

## **Industrial and innovation policies in the European Union**

**Matteo Lucchese and Mario Pianta**

University of Urbino  
mario.pianta@uniurb.it

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The crisis of 2008 – that started as a financial crisis in the US - has invested Europe with a prolonged recession and with waves of speculative attacks against the countries on the “periphery” of Europe – Greece, Portugal, Spain, Italy - with high public debt and low growth. For European economies this has meant high unemployment and a process of restructuring that has accelerated with the introduction in most countries – and in particular in those of the “periphery” – of austerity plans centred on the reduction of public expenditures, privatisations and the worsening of wages and working conditions. The aftermath of the crisis in Europe will depend on the forces at work in reshaping its economy.

The dominant players, so far, are large firms with international systems of production, operating in the pursuit of short term profits, market power, financial rents. Their responses to the crisis so far have included drastic downsizing and plant closing; reduction of R&D, innovation and investment; concentration of production in the areas of greater strength and in the sectors of core businesses; consolidation and acquisitions, leading to more oligopolistic market structures; a further wave of international relocation of production towards industrialising countries with cost advantages and a large potential for growth in domestic markets. Their decisions - in manufacturing and well as in services - affect the possibility of economic recovery, the viability of suppliers and local economies, the opportunities for employment, professional qualifications and wages.

Large firms' strategies do not question the traditional industrial model based on technologies and productions with heavy environmental impacts - in terms of use of energy and materials, pollution and consequences on climate change. Even the attention paid to the Copenhagen Conference on Climate Change is not leading to a reconsideration of the environmental quality of outputs and of production processes.

In a context where European macroeconomic policies resist pressures to stimulate new demand and redistribute income towards wages and the more vulnerable social groups, a rapid return to economic growth is unlikely, with depression-like effects on the real economy. If decisions are left to economic players alone, the aftermath of the crisis in Europe is likely to be marked a permanent loss of production and jobs, a reduced ability to develop new technologies and economic activities, a more internationalised and polarised industrial structure. Weak countries, regions, industries and firms are becoming weaker in terms of production, employment and incomes. Europe is becoming stuck in a traditional economic trajectory with old products, low innovation, slow demand, heavy environmental

impact and growing inequality, while other countries may move quickly into new activities with high innovation, fast growing markets and environmentally friendly productions.

There is no need, however, to accept such an outcome as inevitable. The twin challenges of the crisis and the need to build a "greener" economy represent an opportunity for orienting economic change towards more desirable and sustainable directions. The tools for achieving such change are simple, well known and effective - *industrial and innovation policies*. In Europe, they have shaped the highly successful expansion of industrial production from the 1950s to the 1970s. In new industrial countries they are combining public and private efforts to develop knowledge, acquire technologies, invest in new activities, expand foreign markets.

Industrial and innovation policies, however, fell out of fashion in Europe in the last two decades, when governments largely left to markets - that is, to large multinational firms - decisions on the evolution of the economy, with waves of liberalisations and privatisation of public enterprises. The argument of such neoliberal policies was that markets are able to operate efficiently both in the short term - in the allocation of given resources - and in the long term - when the challenge is to develop new activities, resources and markets. Policies lost their selectivity and were limited to automatic mechanisms, such as across-the-board tax incentives for R&D and acquisition of new machinery, or incentives to producers and consumers of major goods (such as cars). The result has been no change in the direction of industrial change.

### *The Europe 2020 strategy*

The challenge to address the economic crisis and build a dynamic path of growth for the European Union is at the core of the Europe 2020 strategy, approved in June 2010 by the European Council. It provides the new framework for economic policy in Europe, replacing the Lisbon Strategy that was supposed to inspire Europe's policies in the previous decade.

In the Lisbon Strategy the EU set the goal "to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion". A comprehensive economic strategy was expected to be developed "preparing the transition to a knowledge-based economy and society by better policies for the information society and research and development (R&D), as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market; modernising the European social model, investing in people and combating social exclusion; sustaining the healthy economic outlook and favourable growth prospects by applying an appropriate macro-economic policy mix". As pointed out by Lundvall and Lorenz (2011), after the mid-term evaluation of 2004-05 – and with right-wing governments replacing centre-left majorities in most European countries - the EU strategy was scaled down and focused on neoliberal policies for employment and economic growth.

The Europe 2020 strategy follows this trajectory identifying three priorities: 'smart growth': an economy based on knowledge and innovation; 'sustainable growth': a resource efficient, greener and more competitive economy; and 'inclusive growth' a high-employment economy with social and territorial cohesion. By 2020 the EU is expected to reach five "headlines targets" through a wide range of actions at the national and EU level, but the specific policy tools for achieving such goals appear limited. Eight "flagship" initiatives are associated to priority themes for re-launching Europe (European Commission, 2010a).

The specific targets identified by Europe 2020 follow the footsteps of the Lisbon Agenda. The population aged 20-64 employed in EU-27 should increase from 68.6% (in 2010) to 75% (in the Lisbon agenda, the target was 70%, partially achieved through the creation of non-standard contracts and temporary jobs). In addition, the strategy supports the reduction of gender and ethnic inequality in employment opportunities.

The target of devoting 3% of EU GDP to R&D expenditure is maintained. In 2008, R&D in EU-27 amounted to 2.1%, with a highly uneven distribution across countries and no sign of convergence. Innovation capacity should be supported by the formation of human capital: the share of early school leavers should be under 10% in 2020 (it was 14,4% in 2009 in EU-27) and at least 40% of the younger generation should have a tertiary degree (32,2% in 2009 in EU-27).

The strategy includes a set of indicators from the 20/20/20 climate/energy targets established in 2009 by the European Council. The first one is the 20% reduction of emissions by 2020 on the levels of 1990 (enlarged to 30% “if the conditions are right”); in 2009, the EU level has declined by 17%, largely due to the economic crisis that has deeply reduced output as well as emissions. The second target is the reduction of 20% in the use of renewable sources (in 2008, it was 10.3%); the third one is a rise of 20% in energy efficiency, with a move towards clean and efficient production systems – the potential to create millions of jobs.

A set of indicators is also established to monitor social inclusion in Europe: the aim is to take 20 million people out of the risk of poverty or exclusion. Now 114 million people live under the poverty line in the EU; more than half are in the Euro Area.

A reinforcement of the process of governance of the Union is presented as one of the important novelties of Europe 2020. The Lisbon agenda was a first attempt at coordinating policies for economic growth and social cohesion; it was defined alongside the creation of the European Monetary Union (that now includes 17 EU countries) and was supposed to support a broader convergence of EU economies well beyond the constraints set by the Maastricht Treaty and the Stability and Growth Pact in terms of financial, monetary and public finance requirements. In 2004, the mid-term review of the Lisbon strategy showed that voluntary cooperation of member states was not sufficient to share best practices. Now, alongside the Stability and Growth Pact, national programmes of growth are envisaged, which should monitor progress towards macroeconomic stability and competitiveness. Each country is supposed to provide annual targets for the goals set in the “headlines targets”. The idea is to create an integrated process of evaluation of macroeconomic stability for each country, with a more direct role of the European Commission for advising and warning national governments.

The crisis of 2011, however, has shown that Europe’s governance mechanisms are inadequate for the coordination of macroeconomic policies, ineffective in addressing economic difficulties, and may well be dangerous when they constrain national policies within unrealistic standards. Moreover, the lack of democratic processes and participation in decision making on economic policies in Europe has emerged as major weakness of the present structure of European integration. Europe 2020 shows no understanding of the nature of the current crisis – the role of finance, the lack of demand, the nature of unbalances. In terms of macroeconomic policies, Europe 2020 accepts the neoliberal view that economic growth can be supported by the operation of markets and that fiscal consolidation and debt reduction create appropriate conditions for long term growth. There is little attention paid to the importance of demand and the role played by EU and national policies in that respect, only an acknowledgement that fiscal consolidation carried out at the same time in most EU countries can limit the short term the possibilities of growth. In the consolidation of public finance Europe 2020 suggests more resources for “growth-enhancing items” such as education, R&D and innovation, at the expense of social expenditure, that is considered to be unsustainable.

Such view has become extremely explicit in the policy directives imposed in 2011 on weaker countries of the “periphery” of Europe - Greece, Portugal, Spain and Italy – as conditions for granting them financial help in facing their debt crisis. Cuts in government expenditures, public sector jobs and wages, liberalisation of labour markets and reduced workers’ protection have been key elements of the austerity plans imposed on these countries, with the result of deepening the recession and worsening unemployment.

## *Industrial and innovation policies in Europe 2020*

Moving from the macroeconomic context to the “supply side” of the economy, we consider the two “flagship” initiatives devoted by Europe 2020 to innovation and industrial policy - “Innovation Union” (European Commission, 2010b) and “An integrated industrial policy for the globalization era” (European Commission, 2010c). The aim is to provide the best conditions for business to innovate and grow, as well as to support the transformation of the manufacturing system towards a low-carbon economy.

As in the Lisbon agenda, industrial policy is based on a “horizontal” approach, where the main policy tools are the provision of infrastructures, the reduction of transaction costs across EU, a more appropriate regulatory framework favouring competition and access to finance. A significant role is ascribed to the ability of small and medium enterprises to promote growth and create employment. Key issues include the need to fight protectionism, increase the flows of goods, capital and people within and outside the EU, to exploit a more open single market for services, to benefit from globalization.

Since the 1980s, European policy action has abandoned the idea of targeted industrial policies and state support for particular sectors, choosing a market based approach. Selective industrial policies were considered ineffective due to the difficulty of fine-tuning actions and evaluating results (Lerner, 2009). However, industrial policies have played a key role in the rapid rise of emerging countries – in East Asia as well as in Latin America – and are important also in the efforts of the US administration for supporting green investments. As argued by Rodrik (2008), the question is not whether industrial policy makes sense, but the way in which industrial policy has to be done. Similar arguments have been made by Cimoli, Dosi and Stiglitz (2009). Recently, the same issue has been raised by the Bruegel Policy Brief in an article by Aghion, Boulanger and Cohen (2011), where the emphasis is placed on how the mechanisms for controlling and targeting policies can be reinforced.

In Europe 2020 limited sectoral interventions are possible - for example, on the space industry, and with some role for public demand and government procurement - but no comprehensive role of the EU and national governments is envisaged in driving the structural transformation of Europe’s economies. In a similar way, EU innovation policy focuses on the need to improve business conditions and the regulatory framework, to develop a good educational infrastructure and appropriate workforce skills, to ensure the commercialization of key technologies and a stronger intellectual property protection.

Such approaches to industrial and innovation policies share the neoliberal faith in the ability of market mechanisms to decide the amount and direction of investments in a way that is not just privately profitable, but is also desirable for the economy as a whole. In fact – as argued by the economic literature on technological change - R&D, innovation and investment in new economic activities are characterised by high uncertainty, blurred boundaries between the public and private aspects of knowledge and innovation, huge externalities, the frequent inability to appropriate the benefits of innovation; success in these efforts always require important complementarities between private and public activities, between technology push and demand pull effects, and an effective operation of the national and sectoral systems of innovation.

## *An alternative agenda for innovation and industrial change*

When we consider this complexity of innovation processes - as argued in Vaona and Pianta (2009) – actions by the EU and national governments could be oriented in a different direction and recognize a major need for public policy in this field. Innovation policy should be creative and selective and should consider the differences across technologies and industries. Key elements for successful policies often include encouraging public access to knowledge, network externalities and the cooperation among actors, favouring the diffusion of knowledge as a public good. The resources devoted to research and

universities need to be enlarged with public funds, supporting the possibilities of cooperation among universities. Privatization of knowledge and the strengthening of intellectual property rights should be reversed, favouring the diffusion of innovation across Europe - just the opposite of current approaches that believe that stronger IPRs can offer more incentives to innovators. Finally, the social dimension of innovation should receive more attention, with actions that may “empower the users” in shaping new products and services at the frontier of technologies; this may lead to a better match between innovations and social needs, between technology developments and potential demand; between public and private decisions.

In short, key decisions on the future of innovation and the industrial structure in Europe have to be brought back into the public domain. A new generation of policies can overcome the limitations and failures of past experiences - such as collusive practices between political and economic power, heavy bureaucracy, lack of accountability and entrepreneurship. They have to be creative and selective, with mechanisms of decision making on the priorities for using public resources that are more democratic, inclusive of different social interests, open to civil society and trade union voices. They have to introduce new institutions and economic agents, new rules and business practices that may ensure an effective and efficient implementation of such policies.

The general principles for industrial and innovation policies are simple enough. They should favour the evolution of knowledge, technologies and economic activities towards directions that improve economic performances, social conditions - addressing needs and increasing equity - and environmental sustainability. They should favour activities and industries characterised by learning processes, rapid technological change, scale and scope economies and a strong growth of demand and productivity. An obvious list would include activities centred on knowledge and ICTs, the environment and energy, health and welfare.

Industrial and innovation policies can rely on different policy tools. On the supply side, public funds could support selected R&D, innovation and investment efforts. Public and private institutions could support business start-ups in key fields with credits and venture capital. A new role could be played by public and community enterprises in fields - such as knowledge-based activities, environmental and local services - where public goods and public procurement are prevalent.

On the demand side, far-sighted public procurement, the organisation and regulation of markets with high growth potential, support and incentives for early users on new technologies could help “pull” innovation and investments, shifting production and consumption towards more sustainable patterns. Finally, policies have to build closer relationships among all actors of national systems - firms, financial institutions, universities and policy makers - helping to coordinate decisions of public and private actors.

The policy framework should reconstruct a virtuous relationship between the generation and use of knowledge, research, innovation, investment and production, that is centred on a view of knowledge as a (largely) public good. Innovation rely on open, shared knowledge, that has to be supported by basic research, largely carried out in universities and public R&D centres, funded by public money; as publicly accessible knowledge bases expand, the protection of private intellectual property rights should be relaxed. Investment in new fields is marked by uncertainty and has to rely on public intervention for orienting the evolution of standards, markets and procurement, access to finance, coordination among competitive producers and, when necessary, with public enterprises carrying out production and providing services.

Policies should not be confined to the supply side alone. They could “empower the users”, letting them define specific applications of existing technologies that may lead to the development of new goods and services with large markets. Public demand could direct research and investment decisions in fields such as environmentally friendly productions, renewable energy, information technology,

communications, the health sector and social services. Clear priorities for these policies include the following activities.

*Knowledge and ICTs.* Current change is dominated by the diffusion throughout the economy of the paradigm based on information and communication technologies; its potential for wider applications, higher productivity and lower prices, new goods and social benefits should be supported. However, ICTs and web-based activities are reshaping the boundaries between the economic and social spheres, as the success of open source software, copy left, Wikipedia, peer-to-peer clearly show. Policies should encourage the practice of innovation as a social, cooperative and open process, easing the rules on the access and sharing of knowledge, rather than enforcing and restricting the intellectual property rules designed for a previous technological era.

*Environment and energy.* The Copenhagen Conference on Climate Change has shown how important is to re-orient the current industrial model towards environmental sustainability. The technological paradigm of the future may be based on "green" products, processes and social organisations, that use much less energy, resources and land, have a much lighter effect on climate and eco-systems, move to renewable energy sources, organise transport systems beyond the dominance of cars, rely on the repair and maintenance of existing goods and infrastructures, protect nature and the Earth. Such a perspective raises enormous opportunities for research, innovation and new economic and social activities; a new set of coherent policies should address these complex, long-term challenges.

So far European "green" policies have been inadequate, with a modest impact on the industrial system. The variety of EU and national initiatives in place and the strategy of Europe 2020 are not integrated into a coherent policy that may support a move towards a sustainable economy. Limited attention to these issues comes from EU structural funds and from the Research Framework Programme, while the European Emission Trading System for managing the distribution of tradable emissions across Europe appears too weak to be a driver of effective change in the environmental effects of economic activities (Rondinella, 2010).

*Health and welfare.* Europe is an aging continent with the best health system in the world, rooted in its nature of a public service outside the market. Advances in care systems, instrumentation, biotechnologies, genetics and drug research have to be supported and regulated considering their ethical and social consequences (as in the cases of GMOs, cloning, access to drugs in developing countries, etc.). Social innovation may spread in welfare services with a greater role of citizens, users and non-profit organisations, renewed public provision and new forms of self-organisation of communities.

All these fields are characterised by labour intensive production processes and by a requirement of medium and high skills; innovation in such activities may lead to new products and services that expand output and "good" jobs; new processes may increase efficiency by reducing materials and energy use more than labour. The result would be a wave of technological and industrial change that is "employment-friendly" and capable to reduce current unemployment.

Governments and the EU should devote to these policies much larger resources - probably twice, on average, as much as is currently done; deficit spending for these purposes should be allowed, bypassing the constraints of the European Monetary Union Treaties, because such efforts provide a new foundation for European economic strength.

Part of the resources can be provided by a national tax system that should be adjusted to reflect the new priorities for policy, shifting the tax burden from labour to activities with high use of non renewable resources (land, energy, materials, etc.), including a carbon tax and higher VAT rates on selected goods

that would provide clear incentives to shift to sustainable technologies and products. Personal taxation should include more progressive tax rates on higher incomes and a wealth tax on the richest social groups.

Part of the funds for industrial and innovation policies could be raised through targeted public debt. At the EU level, proposals have been made for financing EU projects through the emission of Eurobonds, guaranteed by the EU budget; a role of the European Central Bank in such efforts should also be considered.

At the national level, governments could set up Agencies funded by public bonds with the mission to provide venture capital, minority stakes, investment credits and R&D support to new activities in the above fields. More funds may come also from the banking sector that could be invited to participate to such new financing programmes. Once these new economic activities will start growing in European countries, private equity and lending may flow rapidly, and the public role could then be reduced.

These new approaches to industrial and innovation policies could play a key role for pulling Europe out of the current crisis. The politics behind such new departure has to be based on a wide social consensus over the distribution of the productivity and welfare gains deriving from new technologies and economic activities. In the past decades, firms have largely benefitted from higher profits and financial rents. Now, workers and citizens should obtain the benefits of new secure jobs, higher real wages, greater economic and social rights and a better quality of work and life.

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