Journal of International Economics*, 40, 1–2, 1-22.

Rodrik, D. (2008), 'Normalizing industrial policy', *The International Bank for Reconstruction and Development/The World Bank*, Commission on Growth and Development, Working Paper No. 3.

Rodrik, D. (2015), 'Green industrial policy', *Oxford Review of Economic Policy*, 30, 3, 469-491.

Savona, M. (2018), 'Industrial Policy for a European Industrial Renaissance. A Few Reflections', *SPRU Working Paper Serie*, 7.

Stehrer, R., Leitner, S., Marcias, M., Mirza, D. and Stöllinger, R. (2016), 'The Future Development of EU Industry in a Global Context', *Wiiw Research Report*, 409.

Stiglitz, J. and Lin Yifu, J. (eds) (2013), *The industrial policy revolution I. The role of government beyond ideology.* Palgrave Macmillan: Basingstoke.

Stöllinger, R., Foster-McGregor, N., Holzner, M., Landesmann, M., Pöschl, J. and Stehrer, R. (2013), 'European Competitiveness Report. A 'Manufacturing imperative' in the EU - Europe's position in global manufacturing and the role of industrial policy, *Wiiw Research Report*.

Truger, A. (2015), 'Implementing the Golden Rule for Public Investment in Europe Safeguarding Public Investment and Supporting the Recovery', *Working Paper-Reihe Der ak Wien*.

Wigger, A. (2018) 'The new EU industrial policy: authoritarian structural adjustment and the case for alternatives', *Globalization*.

[i] Parts of this article draw from the report "What is to be produced? The making of a new industrial policy in Europe" prepared for the Rosa-Luxemburg–Stiftung Brussels Office in 2016 (Pianta et al., 2016). The policy proposals are expanded in Pianta et al. (2019). The text does not necessarily reflect the views of the affiliating institutions of the authors.

[ii] Restatements of the need for industrial policy have been provided by Chang (1994), Hausmann and Rodrik (2003), Rodrik (2008, 2015), Aghion et al. (2011), Greenwald and Stiglitz (2013). Mazzucato (2013) has emphasized the need for a broad role of 'transformative' public action on addressing innovation and industrial change. Studies on emerging countries are in Cimoli, Dosi and Stiglitz (2009) and in Stiglitz and Lin Yifu (2013). A critical assessment of the recent debate on industrial policy is in Andreoni (2016) and Andreoni and Chang (2018). On the raising role of innovation policy for economic performance see Edler and Fagerberg (2017). An overview of the economic and politic reasons for a return of industrial policy in Europe is in Pianta (2014) and Intereconomics Forum (2015). Europe's industrial growth and policies after the Second World War are described

in Eichengreen (2008). The case of Italy is addressed in Lucchese et al. (2016); the whole journal issue is devoted to a European discussion of lessons from Italy.

[iii] EU Commission has even established the "target" of returning industrial activities to 20% of GDP by 2020, against the present 16%.

iv Since 2010, European Union policies are framed in the Europe 2020 strategy (European Commission, 2010). The goals of developing high-knowledge economic activities, expanding industry, reaching environmental sustainability and achieving greater convergence are clearly stated in this strategy.

[v] Horizon 2020 is endowed with 77 billion euros for the period 2014-2020, including 6.6 billion for innovation in the Key enabling technologies (Micro and nanoelectronics, nanotechnology, industrial biotechnology, advanced materials, photonics and advanced manufacturing technologies). For a review of the results of the interim evaluation of Horizon 2020 and on the definition of new guiding principles for a post-2020 EU programme for research and innovation see European Commission, 2017b.

[vi] The Connecting Europe Facility programme is endowed with a budget of 13.2 billion (5.1 billion for energy and 1 billion for broadband).

[vii] Funds amount to 2 billion euros, divided into access to finance, internationalization, simplification measures and entrepreneurship. For a review of the various programmes and objectives set out in the EU multiannual financial framework 2014-2020, see European Parliament (2015).

[viii] Over the period 2014-2020, EU Structural Funds have been funded for 322 billion, including 100 billion for the ERDF, the *European Regional Development Funds* (with the manifold aim of funding R&D spending, the digital agenda, SMEs and low carbon transition); the Cohesion fund amounted to a less significant amount of 66.3 billion, mainly devoted to the financing of digital, energy and transport infrastructures.

[ix] In this regard, the approach developed by the EU 'Smart Specialisation' strategy represented an attempt to identify at the regional level initiatives with a critical mass and a potential local impact (Foray, 2018).

[x] https://eu2019.fi/en/backgrounders/security-and-defence-mff.

[xi] Opening Statement in the European Parliament Plenary Session by Ursula von der Leyen, Candidate for President of the European Commission, https://ec.europa.eu/commission/presscorner/detail/en/speech_19_4230

[xii] Key elements of a new and effective strategy could be the definition of a long-term planning of the energy transition, the availability of vast public resources to be invested, the use of technological developments for energy efficiency and renewable resources, as the experience of the German policy on renewable energy has shown. In 'systemic' activities, such as energy production and delivery, the ability to effectively integrate changes in several

different dimensions appears to be a crucial condition for success (Pianta et al., 2016). It should be noted that the EU Commission envisaged increasing funds for climate change from 25% of the current EU budget to the 30% in the new MFF.

[xiii] EFSI funds have only partially addressed the gap in infrastructure investments, which remain 20 per cent below pre-crisis level (European Commission, 2018b).

[xiv] The Report was produced by a Commission chaired by Romani Prodi and Christian Sautter; it documents investment needs and proposes new finance and tools based on public-private cooperation.

[xv] The analysis of the role of financial regulation and financialization of European Union – channelling more and more resources to the financial sector or increasing financial assets in non-financial firms – is outside the scope of this paper. However, the evidence suggests that this pattern did not favour the recovery of investment growth and industrial production. In particular, it could have acted as an impediment to firms' innovation, as the recourse to the stock market can favour short-term strategies (Battiston et al., 2018).

[xvi] The experiences that have attracted the greatest interest include the Brazilian National Development Bank (BNDES), the German Kreditanstalt für Wiederaufbau (KfW) and the development banks of China and Korea.

[xvii] The range of activities that could be exempted from deficit restrictions requires a broad agreement; they should include investments that are growth-enhancing: a stricter definition could consider infrastructural projects alone; a wider definition could include investments in education and training, R&D, human capital (Feigl and Truger, 2015).

[xviii] An influential document on the evolution of European integration ('Completing Europe's Economic and Monetary Union') has been published in 2015 as the "Five Presidents Report" (European Commission, 2015c). Industrial policy is not addressed as such, but several policies have major implications on the space and scope for such public intervention. The Report emphasises the need for 'flexible' economies capable to quickly adjust to 'shocks' and argues for a 'new convergence process'. The agenda includes completing the Banking Union, accelerating the Capital Markets Unions, moving to a Fiscal Union "that delivers fiscal sustainability and fiscal stabilisation", and finally towards a Political Union. A relevant theme is the goal of a 'new convergence' and the creation of national "Competitiveness authorities" with the task of influencing wage setting, under the assumption that (downward) wage flexibility is the main 'shock absorber' and a key tool for assuring the (cost) competitiveness of national economies. The lack of any attention to technological competitiveness, quality, innovation and other non-price factors is a worrying sign of the lack of understanding by European institutions of the real foundations of Europe's ability to compete.

[xix] 'A Franco-German Manifesto for a European industrial policy for the 21st Century' has been published by the German and the French governments in February 2019 (https://www.gouvernement.fr/en/a-franco-german-manifesto-for-a-european-industrial-policy-fit-for-the-21st-century). See also the 'National Industrial Strategy 2030 Strategic guidelines for a German and European industrial policy', Federal Ministry for Economic Affairs and Energy, published in February 2019 (https://www.bmwi.de/Redaktion/EN/Publikationen/Industry/national-industry-strategy-2030.html).

[xx] The inclusion of State Owned Enterprises into the notion of State aid introduced another obstacle to the implementation of national industrial policies (European Commission, 2012b). For a discussion on the current role of state owned enterprises in Europe see Florio (2014).

[xxi] It is worth to notice that, as recalled by Dellheim and Wolff (2013), article 130 of the Maastricht Treaty (Treaty on European Union, Official Journal C 191 , 29/07/1992 P. 0001 - 0110 Article 130 - Industry: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:11992M/TXT&from=EN) would actually allow European actions aimed at 'the adjustment of industry to structural changes' and 'better exploitation of the industrial potential of policies of innovation, research and technological development' (Dellheim and Wolff, 2013).

[xxii] See Jacobson (2018) for a detailed discussion of the case of Ireland and the implications for Europe.

[xxiii] The specific objectives and targeted activities of Europe's industrial policy could be temporarily exempted from the norms on competition, restrictions on State aid and EU Single Market rules for a period of five years.

[xxiv] This proposal is coherent with the alternative investment plans proposed by DGB (2012), ETUC (2013) and The Greens (2014).

[xxv] In its report, the European Fiscal Board argued that the EU has to eliminate the deficit rule and rely on a simpler medium-term debt ceiling and a ceiling on the net primary expenditure growth for a period of three years. It also favoured the 'Golden rule' for public investment, excluding from the calculation of the net primary expenditures national investment on co-financed EU projects (European Fiscal Board, 2019). After the Helsinki Ecofin meeting of September 13-14, 2019, Vice-President Valdis Dombrovskis argued that many Member States spoke in favour of simplifying Europe's fiscal rules and acknowledged that the Commission President-elect Ursula von der Leyen "announced in her political guidelines several policy actions for a European Green Deal" (https://europa.eu/rapid/press-release_SPEECH-19-5575_en.htm).

[xxvi] Insights on how new industrial policies could be developed have been provided by Bianchi and Labory (2018), Gloser et al. (2017), Savona (2018), Stehrer et al. (2016), Wigger (2018).

[xxvii] For Europe see the proposal described of The Greens (2014); for the US see the House Resolution 109 and S. Res. 59 'Recognizing the duty of the Federal Government to create a Green New Deal', supported by Democrats Alexandria Ocasio-Cortez and Ed Markey.

[xxviii] The need to reform the "dynamic capabilities" of the public sector with a new balance between directives and bottom-up interactions is stressed by Kettel and Mazzucato (2018).