

The European Union and ‘Varieties of Capitalism’

The role of Industrial policy

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[Summary]

This paper casts light on the industrial specializations of the EU, which is examined from the perspective of competing “Models of Capitalism” (neo-American and the Rhine). These two models entered vigorously into debate immediately following the fall of the Berlin Wall, and the crux of the discussion often revolved around the question of finance (or rather, on the modalities for financing enterprises: Bank versus Stock Exchange). The story does not end here, since the literature on the subject – also referred to as “Varieties of Capitalism” (VoC) – has greatly widened the range of institutions of political economy that each “variety” is based upon. The roadmap that each nation gives to these institutions will determine both the relative strength of manufacturing and industrial specialization (USA vs. Germany is the textbook example). At the beginning, the chapter sketches a “model/variety of capitalism” which encompasses institutions that both support and protect the citizenry and guarantees the efficient functioning of markets. What follows, on one hand, is an analysis of VoC within the European Union, and on the other, an analysis of the institutions and policies that shape the new European industrial policy. The bridge between them is represented by knowledge investments (R&D, human capital, IT). I advocate for a common governance for this kind of investment carried out at the supra-national level. This is the path for a reconciliation of the different models or varieties of capitalism that already exist throughout the European Union.

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“No matter how accurate the idea of a gap may or may not be, it has a political effect that should not be underestimated: it is on this basis that new forces in European society are pushing for the creation of a federal authority capable of planning at the continental level the development of industrial production and scientific research, of creating a vast market of public procurements contracts in critical sectors, and of soliciting and controlling the growth of large firms on an international scale.

The same European industrial leaders, availing themselves of the pessimistic image of Europe's future that has been given credit through the widespread story of the gap, is today ready for an evolution of the original concept of the common market as a customs union toward a political entity that can delineate supranational policy over European economies. Analyses by scientific means of the role played by the American federal government in the financing of industrial research and in the creation of a market for industrial products, have led to a more serious examination of the negative consequences of the existence of a plurality of procurement policies by national administrations, policies that give rise to an inefficient profusion of research efforts in individual nations, and that slow the growth of market sizes.”

[N. Andreatta 1968]¹

“These factors [the US and Japanese leadership] lead to the possibility of a concerted European industrial policy that will help overcome industry strategies along national lines, reduces barriers between national champions, and develop a large home European market for industrial applications.”

[A. Jacquemin 1987]²

“I think there is the case for some form of common governance over structural reforms. This is because the outcome of structural reforms – a continuously high level of productivity and competitiveness – is not merely in a country's own interest. It is in the interest of the Union as a whole [...] Markets can be opened through EU legislation. But it is only through structural reforms that firms and individuals can be enabled to take full advantage of that openness.”

[M. Draghi 2014]³

1. Introduction

The edited volume of Peter Hall and David Soskice (2001) shed new light on the literature on the “varieties of capitalism” (henceforth VoC). Bob Hancké (2009, 2) updated the debate several years later, noting that:

The VoC approach starts – axiomatically – with the firm at the centre of the analysis. In contrast to standard economic analyses, however, it treat the firm as a relational network: the firm, operating in its markets and other aspects of the relevant environment, is institutionally embedded. These institutional frameworks, in turn, are mutually attuned in systematic ways, leading to institutional complementarities, and conferring comparative and competitive advantages to countries. These are reinforced through specialization in rapidly integrating international markets. What emerges, in ideal-typical form, are two (or more, but at least two) institutional equilibria: one where coordination takes the form of contractual relations (liberal market economies – LMEs) and another which relies on strategic forms of coordination (coordinated market economies or CMEs).

¹ Our translation.

² From Jacquemin [1987, 167-212], chapter 6, “Industrial Policy”.

³ Memorial lecture in honour of Tommaso Padoa-Schioppa, London, 9 July.

The comparison between the two forms of VoC is highly pertinent in the European Union (EU), where both forms are simultaneously found. While the economy of the United States can be explained with one model (LMEs), there is no single model that works for all the countries of the Union. If this fact is relevant for *macroeconomic* policies (think of the debate on the role of the ECB for the countries participating in the euro area), it plays a crucial role on the *microeconomic* policies given the starting point—already mentioned—of the VoC approach –i.e., the firm.

Hancké (2009, 3-5) goes on to write:

Firms find themselves permanently exposed to markets – products markets (...); labour markets (...); and capital markets (...) – and these markets take very different shapes in different capitalist economies.

The next step will lead us to the key argument identified by Hall and Soskice (2001), who stressed the fact that “the presence of several ‘correctly calibrated’ institutions that govern different markets determines the efficiency of the overall institutional framework”. It is, in other words, an argument of “institutional complementarities” between the three different markets where they reinforce each other. The conclusion is that (Hancké 2009):

VoC argues that these institutional complementarities lead to different kinds of firm behaviour and investment pattern (...) CMEs and LMEs are therefore likely to be located at different points in international production chains: high value-added, high skill-dependent, high-productivity activities will tend to remain in the core CMEs, while lower-value-added, lower-skill, price-oriented production will relocate to lower-cost jurisdictions.

Looking at the debate from a European perspective—where Germany’s status as the major manufacturing EU country looms large—we must ask whether the former assumptions are correct. We face the issue that, for the sake of simplicity, we should summarize as follows: what model of industrial specialization applies today in each European country?

It is on this question that we will concentrate in this work, not forgetting that in the ample literature on "models of capitalism" and on "institutional complementarities" other interesting strands exist. Think, for example, of what - starting from the famous work by Roe [1994] – was recently developed by Fabio Landini and Ugo Pagano [2018]; that is, an analysis on “how corporate governance systems may change under different historical models of capitalism”.

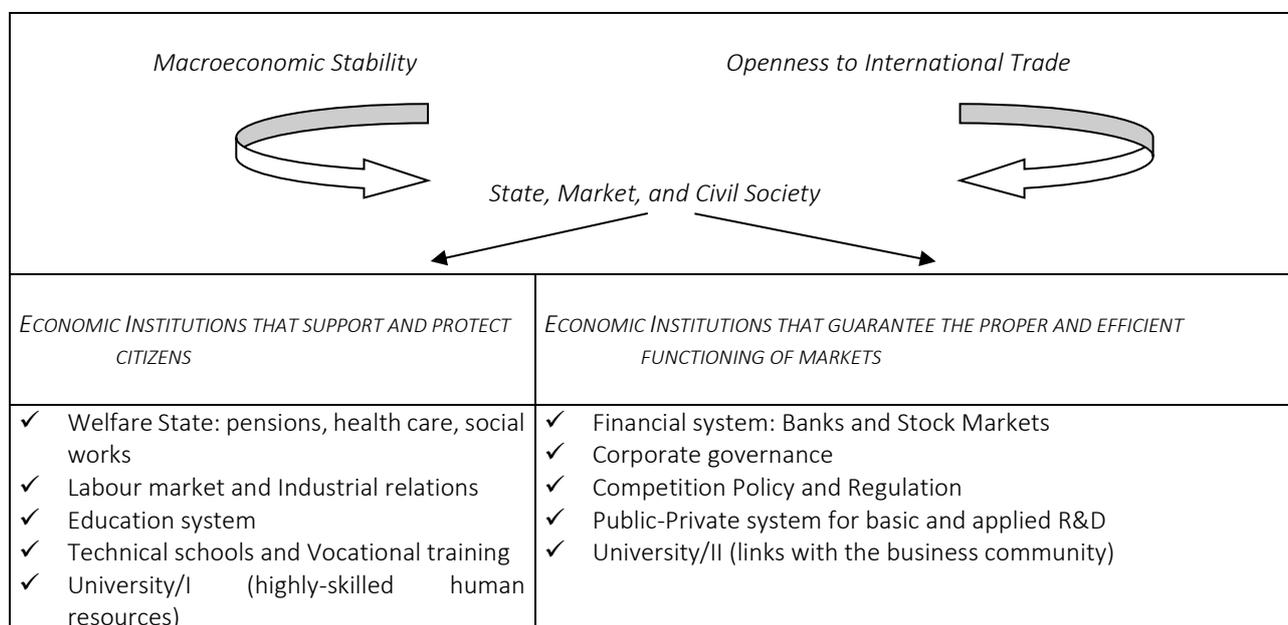
The paper is organized as follows. In section 2 we will illustrate our own overview of the ‘models of capitalism’, trying to highlight for each model the economic institutions it relies on. Focusing our attention in particular on the EU (the US for better or for worse represent a homogeneous capitalism), in section 3 we will proceed posing this question: is there any convergence among the great models that have emerged after the fall of the Berlin Wall, or are the diverging elements still prevailing? While the distinction among the models has often been centered on the financial system (Bank vs. Stock exchange) and/or the welfare systems, it is in the industrial specialization that we find another difference. In the two following sections (section 4 and section 5) we will try to shed light on the different specializations in a medium-to-long term view (from the Eighties up to now). Section 6 draws some threads together with a reflection on the possibility – in the age of manufacturing renaissance – to converge towards a real ‘European’ model of capitalism, in which the new industrial policy aimed at increasing ‘knowledge investments’ (R&D, human capital, IT) will play the role it deserves. It may be a possibility, after years in which finance and *short-termism* dominated the economic scene. Section 7 briefly concludes highlighting the necessity of a common

governance—at the EU level—for the structural reforms, a wide area where the knowledge investments certainly fall.

2. A “model” or “variety” of capitalism: a tentative definition

What can we mean by a “model or variety of capitalism”? To our mind, this definition signifies the entire spectrum of institutions that shaped the economic life in our liberal democracies: institutions which on one side support and protect citizens, and which on the other are in place so as to guarantee the proper and efficient functioning of markets. The following figure offers a schematic view.

Figure 1 - A “Model/Variety of Capitalism”: a schematic view



Source: Author’s elaboration

First of all, it should be mentioned that in a typical “market” economy the production and distribution of wealth must be guided by both of the two great mechanisms of social regulation: the State and the Market (on the role of the state in free market economies, see: Stiglitz [1989], Chang [1996], and Mazzucato [2014]). In recent years, a new actor has begun to take on a more starring role on the economic stage: the non-profit or “third” sector.

Secondly, the main two categories of economic institutions are characterized, as one might imagine, by numerous interrelationships, and when they are well-designed, they complement each other. What’s more, they share – as can be seen – a common origin.

In fact, all these economic institutions come from the configuration that the State-Market-Civil Society relationship assumes in each given capitalistic system. Experience tells us that it is not an immutable relationship that is established once for all time, nor is it identical across national boundaries; on the contrary it appears to be historically determined and geographically differentiated. Political and economic doctrines evolve; our democracies alternate between governments of different ideological stamps; the historical accidents take place, and so forth. All of

these contribute to the malleable borders between state, market and society within our “models of capitalism”.

Let’s return to the chart in Figure 1. It is true that there is something arbitrary in this two-columned division of economic institutions. Where should we place “Schools” and, more generally, the entire Education system? This system does provide a vital source for equal opportunity for all members of a community. But it is equally true that “human capital”, as theories on endogenous growth have demonstrated over the last decades, represents one of the most important factors for economic growth. So while we have placed schools, for the sake of simplicity, in the first category, technical schools, vocational training and universities must also be considered as part and parcel of the second one as well.⁴ The university, in fact, must necessarily be placed on both sides of our chart, given its role in formation of high-skilled human resources, and the fundamental contribution that it therefore makes in research and development (R&D), basic or applied, especially in collaboration with the business community.

Overall, the ten institutions that we have identified – and perhaps even this number is slightly arbitrary – can reasonably constitute a kind of set of variables, or a toolbox, for better understanding the “models of capitalism” that coexist in our Western society, and for observing their evolution. There are two necessary preconditions that must precede these ten institutions in order for any model of capitalism to function well: (i) macroeconomic stability; (ii) openness to international trade.

In Europe – as has been widely discussed in the literature (for a review, Esping-Andersen [1990], Sapir 2005) – there is no single model of capitalism. It cannot be found at the financial level (Stakeholder Capitalism vs. Shareholder Capitalism), nor amongst the Welfare Systems (Nordic, Anglo-Saxon, Continental and Mediterranean). Nevertheless, an equally wide intellectual debate has taken place over the possible “convergence” of different models.

At this point we must pose the following question: might industrial policy represent the Elysian fields where such a convergence, incomplete though it may be, can come to pass?

Keeping in mind the distinctive characteristics of the new industrial policy, we now know which institutions and instruments it can depend upon for its proper implementation. A complication arises, though, from the fact that in the field of “European industrial policy” (in its “*technological*” dimension⁵, the triangle’s third side we will introduce in paragraph 6) the specific roles to be played by supranational bodies and national governments have not been well-defined within the EU. It is equally true, however, that after the ‘Lisbon Strategy’ (2000-2010), it is now ‘Europe 2020’ [European Commission 2010], which represents the medium- to long-term plan for the EU to carry out economic and social reforms. Significantly, within this reform agenda, industrial policy represents one of its “flagship initiatives”.

⁴ This line of reasoning for schools can be applied to almost all of the institutions in the left-hand column, such as Welfare and the labour market. Inherently important to the idea of equity, they both have an effect at the level of efficiency (consider the relationship between the unequal distribution of wealth and economic growth). Again, the logical place for competition policy (i.e., *antitrust*, State aids, control of concentrations) is on the right-hand side of our chart. It is notoriously the model of perfect competition that guarantees the maximization of efficiency, while monopolies lead to sub-optimal allocation of resources. Nevertheless, how can we forget that *antitrust* legislation was born in the USA at the end of the 1800s when the justly celebrated “Sherman Act” of 1890 was passed with the expressed goal of protecting citizen-consumers?

⁵ The situation is different for the other two dimensions of “European industrial policy”: *competition policy* and *commercial (trade) policy*: see also figure 4, §6.2.

3. Europe and its “Capitalisms”: Separation or Reconciliation? A short review

The literature on the “models of capitalism” is far-ranging and multi-disciplinary. In this paragraph we will conduct a brief review of the most significant contributions starting with Michel Albert (1991a) and ending with the book by Bruno Amable (2003), while the approach called VoC—already mentioned in the introduction (Hancké 2009)—will be discussed in the subsequent paragraph (§4).

In the beginning – it was the year 1991 – there was *Capitalism vs. Capitalism* by Albert [1991a] where the so-called “neo-American” model and the “Rhine” model squared off.

Things had not always been this way. It is true that only after the fall of the Berlin Wall and the dissolution of the entrenched dichotomy between free-market and centrally planned economies – or between capitalism and socialism – was it possible to have a more accurate analysis of the models of capitalism. Yet from a historical perspective, a close study of the “dynamics of industrial capitalism” had already made its mark. We are of course referring to the work of Alfred D. Chandler Jr., in particular the Chandler [1990] of *Scale and Scope*⁶.

Analysing the primary institution of managerial capitalism – the modern industrial enterprise – from the 1870s to the Second World War, Chandler identified three models: the “competitive managerial capitalism” of the USA, the “personal capitalism” of Great Britain, and the “cooperative managerial capitalism” of Germany. Over this span of time, these three nations accounted for two-thirds of global industrial production.

In this book, one of the most important studies of business history ever published, Chandler examines the specific decision-making processes carried out by owners and managers in the 200 largest manufacturing enterprises from each of these three countries between 1870 and 1940. Of acute interest to our own comparative analysis is one of Chandler’s conclusions. He writes [Chandler 1990, 12]:

The German experience [...] was closer to the American. German entrepreneurs made the investments and created the organizational capabilities needed to form a number of major industries. But the new large enterprises in Germany were concentrated on the production of industrial goods, whereas those in the United States produced and distributed consumer goods as well. The basic difference between the two countries was, however, that industrial leaders in the United States continued to compete functionally and strategically for market share, while in Germany they often preferred to negotiate with one another to maintain market share at home and in some cases abroad. In the United States managerial capitalism was more competitive; in Germany it became more cooperative. This brand of modern industrial capitalism – *cooperative managerial* capitalism – was one aspect of the arrival in Germany of what scholars have termed organized capitalism.

The same old story, one might say: but it is only after the fall of the Berlin Wall and the “victory” of capitalism that the theme re-emerged with all its force. Albert’s book, as already noted, quickly became the classic work of reference, in which the author argued that capitalism is not a single species, but a Janus-faced creature with its “two great, contrasting models” (i.e., neo-American and Rhine).⁷

Without embarking on a full summary of Albert’s definition of these models, the “superiority of the Rhine modal” is clearly elicited by the author, a superiority at that specific historical moment

⁶ In Chandler [1977] we find the analysis of the “managerial revolution in American business” –the well-known “visible hand”.

⁷ *Il Mulino*, the Italian leading political and cultural journal, published one of the first in-depth examinations of these contrasting “models” with essays by Albert [1991b] and Romano Prodi [1991].

in both the “social” and “economic” spheres. From the latter point of view⁸ and as a final result of what Albert calls the “virtuous circle of a strong currency”, the strength of industrial manufacturing in the Rhine nations comes to the fore. With a strong currency (the mark, though the same could be said of the yen during this period) – he claims – “businesses are forced to enhance productivity – virtually the only recourse available to them to compensate for the higher cost of their goods abroad.” Moreover, a strong currency “gives manufacturers a clear incentive to concentrate on top-of-the-range goods, where the selling point is not so much price as quality and innovation, not to mention after-sales service. This in turn requires a long-term commitment to research and development [...]”.

In the end, it is the relative importance of financial institutions that determines the real difference between these two models. This difference, Albert notes, “depends significantly on the modalities for financing businesses.”

Let’s keep the financial system in mind for a moment, for it will take us places: it leads us, for example, to the spot where “the Bank kneels before the Stock Exchange”, to use Albert’s comment on the hypothesis of a possible convergence of the two models exactly ten years after the appearance of his *Capitalism vs. Capitalism* [Albert 2001].

The author evokes the image of a bank that is “bound, at least in terms of risk assumption, to bow to the wills of the Stock Market. Europe has started to adopt the neo-American model by which the top executive (manager) becomes subordinate to the shareholder” – at least, he adds, from a “mesoeconomic” (i.e., forms and functions of the financial system) viewpoint. While on the other side, the analysis of the two models from the “macro” and “microeconomic” perspectives give Albert cause for greater caution in predicting a complete convergence of the two capitalisms, given their profoundly different characteristics in the economic role of the State (macro) and the internal organization of enterprises (micro).

In so doing, a key point in Albert’s new, updated analysis [Albert 2001] deals with Europe, which “is still the continent *par excellence* for diversity; not merely historical, geographical and cultural diversity, but also economic and social diversity.”⁹ Europe – he continues – “seeks a balance between three sides of a triangle: democracy, free-market economy and social justice. Other continents only concern themselves with two of these three ‘sides’. In America, democracy and the free market to the detriment of social justice. In Asia, social cohesion and the free market, to the detriment of democracy.” The final stage in the evolutionary dynamics of the two capitalisms depends primarily on “Europe’s capacity to move from the monetary union to a political union that will be able to push forward with a reestablishment of the social pact”¹⁰.

In the decade between Albert’s two fundamental works, many events have affected the two great models, the first based on the Stock Exchange’s centrality, the second on the “mixed banking” and its large actors; or, put in a different way, the first essentially interested in the *shareholders* value maximization, the second designed to satisfy the goals of all persons who have an abiding interest (holders), the so-called *stakeholders* model of capitalism. These differences seemed to be absolutely accurate; they also seemed capable of determining reliable outcomes in terms of economic results.

⁸ In particular, the “economic superiority” is described in chapter 7 [Albert 1991a, 127-46].

⁹ “Can one therefore speak of a ‘European model’ as such?”, Albert asked himself ten years earlier. His own answer was as follows: “Everything would seem to point in that direction: the European Community has been under construction for over 30 years; it takes the form of an essentially economic union, regardless of the current debate over political, social, diplomatic or military ties; it is a concrete reality with its own dynamics. And yet there is no single, consistent European economic model” [Albert 1991a, 17].

¹⁰ The evolution also depends on what Albert called – passing to the other side of the Atlantic – “the sustainability of the American economic miracle”.

But then the 1990s came, bringing with them many rebuttals to the claims of the single models as to which one was the best and the brightest.

Adair Turner [2001] in his *Just Capital*, identified five different moments when there was a “lead change” between these two models in the middle of the 1990s, and we could continue to count the number of times that the baton has been passed from one model to the other: at least, taking Turner’s lead, if we refer to the perception that the business community has based on the relative strength and performance of the single models. But we are certain that it would prove a never-ending task.

If, instead, we want to get to the root of things, it is once again the financial system that comes forth as the primary – though not the only – element that fundamentally differentiates the two models. It was against this background that Will Hutton’s essay [1996] *The State We’re In* enjoyed so much success in England. The nation was coming out of an almost fifteen-year period of Conservative government which would soon be cut short by the emphatic victory of Tony Blair and Gordon Brown’s New Labour.¹¹ Hutton’s essay, written in the tradition of political economy, became required reading for those who, from within the homeland of Anglo-Saxon capitalism (or rather, “shareholder capitalism”), wished to examine the virtues of the “stakeholder capitalism” of Germanic (and also Japanese) stamp. W. Hutton [1996, xxvii] wrote:

The central *economic* argument is that the weakness of the British economy, particularly the level and character of investment, originates in the financial system. The target for profit are too high and time horizons are too short. But British finance has not grown up in a vacuum. Behind the financial institutions stand history, class, a set of values and the political system.

The virtues of that “other” capitalism are stability, long-term investment capability (both by private enterprise and governmental bodies) and social cohesion. Attaining these virtues, so the argument goes, requires both a new blueprint for the financial system and a reform (a “democratization”) of the Welfare State. Once again, the financial system serves as the point of departure for moving toward an overarching vision of society, toward a reform plan that, in the words of the author, wanted to be “neither a return to the bastardised Keynesian corporatism of the 1960s and 1970s, nor the forced march towards a wholly deregulated market”.

In truth, after the initial debates over the different forms of financial systems (Bank vs. Stock exchange) – a debate that was perhaps necessary though not wholly sufficient for demarcating the major differences – there then followed a more general period of examination of all the various economic institutions that shape our industrialized democracies. This widened form of analysis has already been seen in the above thesis of “shareholder capitalism” compared to “stakeholder capitalism”, even if it is only during the mid-to-late 1990s that we see the literature move decisively in this direction.

From the volume edited by Colin Crouch and Wolfgang Streeck [1997] we learn that the debate on convergence and diversity between forms of capitalism was already taking place in the 1960s. In fact, a quarter century had passed between the publication of Michel Albert’s famous work and that of Andrew Shonfield [1965] – *Modern Capitalism* – which was the first to have applied the dominant “theory of convergence” to the free-market model. Shonfield argued that capitalist systems have inherently the capacity to organize themselves in markedly different ways and thus to create the types of society that are most in line with collective interests, without technology and markets being seen as *deterministic*. This was the way out of the tight-fitting and stereotypical choice

¹¹ Highly influential for the evolution of British politics under the Labour Government of the 1990s and 2000s, has been the book written by Anthony Giddens [1998] on the “third way”.

between liberal capitalism and State-owned economy: all countries had the need to create “non-market institutions” that could regulate the economy.

The key concept that emerged in the literature is that of “institutional economies”: economies where the mechanisms of governance are not merely those that derive from market-driven factors and managerial prerogatives. On the contrary, these mechanisms are modified by various forms of “social” intervention: “Co-management” (or “Co-determination”), designed to foster cooperation between groups with opposing interests (employers and trade unions); a certain practice of government interventions in the economy; the existence of informal associations and communities (the civil society).

In the 1970s and especially the 80s, growing evidence was gathered that gave proof of the superiority of institutional economies, those capable of combining competitive behaviour with the creation of collective goods. One of the examples given by Crouch and Streeck [1997] is that of the German automotive industry’s training of human capital in order to turn out high-quality vehicles, an initiative that was beyond the grasp of British industry; other equally-significant examples can be found within other models of institutional economies: Japan, Sweden, and so on.

Nevertheless, in the 1990s there is a change in the perception of the value of institutional economies in terms of competitiveness and performance: Japan and Germany (followed by other nations in continental Europe) entered into a severe recession with rapidly-rising unemployment. On the other side, the United States embarked on what would later reveal itself to be an exceptional economic expansion throughout this same decade.

At this point, Crouch and Streeck asked the question: “Back to convergence?”. The question would lead them to discuss the decline, during these years of increasing globalization, of the capacity of the nation-state to regulate the economy: a genuine loss of sovereignty. Fortunately, the same cannot be said about the new mechanisms of governance that have been established at the international level, those of the EU among them.¹²

The final, crucial decade of the 1900s concluded, then, after countless passes of the baton from one model to the other in terms of “superiority”, with the pole position being occupied by that of “Anglo-Saxon” capitalism: these were the years, especially in the US, of the “New Economy”, relevant here in particular because of its role as the primary cause of the Stock Market boom.

Before the collapse of dot.com stock values (in March 2001), an event that would effect a deep re-evaluation of the New Economy itself, Ronald Dore [2000], the author of the celebrated *Taking Japan Seriously* [Dore 1987] reconsidered the fates of the different models, which were becoming ever more “mixed”. Dore asks if (and how) these differences were destined to survive in a world driven by the globalization of finance. Using a causal link map (“Neoliberalism and the growing predominance of the financial sector”), Dore argues that shareholder value maximization is becoming “the only legitimate goal for business leaders”. Admittedly, there are three other “facilitating factors” that are more directly dependent upon political will: the reduction of state-funded assistance to the elderly; a growing preoccupation with competitiveness; faith in the superiority of the “Smithian” model for the allocation of resources. The truly important fact resides in the way – again according to Dore – that some of these tendencies are taking hold in Japan and Germany alike: tendencies that were already solidly established in Great Britain and the United States by the “conservative revolution” of Margaret Thatcher and Ronald Reagan ever since the beginning of the 1980s.

Bruno Amable's reflection represents the ideal conclusion of this brief review. Anticipated in a paper [Amable 1999] and fully presented in a subsequent volume [Amable 2003], this reflection

¹² Other researches follow similar lines, confronting the theme of the *convergence-divergence* between capitalisms from different perspectives, such as the case-study of Japan [Dore 1987], the institutions of the labour market [Freeman 2000], the allocation of capital [Porter 1992], and business ownership structures [Gros-Pietro, Reviglio E., Torrissi 2001]

identifies what the author calls "Social Systems of Innovation and Production (SSIP)". They are five [Amable 2033, 15-16]:

- i. "The Market-based model" (...);
- ii. "The Social-Democratic model" (...);
- iii. "The Continental European model" (...);
- iv. "The Mediterranean model" (...);
- v. "The Asian model" (...).

The author stressed an "institutionalist approach" to the analysis of modern capitalist economies based on the notion of "institutional complementarity". Regarding the issue of an hypothetical convergence of countries towards the same institutional model – he wrote in his 1999-paper – "several elements may mentioned. The theoretical elements as well as empirical evidence point towards both direction of convergence and divergence" [Amable 1999, 20-21].

4. What Nations Produce, and Why

When the Anglo-Saxon model seemed to have triumphed definitively behind the thrust of the New Economy between the end of the 20th century and the very beginning of the 21st century, Michele Salvati [2002] wisely observed:

We must take pause and reflect before declaring the death of cooperative and controlled capitalism of the kind that Michel Albert defined "Rhine" capitalism. Perhaps the model toward which we should aspire to converge is not the pure Anglo-Saxon, and certain parts of the "Rhine" model should be saved (our translation).

Then came the years of uncertainty that have dominated the last decades for both models. Large corporate scandals between 2001 and 2002 (above all, Enron, but also WorldCom, Arthur Andersen, Global Crossing, Qwest, Tyco, etc.) shook the foundations of the American stock markets, generating demands for new rules of corporate governance. During those same years, on this side of the Atlantic, the crisis of the large "mixed" banks in Germany raised doubts about the certainties of many German practices. Again in 2002, three of the four largest of these banks (HVB, Dresdner Bank, Commerzbank) had significant losses; what's more, the insurance giant Allianz suffered the first year of losses in its entire history, precisely because of its acquisition of Dresdner.¹³

Understandably, many things were thus destined to change in both models. Germany – having itself become, to quote the famous *The Economist's* cover story (1999), the "Sick Man of Europe" – would react through a series of profound structural reforms that were able to change many of the economic institutions that shape its model; the wisdom of these reforms has been borne out by the successes of German corporations in international markets over the past decade.

On the other side, it is difficult to avoid the impression that the neo-American (or Anglo-Saxon) model during the first decade of the new century was overly enamoured with finance and short-term gains. This time, just after seven year from the Enron scandal (and others), it would be the collapse of Lehman Brothers in 2008 that held the mirror up to the defects of the system and revealed the need to correct them.

¹³ The acquisition of Dresdner Bank by Allianz (2001) was followed by the sale of the same German bank (2008-09) to its "rival" Commerzbank and a subsequent fusion with the latter.

What, then, has the last decade(s) left as an inheritance for the new decade we are now living in? If we set aside the arduous path of reforming the financial system in the US and the EU alike (consider all the discussion of a European “Banking Union”) given the different starting points, today the topic that seems to link the two sides of the Atlantic, more than any other, is the *revival of manufacturing* given the role played by the manufacturing industry in the national economy [Lo Re, Meleo and Pozzi 2015]; a revival followed by the logical consequence of renewed interest in industrial policy (or for advanced manufacturing).

Might this shared interest amongst the EU and the US for manufacturing and industrial policy represent the catalyst to change the models where necessary, and to have them move toward a virtuous convergence? A debate on manufacturing means bringing in the voices of industries and enterprises (the structure of the former, the behaviour of the latter), while a discussion of industrial policy means pausing for reflection on the role of R&D, technological innovation and human capital.

The topic, unsurprisingly, has already been treated in the literature on models of capitalism.

In the beginning, it was once again Albert [1991a], in the chapter dedicated to “The economic superiority of the Rhine model” (Chapter 7), who asked: “How on earth [do] they manage it?”

The answer was the following:

Let us be clear on one point: the strength of the Rhine economies lies first and foremost in their immense industrial strength, promoted by aggressive salesmanship. That Rhine manufacturing industry is the best in the world is simply not in doubt. Moreover, it occupies pride of place within the national context: in Germany, Japan and Sweden, industry accounts for about 30 per cent of both GDP and total wage-earners; in the rest of the OECD, the figure is below 25 per cent (and in the USA it is under the 20 per cent mark). This superiority, as previously argued, is not just numerical but qualitative as well. Rhine-type countries have established leading positions in virtually every sector of manufacturing from the oldest, most traditional industries to the highest of the high-tech [...] True, in certain high-tech industries, the Rhine economies still lag somewhat behind America, the leader, but for how long?

There are three main reasons, according to the author, why the industries of Rhine countries have shown such exceptional dynamism:

- i) “They pay close attention to *production techniques*” (quality control, modern management methods, investments in machinery, etc.);
- ii) “*Training* is a priority, not a luxury” (think of the vocational education system);
- iii) “Company spending on *research and development*” (at a rate of about 3% of GDP), with the Rhine governments that “take a particularly active role in promoting civil R&D projects, often with generous subsidies [...] primarily aimed at developing basic technology which can ultimately benefit all branches of industry”.

His conclusion is that:

Taken as a whole, the industries of Rhine countries are a formidable dynamo, outstripping all competitors. What is more, they are backed up by some extremely effective (and aggressive) sales and marketing techniques. The Rhine countries have thus become the undisputed export champions of the world.

The emphasis on the “real” economy (which has become popular once again in the wake of the crisis of 2008), was already quite evident in the debate on different forms of capitalism following the fall of the Berlin Wall. The interdisciplinary and wide-ranging Harvard University research project

begun in 1992 – called, as we already know, VoC - followed similar lines as it brought together the opinions of economists, sociologists, and political scientists from both America and Europe. The eponymous publication, edited by Peter A. Hall and David Soskice [2001], was given a noteworthy subtitle: *The Institutional Foundations of Comparative Advantage*.

The VoC approach can be seen as an effort “to go beyond three perspectives on institutional variation that have dominated the study of comparative capitalism in the preceding thirty years” – that is, “the modernization approach”, “neo-corporatism”, and “the social system of production”. As Hall and Soskice [2001, 1-68] pointed out in the first paragraph of their *Introduction*:

We want to bring firms back into the center of the analysis of comparative capitalism. Where we break most fundamentally from these approaches, however, is in our conception of how behaviour is affected by the institutions of the political economy [...] We think these approaches tend to miss or model too incompletely the *strategic interactions* central to the behaviour of economic actors [...] This *varieties of capitalism* approach to the political economy is actor-centred [...] The relevant actors may be individuals, firms, producer groups or governments. However, this is a firm-centred political economy that regards companies as the crucial actors in a capitalist economy. They are the key agents of adjustment in the face of technological change or international competition whose activities aggregate into overall levels of economic performance.

For the purposes of their inquiry, the authors Hall and Soskice focus on “five spheres in which firms must develop relationships to resolve coordination problems central to their core competencies”:

- i) *Industrial relations,*
- ii) *Vocational training and education,*
- iii) *Corporate governance,*
- iv) *Inter-firms relations, and*
- v) *Their own employees.*

“It follows” – they argue – “that national political economies can be compared by reference to the way in which firms resolve the coordination problem they face in these five spheres”.

The core distinction they draw is between two types of political economies:

- i) “In *liberal market economies* (LMEs), firms coordinate their activities primarily via hierarchies and competitive market arrangements” (in short, “The American Case”)¹⁴;
- ii) “In *coordinated market economies* (CMEs), firms depend more heavily on non-market relationships to coordinate their endeavours with other actors and to construct their core competencies” (in short, “The German Case”)¹⁵.

After turning the traditional postulate about the relationship between “institutional structures” and “business strategies” on its head – it is the former that drives the latter, according to Hall and Soskice, and not vice versa – their major step forward is represented by the introduction of the concept of “comparative institutional advantage”. If the theories of Robert J. Barro, Gene M.

¹⁴ The authors’ more complete list of LMEs includes the following: Australia, Canada, Ireland, New Zealand, UK, and the United States.

¹⁵ The authors’ more complete list of CMEs includes the following: Austria, Belgium, Denmark, Finland, Iceland, Germany, Japan, Netherlands, Norway, Sweden, and Switzerland.

Grossman, Elhanan Helpmann, Paul Krugman and Paul Romer – just to name a few¹⁶ – have helped explain phenomena like endogenous growth and/or the formation of business clusters, these same theories “say little about why production of *that* type should be concentrated in *that* particular nation, while other nations specialize in other kinds of production”.

Moreover, “We still need a theory that explains why particular nations tend to specialize in specific types of production or products. We think that such a theory can be found in the concept of *comparative institutional advantage*”.¹⁷

This is where institutional structures come into play, affecting growth rates and technological advancement. In this context, CMEs – the authors argue (Hall and Soskice, 39-40) – “should be better at supporting incremental innovation”; on the other hand, “the institutional framework of LMEs is highly supportive of radical innovation”¹⁸.

The comparison between the USA and Germany in terms of industrial specialization (making reference to fundamental data on patents) gives solid empirical evidence in support of the authors’ initial hypothesis. In reference to the data on “Patent specialization by technology classes (*United States vs. Federal Republic of Germany, 1983-84 and 1993-94*)”, Hall and Soskice [2001, 41-44] write:

The striking finding is that Germany specializes in technological developments that are just the reverse of those in the USA [...] Firms in Germany have been more active innovators in fields predominantly characterized by incremental innovation, including mechanical engineering, product handling, transport, consumer durables and machine tools, while firms in the United States innovate disproportionately in fields where radical innovation is important, such as medical engineering, biotechnology, semiconductors and telecommunication. These patterns are consistent over time and precisely the ones our analysis would expect. There does appear to be specialization in innovation across nations, with firms in the liberal market economy specializing in radical innovation, while those in the coordinated market economy concentrate on incremental innovation.

In fact, the centrality of the firm is one key innovation of the VoC school, as already mentioned. Consequently, VoC argues that “institutional complementarities” deliver different kind of “firm behaviour and investment patterns.”

Hancké, Rhodes and Thatcher (2009) emphasize the novelty of this approach, as well as the conclusion: the juxtaposition between “radical-innovator firms” (in LMEs) and “incremental innovation” (in CMEs)¹⁹

But their work is a step ahead of the original Hall and Soskice (2001) approach because in deepening the *Institutional Framework* they explicitly introduce the role of the state and correct its

¹⁶ For an original account of the revolution in trade theory of the 1980s and the most recent decades, see: Helpman [2011].

¹⁷ More in depth: “The basic idea is that the institutional structure of a particular political economy provides firms with advantages for engaging in specific types of activities there. Firms can perform some types of activities, which allow them to produce some kinds of goods more efficiently than others because of the institutional support they receive for those activities in the political economy, and the institutions relevant to those activities are not distributed evenly across nations” [Hall and Soskice, 37].

¹⁸ As already noted, the key distinction they draw is between “radical innovation” and “incremental innovation” [Hall and Soskice, 38-39]: the former “entails substantial shift in product lines, the development of entirely new goods, or major changes to the production process”; the latter is “marked by continuous but small-scale improvements to existing product lines and production processes”.

¹⁹ “In LMEs, fluid labour markets fit well with easy access to stock market capital, producing ‘radical-innovator’ firms in sectors ranging from biotechnology, semiconductors, software, and advertising to corporate finance. In CMEs, long-term employment strategies, rule-bound behaviour, and the durable ties between firms and banks that underpin patient capital provision predispose firms to ‘incremental innovation’ in capital goods industries, machine tools, and equipment of all kinds” [Hancké et al. 2009, 275].

absence in the VoC. In doing so, they identify "four ideal types of coordination" (see their "matrix", figure 2).²⁰

In conclusion, their "extended VoC framework" sheds more light on the origins of the different modes of coordination (i.e., focuses on the "cross-class coalitions," introduces a more dynamic interpretation, and explores the nature of state interventions). They show that:

[...] models of capitalism are not simply class compromises, as Amable (2003) argues, but are much the products of struggles within as between classes. And the state clearly matters, but in different ways in different models of capitalism.

The latter question is of crucial importance in the EU, as it appears from an overview of the matrix: the EU countries—starting with the founding fathers themselves (Germany, France, and Italy)—are divided into three out of four possible modes of coordination. In fact, even today, there is no single and homogenous model of European capitalism.²¹

A different role of the state in the economy also appears relevant when, almost everywhere in the EU, industrial policy - as we shall see in the next paragraphs - has returned to the top of the policy agenda [Mosconi 2015a, 2015b].

Figure 2 – State-economy relations, interest organization, and modes of coordination

		State–Economy Relations	
		Close <i>Étatisme</i>	Arm's-length <i>LMEs</i>
Interest Organization	Fragmented	France pre-1990s	UK, Baltics
	Organized	<i>Compensating state</i> Italy, Spain some EMEs	<i>CMEs</i> Germany Slovenia

Source: Hancké, Rhodes and Thatcher [2009, 291]

²⁰ Drawing the "matrix", they begin with the "two basic forms that relations between the state and the (supply side of the) economy can take in advanced capitalism (...) Class-based interest organization, in turn, can run from being highly structured to being highly fragmented" [Hancké et al., 290].

²¹ A re-evaluation of the role of the State in the most advanced economies is the subject of the influential book by Mariana Mazzucato [2014].

5. Industrial Specialisation Revisited: An Update

Many years have passed since the publication of the abovementioned snapshots of the industry specialisations and/or technological levels of Germany and the USA [Albert 1991, Hall and Soskice 2001]. In the years following the fall of the Berlin Wall, these nations became the emblems of two models of capitalism (Rhine and neo-American, according to Albert), and of two VoC (CMEs and LMEs, in the definitions offered by Harvard scholars).

Much has happened during that time on both sides of the Atlantic²², and in particular - within the EU - in Italy, Europe's second largest manufacturing power after Germany (for an analysis of Italian "structural transformation", see: Arrighetti and Ninni [2014]; A. Giunta and S. Rossi [2017]).

Focusing our attention on the real economy, some of the most relevant changes have already been addressed in the preceding pages, where we described the results achieved by the process of European integration, the revival (or the *renaissance*) of manufacturing, and the new life afforded to industrial policy. The first Communication of the European Commission [European Commission 2002], already highlighted the need for EU industry to reinforce its position in the "Enabling Technologies", and this is the common thread that winds its way through each successive Communication until the last one of January 2014 [European Commission 2014]. It is worth recalling the comparative analysis done on the more recent policy documents from the EU, from Germany, and from the US, and the emphasis that all of these place on certain ground-breaking technologies (see Table 1).

Table 1 - Science-based industries and blending technologies: A Summary of initiatives

<u>Year/Country</u>	<u>2010/GERMANY</u>	<u>2012/EU</u>	<u>2011/USA</u>
Institution(s)	Federal Ministry of Education and Research	European Commission	White House
Title	<i>"Ideas. Innovation. Prosperity: High-Tech Strategy 2020 for Germany"</i>	<i>"A Stronger European Industry for Growth and Economic Recovery"</i>	<i>"Advanced Manufacturing Partnership"(*)</i>
Contents	5 Key Technologies: <ul style="list-style-type: none"> ➤ CLIMATE/ENERGY; ➤ HEALTH/NUTRITION; ➤ MOBILITY; ➤ SECURITY; ➤ COMMUNICATION 	6 Priority Action Lines: <ul style="list-style-type: none"> ➤ ADVANCED MANUFACTURING TECHNOLOGIES; ➤ KEY ENABLING TECHNOLOGIES; ➤ BIO-BASED PRODUCTS; ➤ SUSTAINABLE INDUSTRIAL AND CONSTRUCTION POLICY AND RAW MATERIALS; ➤ CLEAN VEHICLES; ➤ SMART GRIDS 	4 Key Steps: <ul style="list-style-type: none"> ➤ CAPABILITIES IN CRITICAL NATIONAL SECURITY INDUSTRIES; ➤ ADVANCED MATERIALS; ➤ NEXT-GENERATION ROBOTICS; ➤ ENERGY-EFFICIENT MANUFACTURING PROCESSES

(*) According to the Council of Advisors on Science and Technology, "Advanced manufacturing is a family of activities that (a) depend on the use and coordination of information, automation, computation, software, sensing, and networking, and/or (b) make use of cutting edge materials and emerging capabilities enabled by the physical and biological sciences, for example nanotechnology, chemistry, and biology" (see: *Advanced Manufacturing Portal*, www.manufacturing.gov).

Source: Author's elaboration based on official documents.

²² We should stress the fact that the Atlantic no longer represents the sole fulcrum of global growth today in the age of rising BRICs and emerging nations. During the "Asian Century", the one we are currently in, the Pacific has taken on a starring role. For a look at these changes in the global economic geography of development, see the analysis presented in the previous chapters based on data released by OECD, Goldman Sachs, etc.

Our examination of the big European players helped shed light on the prevailing specializations in EU manufacturing, which has become a truly changeable landscape; one of the most noticeable signs of this lies in the ongoing consolidation – via horizontal M&As – in almost all sectors of traditional specialization of European industry (automotive, chemical and pharmaceutical, fashion and luxury goods, etc.). There is more. Despite the past and present impact of the most recent financial crisis (post-2008), things are changing in an even more general way.

One of the most detailed report in the series *EU Industrial Structure. Trends and Performance* [European Commission 2011] underlines, above all, “the role and importance of the EU manufacturing sector”, and describes how “the EU plays a central role in trade of high value added goods and services”. In so doing, their two analyses (technology and trade) make it possible to update and complete the data presented by Hall and Soskice [2001].

The report has the following to say about the first category (technology):

The crisis has impacted on the growth potential of EU manufacturing sectors. Nonetheless, large drops in shares of value added and employment in manufacturing sectors does not mean that manufacturing industries have become less important. From a long-term perspective, manufacturing sectors have remained among the most productive in the EU economy. Labour productivity growth per person employed in industrial sectors, from 1995 to 2010, was higher than in the most productive services activities, such as wholesale, retail and financial intermediation. R&D intensity is one of the factors driving higher productivity growth in manufacturing. Among all sectors in the economy, the most R&D intensive in 2006 were manufacturing: *radio, TV and communication equipment*, followed by *pharmaceuticals, other transport equipment* and *motor vehicles*.

The full histogram, which also reflects the comparison between the EU and the US, is published in Appendix. The other sectors operating at the highest level of research intensity, after the four listed above, are given here in decreasing order²³: *scientific and other instruments, office machinery, chemicals, machinery nec*. And so, what is the fundamental difference between the EU and the US?

The European Commission [2011, 80] data show that the difference lies not only in the well-known aggregate data (“In 2007, R&D represented 1.85% of EU GDP in comparison with 2.67% in the US”²⁴) but also, in a more entrenched manner, in their sectoral location; that is, the eight most-intensive R&D sectors are exactly the same – in this classification – in the EU and US, aside from a slight variation in rank.²⁵ The fundamental sectoral difference lies in the fact that in full 7 out of 8 of these sectors, the level of research intensity is decidedly higher in the US. The Commission writes: “Among the more R&D intensive sectors, there is only one sector where the EU significantly outperforms the US: chemicals”.

It is only in the second part of the classification, from the ninth position on down, that the EU passes the US in some industries: electrical machinery, refined petroleum, basic metals. It should be

23 On R&D intensity, the European Commission points out that “(...) In order to estimate and compare the intensity of innovation efforts in different sectors, R&D expenditure were divided by value added generated in the sector”.

24 The Commission continues: “The gap [is] mainly explained by private investment in R&D. To analyse R&D expenditure, an aggregate was formed (an EU sample of 17 countries) representing more than 80% of total R&D expenditure in the EU”. So, the different graphs EU vs. US published in Appendix III will focus on the gross domestic expenditure on R&D (GERD) financed by industry; they do not reflect the sectoral R&D effort by governments. In order to estimate and compare the intensity of innovation efforts in different sectors, R&D expenditures were divided by value added generated in the sector” (p. 80).

25 As an example, scientific and other instruments is the US sector with the highest R&D, while it is only fourth in the EU ranking; another example is office machinery, which comes in fourth in the US and sixth in the EU.

noted that once we have descended to these ranks, the general intensity is much diminished, passing from levels that range from 20 to 40% in the top positions to levels no higher than 5% for these mid-ranking positions.

The analysis from a technological perspective continues through the use of two indicators of patents, once again divided up by sectors. The first (PAT1, *patenting intensity*) “reflects the number of patents in a sector relative to employment. As was the case with R&D, these vary substantially across sectors, from the highest value in two ICT sectors (office machinery and telecommunication equipment) to the near negligible value for clothing, wood and wood products, and printing and publishing”.

The second indicator (PAT2) “compares the performance of EU sectors with the same sectors in the world.” (To give its full comparative view, this diagram is also published in Appendix) In general, “the results for this indicator show that the EU performs slightly better than the world in a number of sectors. However, the EU specialisation is lower than the world average in a range of R&D-intensive sectors such as ICT industries and pharmaceuticals”.

After having illustrated the results of innovation in terms of R&D expenditures (“inputs in knowledge production”) and patents (“output indicators”), the *EU Industrial Structure* [European Commission 2011] report examines, as we hinted before, a second category that is of great relevance to our task at hand: “International competitiveness”.

First of all, the report makes a point about European leadership in this category, which is all too often ignored:

The EU, Asia and North America account for about 84% of total world export flows in 2009. Trade among EU countries (i.e., *single market trade*) represented more than a quarter of world trade of manufactured goods in 2009. In comparison, intra-regional trade in Asia and North America accounted for 15% and 4% respectively of world trade with manufactured goods.

Next, the report presents an interesting analysis of “competitiveness on world markets”. This “is measured by indices of revealed comparative advantages (RCA)”. In the following table we have provided a summary of the results of the more detailed analysis by the European Commission on RCA (which will again be fully reproduced in Appendix).

Table 2 - RCA (‘Revealed Comparative Advantages’) for Manufacturing, EU-27 vs. US* (2009)

<i>EU-27 RCA</i>	<i>EU-27 Did not have any RCA</i>	<i>US RCA</i>
Printing	Computers	Chemicals
Beverages	Electronic and Optical Products	Pharmaceuticals
Tobacco products	Textiles	Machinery
Motor vehicles	Clothing	Other manufacturing goods
Pharmaceuticals	Refined petroleum	

*In addition: “Japan had high RCAs in capital equipment, particularly motor vehicles and machinery. In China, the trade specialisation profile is strongly oriented towards textiles, clothing, leather and furniture; although China also has a high RCS in sectors such as office machinery and computers” (p. 107).

Source: Adapted from European Commission [2011, 10]

Summarizing the many observations made about RCA, the Commission writes: “Compared to the EU, the US seemed to have high revealed comparative advantages in the following groups of

products in 2009: other manufacturing, computer, electronic and optical products, chemicals, refined petroleum products and machinery, and equipment” (p. 107).

Twenty years, as we said, have passed since the moment when the industrial structures of the two different “models of capitalism” – or the two different forms of “political economy” – were identified and explained; we mention again the “three factors” of Albert and the “five spheres” of Hall and Soskice. These are structures that, in spite of the significant variations that have been felt by the global economy (ceaseless technological progress, growing globalisation, etc.), have shown both a certain stability and a certain resilience in their strong points.

Overall, the data seem to confirm the thesis of a frontier of technological progress that has been secured mainly by the US, while European manufacturing – with the “Rhine model” at its core – is robust (in terms of overall value added), innovative (in its mix of industries and firms in leading positions), and competitive on the international level (in terms of its percentage of global trade).

What, then, is the road that (still) needs to be travelled in Europe?

In order for it to be successful, is there anything missing from the potential route toward convergence between the different models of capitalism that are found in the EU?

Does the rediscovery of manufacturing, after years (decades) of domination by finance and short-termism, represent the true path?

If the answer is *yes*, as we believe it to be, which of the ten economic institutions – presented above in our initial schematic view (see Figure 1) – must be bolstered and/or reformed in order to set out confidently in this new direction?

It is to these questions that we now turn in the next two paragraphs of this paper.

6. Toward a Genuinely “European” Model of Capitalism?

6.1. Some insights on the building blocks of a model/variety (see: figure 1)

Contrary to the conventional wisdom, in their paper on the *Dynamics of Scientific and Technological Research in Europe*, Dosi, Llerena, and Sylos Labini [2005] argued that the “European Paradox does not exist”. The so-called ‘European Paradox’ – they pointed out – “holds that European Union countries play a leading role in terms of high-level scientific output, but lag behind in their ability to convert this strength into wealth-generating innovations”. Again: “There is little evidence of a ‘European excellence’ based on analysis of patenting activity, R&D expenditures, and a range of bibliometric measures of scientific strength. At the same time, one finds evidence of widespread corporate weakness – as demonstrated, e.g., by trade performance and shares of international production in high-tech industries”. Finally: “Belief in this paradox has led to a situation where European Union support to basic research is virtually non-existent. This correction of the accuracy of the ‘European Paradox’ leads to suggestions about European Union policy – e.g., less emphasis should be put on various types of networking, and more emphasis on strengthening ‘frontier’ research and strengthening corporate actors”.

In light of the analyses made in the preceding section on R&D and patents, the thesis presented by Dosi *et al.* holds water nearly *in toto*. Is the EU’s solution to overcoming these limitations sufficient, founded as it is on the two cornerstones of the “Europe 2020 Strategy” and the “Multiannual Financial Framework (MFF) 2014-20”? This is the key question for the years to come.

In the Strategy, as they note at the Bureau of European Policy Advisers (BEPA) of the Barroso Commission, many measures are trying to have a direct impact on the competitiveness of European industry: “To equip people with the right skills, labour market reforms, setting standards, fostering innovation, embracing new resource efficiency standards”. The MFF, approved by the European

Parliament in 2013, contains within it the “Horizon 2020”, the new tool that replaces from 2014 onward the “Framework Programmes” (in their 7th edition for 2007-2013) for implementing the provisions of “Europe 2020”, the Bureau rightly argued. But the funds earmarked for “Competitiveness” are precisely those which were cut during the debate on the budget that took place, during the first months of 2013, between the European Commission and the European Parliament. This does not seem to be an auspicious beginning for breaking away from the status quo, and the EU budget – lacking a fiscal capacity, even a limited one, for the Union – seems once again to be a problem.

Pausing for another minute on R&D and more general knowledge-based investments, we have three observations to make. First, we must reiterate this is not merely an issue of financial resources; governance has its role to play as well: who does what in which field and under which authority (from the supranational to the regional or local level, including national governments). Our own proposals for a strengthening of *technology policy* (in a broad sense) support a decisive move upwards in terms of responsibility.

Second, a consolidation of public-private cooperation, in particular for the development of so-called “general purpose technologies”, should be the result of the industrial policy proposals that the European Commission has made since 2002 to the present date – the most recent in particular (2012 and 2014), with its emphasis on the new “Six Priority Lines”.

Third, in the oligopolistic structure of global industry, the top European companies already play an important role in R&D investments [Joint Research Center-European Commission 2012, 37-39]. Amongst the *Top 1500*, the EU percentage is 28.3%, second only to the US (34.9%), and higher than that of Japan (21.9%). This percentage owes much to Germany, which by itself accounts for 10% of R&D investments in the *Top 1500 companies* worldwide. There is a scale effect in R&D activity that we must always keep in mind: this is what motivated our thoughts on the big players and European Champions. But we should also add that an important contribution can come – bearing in mind the structure of European industry – from SMEs, especially wherever they are grouped into industrial districts or clusters. The subject of industrial localization is hardly new: it gets its origins in Alfred Marshall’s work [1890] on England at the end of the 1800s (the “Marshallian districts”); the subject has since been revisited and updated countless times, notably by Paul Krugman [1991], and in the work of Michael E. Porter [1990] who formulated it in terms of “competitive advantage”. In all of these variants, as is well-known, the pressing economic question lies in the agglomeration economies (a particular kind of scale effect, ‘external’ to enterprises), while the SMEs that operate as isolated units never seem to be able to reach the same levels of efficiency. As a result, a greater focus by European industrial policy on districts or clusters could represent a useful complement to the actions of the big players.

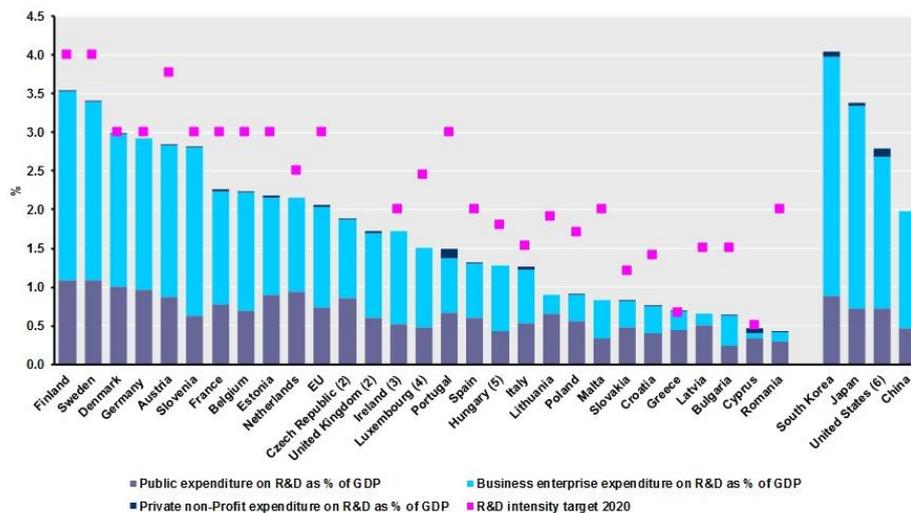
It is difficult, if not impossible, to predict whether or not the famous “3 per cent” objective – the R&D/GDP ratio – will be achieved by the EU by 2020 (see Figure 2 for the ‘state of the art’), especially since the EU already missed its target in the first round (by 2010, the end of the “Lisbon Strategy”). What is more certain is the direction that it must continue to move in. If the steps that we have drawn here eventually lead to a happy ending, we will find ourselves inside a model of European capitalism which, with its *Economic Institutions that guarantee the proper and efficient functioning of markets* (the right-hand column of Figure 1), will finally have its full integrity, moving even the fourth institution (“Public-Private system for basic and applied R&D) to the EU level²⁶. This would eventually

²⁶ The first two institutions in this schematic view of “models of capitalism” are already involved in the important decisions being taken by the EU on the “Banking Union”, as well as (in International *fora*: the G20 and others) on the rules of “Corporate governance”; the third – “Competition policy” has been supranational ever since the Treaty of Rome.

mean, as it did in the other cases, simply a more rational division of labour with the other levels of government.

The fifth institution on the right-hand side of this same Figure 1, ‘University/II: links with the business community’ has important connections also with the left-hand side: ‘Economic Institutions that support and protect citizens’. Do these contribute, or *could* these contribute (given the necessary reforms), to the formation of the type of European capitalism we are proposing here, one that is able to meld the best of our traditions? This is the most fascinating and dynamic of the challenges ahead, for it touches the lives and employment opportunities of all our young people of talent. We are only at the beginning (the steps taken so far by European politics on higher education have been inferior to those on R&D and innovation), but it is a challenge that must be met if we are to build a society that embraces the beneficial effects of efficiency and equity

Figure 3 - Public and private R&D intensity in 2012 in the EU and some third countries



Source: European Commission [2014]

This is also a challenge that promises reasonable chances for success when we consider the potential within the EU of qualified human capital, an element that tends to get overlooked in political debate. It was the professors from the Harvard Business School Gary P. Pisano and Willy C. Shih [2012] who offered the following table in their above-cited book on the need for a “manufacturing renaissance” in America. Read from a European point of view, it seems rather significant.

Table 3 - University degree (first) by country in science and engineering, 2004

Country	Science and engineering Graduates (total)	Engineering graduates
United States	455,848	64,675
European Union (total)	617,469	212,267
Germany	108,730	26,662
United Kingdom	109,940	19,780
Japan (2005)	349,015	97,931
Taiwan	85,891	46,870
India (1990)	176,036	29,000
China	672,463	442,463
Brazil (2002)	92,040	28,024
Russia (2006)	293,729	131,688

Source: Pisano and Shih [2012, 34]

In their chapter dedicated to the blueprints for a “National Economic Strategy for Manufacturing”, the authors [Pisano and Shih 2012, 130-133] write:

The United States can only rebuild its industrial commons if it has the right kind of human capital to attract complementary investments in physical, financial and technological capital (...) Let’s start with the workforce in the areas of science, technology, and engineering (...) The data paints a dark picture of how well America is doing producing this kind of human capital. As of 2008 (the latest year for which data is available), the United States produced 10 per cent of the world’s undergraduate degrees in science, and 4 per cent in engineering; by comparison, the European Union’s respective share was 18 per cent and 17 per cent (...) ²⁷. Government policy makers have a mind-set that manufacturing is a good sector for people with less education and training. As a result, the United States –unlike, say, Germany – spends little on training in the specialized skills required for manufacturing. This has to change.

These considerations should not lead us to ignore the fact – as the authors themselves say – that “the US university system has an extraordinary capacity to train scientists and engineers (...) Yet many young Americans are not going into these fields (...) The United States has become a net importer of foreign human capital”.

This is a fair assessment of the facts, just as it is safe to say that American universities have cemented their role as leaders in all of the major rankings of the best universities in the world (among the Europeans, needless to say, the best results are achieved by British universities). But this does not cancel out the positive data about the EU as a whole. Rather, a European flaw comes forth from the data above, because they depend primarily on a simple summation of national results, where there is very little actual European role (in the supranational or Community sense).

Along these same lines, Joe Ritzen and Luc Soete [2011, 15] in a wide-ranging and visionary paper argue that:

Higher education has remained first and foremost a nationally organized and funded activity even though the curricula, the evaluation and accreditation of an increasing number of study fields became internationally organised. Over the last decades students in Europe and beyond have become partially mobile thanks to the Erasmus programs and the Bologna reforms which have made the study load involved in courses and degrees more transparent thanks to the allocation of a common framework of study points. Yet, student mobility and cross-border flows in studies – which are limited in terms of admissions only in a couple of Member states (Austria-Germany, Flanders-The Netherlands, Wallonia-France) – has remained low with the exception of the inflow students in the UK and Ireland.

This being said, it is clear that higher education reforms in Europe are absolutely critical.

Indeed, a European Higher Education Area would provide a positive upward spiral of competition between universities across borders, and would lift transnational mobility above the very low levels that we find at the moment.

The largest area for which the authors make their recommendations is that of “re-thinking public action on ‘knowledge investment’” – i.e. research and higher education. And it is especially in the latter that, in their opinion, the most innovative ideas are needed, though they recognize that the issue of research also has its weak points. Ritzen and Soete’s proposal for this issue lies in a “Common Research Policy” as the end goal of an evolution that goes as far back as the ECSC²⁸. A

²⁷ The China’s respective share – they added – “was 18 percent and 34 percent, and the rest of Asia was 26 percent and 17 percent”.

²⁸ They mention as European achievements/instruments on the “research side”: the (subsequent) European Framework Programs, the European Science Foundation, the European Research Council and the European Institute of Technology.

common policy that we have described here through the idea of a full-fledged ‘third side’ of the ‘triangle’.

All of this may not be enough – so goes the reasoning that refers to the previous work done by Ritzen [2010a, 2010b] – if the advances made on the research side do not go hand in hand with similarly important advances on the teaching side. The authors [Ritzen and Soete 2011, 16-17] make reference to “the empowerment of European universities manifesto”, which is founded on at least two principles: (i) “the creation of a European Statute for universities in Europe”²⁹; (ii) “a second avenue could be to reward countries if their universities are able to attract students from other EU countries, in such a way that a net inflow of foreign EU students would be compensated for through European funds. (...) These different proposals should have as final goal to increase higher education student mobility needs to the 20% level ‘promised’ in the Bologna agreement”.

This way, even this fundamental institution (the university) which we have placed on the left-hand side of our graph will come to be managed in an relevant manner at the supranational level through appropriate multi-level governance mechanisms. Moreover, many nations in the EU have chosen to watch and take note of the German example on technical education and vocational training, which has set the true benchmark in Europe.

The other socio-economic institutions on this side (pensions, social work, labour markets and industrial relations) by their very nature are deeply rooted in the historical and social traditions of each member state. It is therefore natural to expect in the near future a coexistence of multiple “models”, especially as regards the Welfare State, even though we should not ignore the movement toward “convergence” in the labour market that is coming about due to the implementation of large-scale programmes of structural reform designed by many EU member states.

6.2 The re-emergence of the industrial policy

For many years (decades, in truth), the most successful theory by policy makers and economists alike has been the following: “*The main industrial policy of the EU is the completion of the Single Market*”. No one wishes to deny the validity of this thesis, though in the light of history it does perhaps seem a bit overly reductive.

Moreover, the devaluation of industrial policy, from the 1990s on, was the result of a cultural and intellectual climate (the dominance of the ‘Washington Consensus’). Things have been changing in recent years in terms of the introduction of new ideas. In fact, it should be observed that in Europe, as well as in the US and in the rest of the world, the rediscovery of industrial policy at the beginning of the 2000s – after decades of silence on the subject – has been accompanied by a new urgency in the academic studies in this field. In a literature that has become relevant again, we would like to mention, by way of example, the seminal papers of Rodrik [2004, 2008], and the works of Bianchi and Labory [2006], Pelkmans [2006], Budzincki and Schmidt [2006], Lin and Chang [2009], Aghion, Boulanger, and Cohen [2011], Di Tommaso and Schweitzer [2013], Owen [2012], Aiginger [2012], OECD [2013], Török et al. [2013], O’Sullivan, Andreoni, Lopez-Gomez and Gregory [2013], Stiglitz and Lin [2013] up to the most recent of Yülek [2015], Mazzucato, Onida and Viesti et al. [2016], Pianta, Zanfei et al. [2016], and Gruber [2017].

The attempt to recuperate a genuinely European vision of the “triangle of industrial policy” represents, in my opinion, the main goal of the “new” Industrial policy [Mosconi 2015a, 2015b, 2017; V. Zamagni 2016].

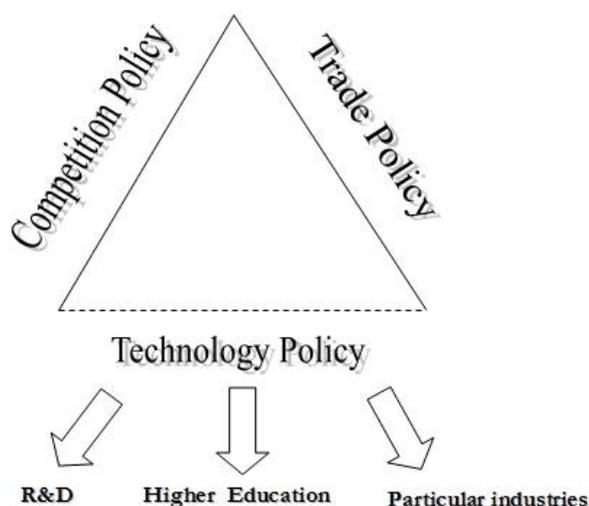
²⁹ Under such a scheme [a Statute] “around 10% of the universities of individual member countries of the EU would be governed and financed through European funds and by EU legislation by 2020”.

In fact, an extensive report by the Conseil d'Analyse Économique [Cohen and Lorenzi 2000] noted how Industrial policy, in the European tradition, “is the result of a triangle formed by competition policy, commercial (trade) policy, and technology policy”. The weakest side – to my mind – is the third: *technology policy*, seeing as how the other two (*trade policy* and *competition policy*) have been building blocks of the so-called ‘acquis communautaire’ for many decades.

A suitable path to reform should be that the new European Industrial policy must lean towards a definite reinforcement of the triangle’s third side at a supranational level without weakening the other two.

The following figure – the “triangle” with details on the three components of today’s *technology policy* – maps out the recommended course.

Figure 4 - The European Industrial Policy ‘Triangle’: Strengthening the ‘Third Side’ (Technology Policy)



Source: Adapted from Cohen E. and Lorenzi J-H. [2000].

This *technology policy* can be broken down into the following terms:

- (i) A European R&D policy;
- (ii) A European Higher Education policy;
- (iii) A European policy for structural change, which today means a policy that favours key technologies (such as the so-called *enabling technologies*) rather than a policy for specific industries.

The first two policies – ever more critical in markets that are not “perfect”, but where the role of endogenous technical change prevails – would thus become truly supranational. The third should also be handled at the Community level, as the European Commission Communications have been proposing for more than a decade (2002-2014), ever since the Commission justly returned industrial policy to the top of its policy agenda. The rationale is to overcome the relative weakness of European industry in technological progress, even though the EU boasts a manufacturing capacity that still plays a leading role on the global level (both in terms of its percentage of total production and for its leading position in many sectors that demand medium to high levels of technological competency).

If we can reasonably expect a growing consensus in favour of the first two policies, the third policy remains a more complicated issue where battles – ideological above all – between those in favour and those against industrial policy are destined to be fought. The lesson of Ha-Joon Chang [1996] is worth recalling. The Cambridge professor offered his own definition of industrial policy, motivated by a methodological consideration: avoiding definitions that “tend to be too overloaded”. Chang wrote [1996, 60]:

“We propose to define industrial policy as a policy aimed at *particular industries* (and firms as their components) to achieve the outcomes that are *perceived by the state* to be *efficient for the economy as a whole*. This definition is close to what is usually called ‘selective industrial policy’ (for example, by Lindbeck, 1981)”.

In today’s world, can we complete “particular industries” with “enabling technologies” (or “general purpose technologies”), and “the State” with “the EU”? If the answer is *yes*, we will have taken a step forward toward the construction (or reinforcement) of the third side. This goal no doubt demands the greater emphasis that is given today - compared to nearly twenty years ago - to investments in education; investments that at that time were excluded from the definition of “selective industrial policy”, but which together with R&D spending make up the today’s knowledge-based investments.

All in all, this entire project – the reinforcement of the triangle’s third side - remains partially unresolved, though, due to the problem of resources, which is no small issue even if some steps in the right direction have been taken in Brussels.³⁰

7. Conclusion

Few topics have aroused such extensive debate amongst economists of various schools and beliefs as Industrial policy regularly does.

Like Jacquemin [1987], quoted at the very beginning of this paper where he advocated a “concerted European industrial policy”, Dani Rodrik [2004, 2008] in his seminal papers on Industrial policy focuses not only on “market failures” but above all on policies that “stimulate specific

³⁰ The relevant document is still the “MFF 2014-2020”, about which the European Parliament adopted a resolution on 3 July 2013 by a wide majority. In the words of the Barroso Commission’s Financial Programming and Budget Commissioner, J. Lewandowski: “Today (...) the European Parliament has opened the way for putting in place a seven year growth and jobs fund worth almost 1,000 billion Euros for the next 7 years” [European Commission 2013]. It is no easy task to wade quickly through this complicated document, and a deeper analysis will be needed in the near future in order to identify all of the means by which the investments and programmes listed above will be financed. Nevertheless, the opinions on this new “MFF 2014-2020” have not been particularly sanguine, starting immediately after the European Council of February 2013 during which, after the usual marathon rounds of negotiations, the heads of state came to an agreement about the budget. Some of the most important observers of European affairs – three Brussels-based think-tanks - made the following judgments: (i) Bruegel spoke of the “same old Europe” and of the deal as a “missed opportunity” [Marzinotto 2013]; (ii) the CEPS of “a smaller EU budget: Less is not more” [Ferrer and Gros 2013]; and, finally, (iii) the EPC of an “agreement, but at a price” [Zuleeg 2013]. These initial analyses have also shed light on the amount of funds destined, on one side, to “competitiveness” (an umbrella topic for many of the items directly linked to the “Europe 2020 Strategy”) and, on the other, to “rural funds” and “cohesion funds”. Overall – they argued - agriculture once again absorbs the majority of the budget. These analyses beg us to make one additional comment: breaking away from the status quo is a truly difficult task in the Europe of our times. In order to resolve Europe’s growth problem, the one we have been trapped in for many years (decades), this is exactly the kind of courage that we need. The so-called “The Juncker Plan” (https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan_en) has three objectives: to remove obstacles to investment; to provide visibility and technical assistance to investment projects; and to make smarter use of financial resources.” [European Commission 2017].

economic activities and promote structural change". We have labelled this approach "The Jacquemin-Rodrik Synthesis" [Mosconi 2015a].

It is an approach to *industrial policy* that has much to do with VoC and, therefore, with the possibility of building a *genuinely European capitalism*. The connection between the first and the second is represented by knowledge investments (R&D, human capital, IT) that, certainly, will have to increase in quantity given the gap that separates Europe from the US and given the challenge that comes from Asia. But this doesn't tell the whole story, because it will have to change the governance with which these knowledge investments are implemented, and this in the direction of the "common governance" already proposed by the ECB President Mario Draghi [2014] for structural reforms (see epigraph, page 2).

I feel that the implementation of a pan-European Industrial policy (i.e., *knowledge investment* or *technology policy* to put it in the familiar term of the "triangle") is an essential part of the "governance of structural reforms", and should be made in the image of "fiscal governance" already in place in the EU.

The EU as a whole should take up these challenges bearing in mind the intellectual forward-looking legacy of the late professor Nino Andreatta who wrote in 1968 (see epigraph, page 2) on the necessity for a "*Federal authority* capable of planning at the continental level the development of industrial production and scientific research (...)".

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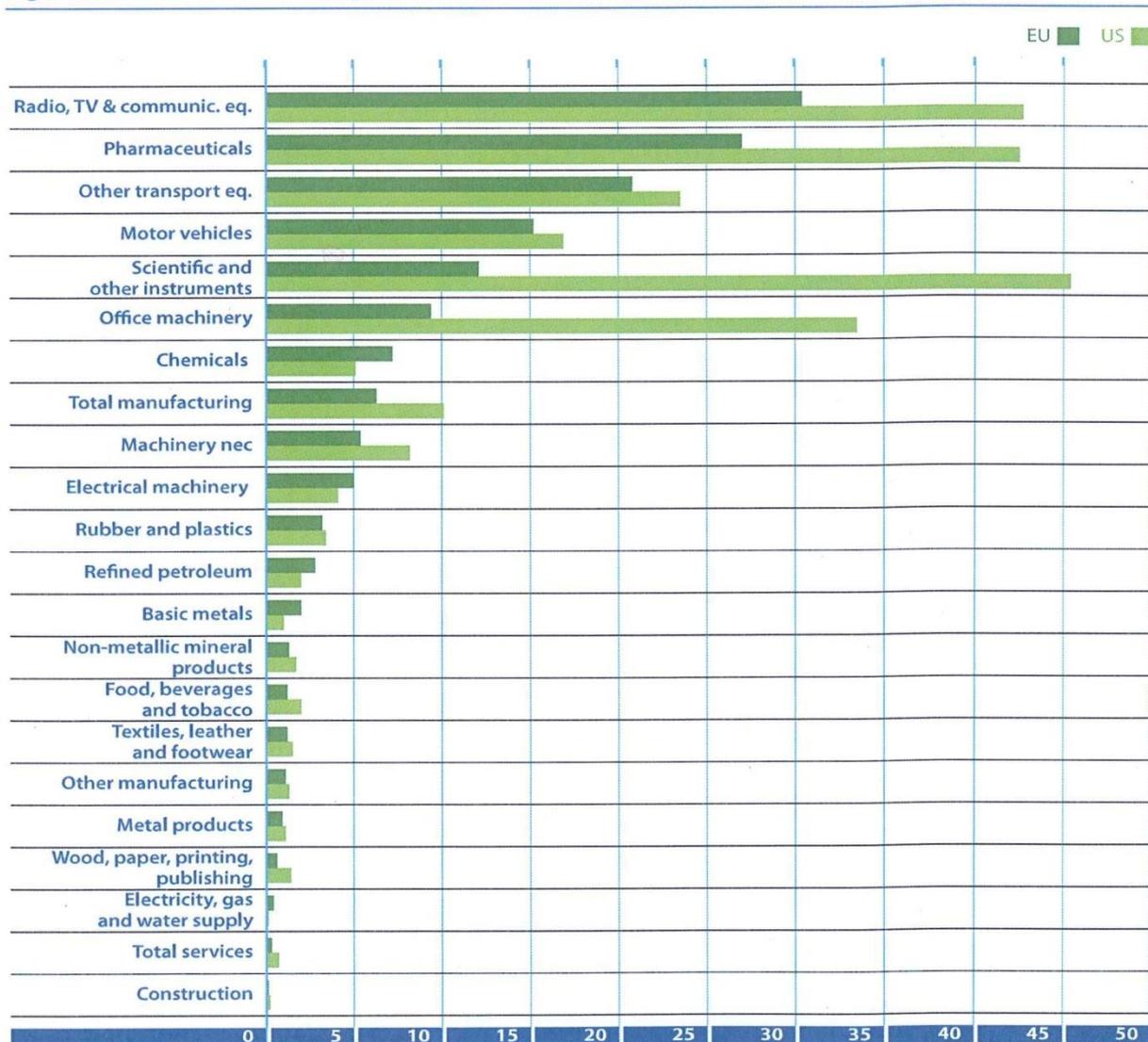
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Appendix A
 EU and US R&D Expenditure
 (Source: European Commission, *EU Industrial Structure, 2011*)

Figure III.18: EU and US R&D expenditure as shares of value added in sectors in 2006 (%)

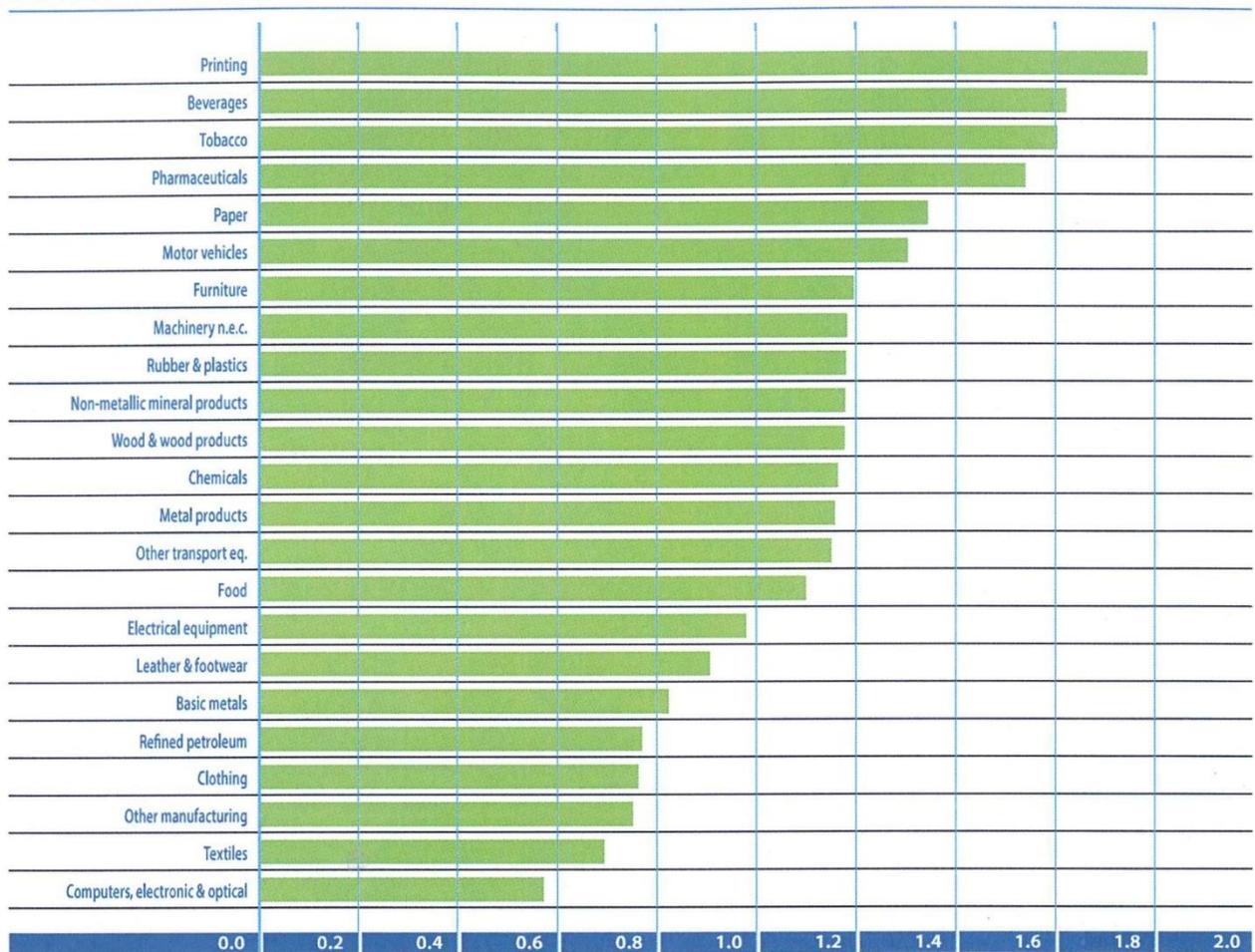


Note: The EU is represented by 17 countries: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Spain, Sweden and the UK. The industries are classified according to ISIC Rev. 3.1.

Source: own calculations using OECD data.

Appendix B
 EU-27 Revealed Comparative Advantage
 (Source: European Commission, *EU Industrial Structure*, 2011)

FIGURE IV.3: EU-27 RCA index in 2009



Source: own calculations using COMTRADE data.
