

Balanced growth: Green environment – Urban environment – Technology/Knowledge



THE SUSTAINABLE DEVELOPMENT OF URBAN AREAS AND THE ROLE OF THE INSTITUTIONS

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THE THEMES OF THIS PAPER

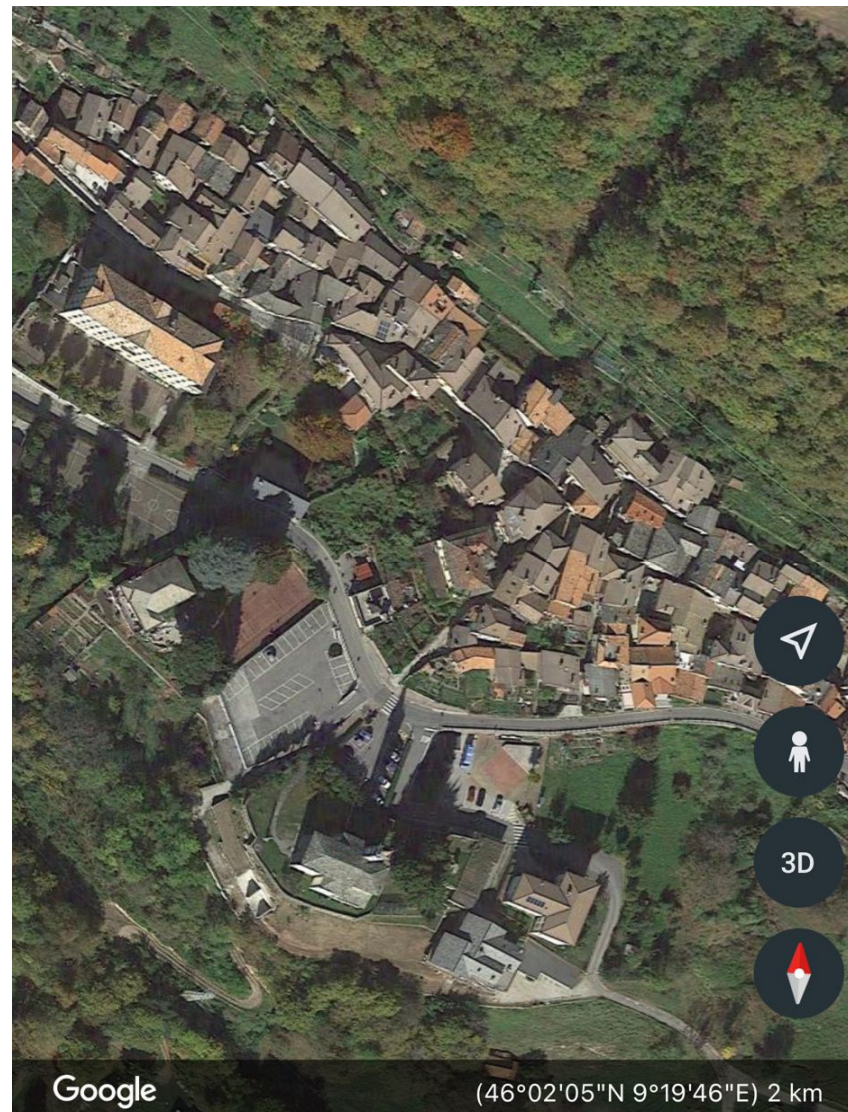
1. The analysis of the spatial and temporal contiguity relationships that link the different components of a physical ecosystem such as a forest or a city.
2. The psychological factors that drive citizens' actions and the collective dimension of their behaviour.
3. The evolution of citizens' needs and the growing role of the demand for "common goods" compared to the demand for private goods.
4. The evolution of the “territorial production systems” and the role of technological/ cognitive factors and of organizational/institutional factors.
5. The role of ESG synergies between actors in the physical environment, in social relations and in the institutional system, according to an “evolutionary or Schumpeterian” approach.
6. The role of institutions.
7. The “endogenous” approach to the theory of economic policy
8. The role of the State in implementing a modern national and European industrial strategy.



THE BORDERS OF A FOREST



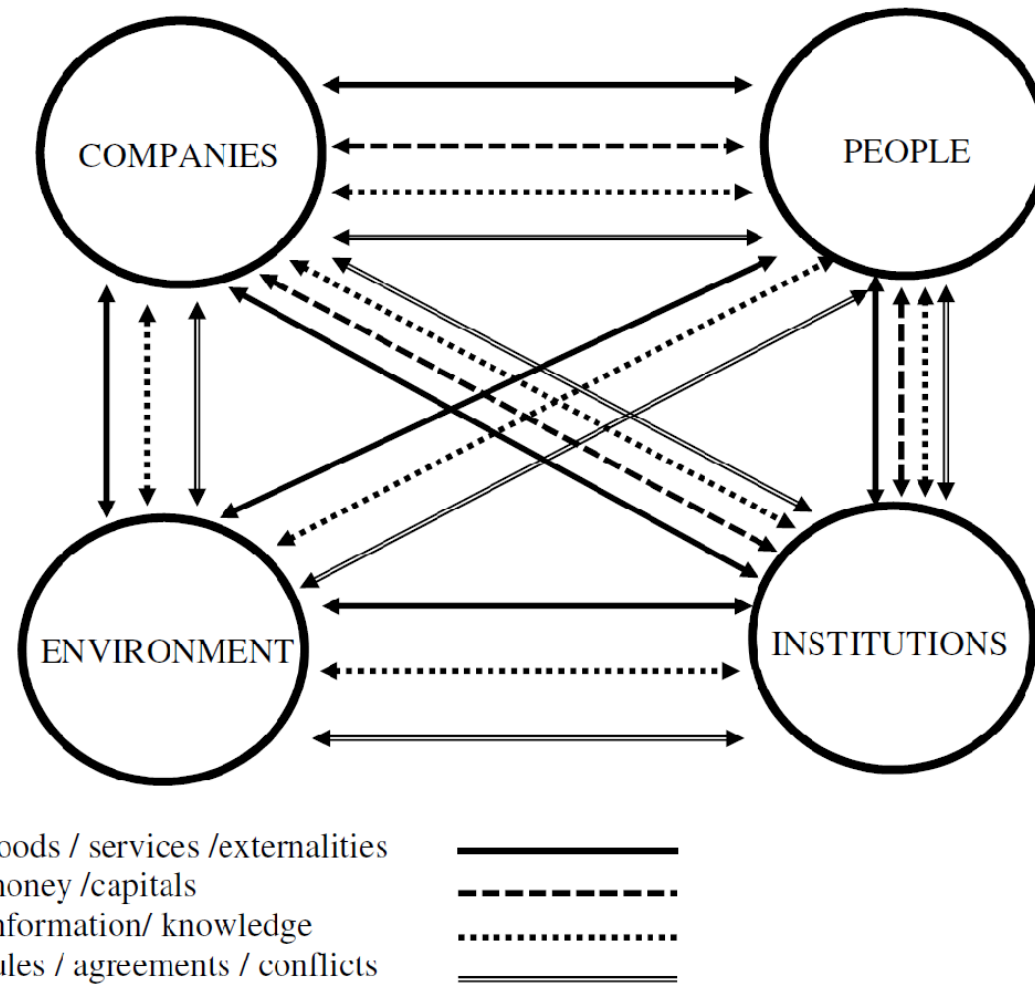
THE INTERDEPENDENCE BETWEEN THE TREES IN A FOREST



THE BORDERS OF A VILLAGE

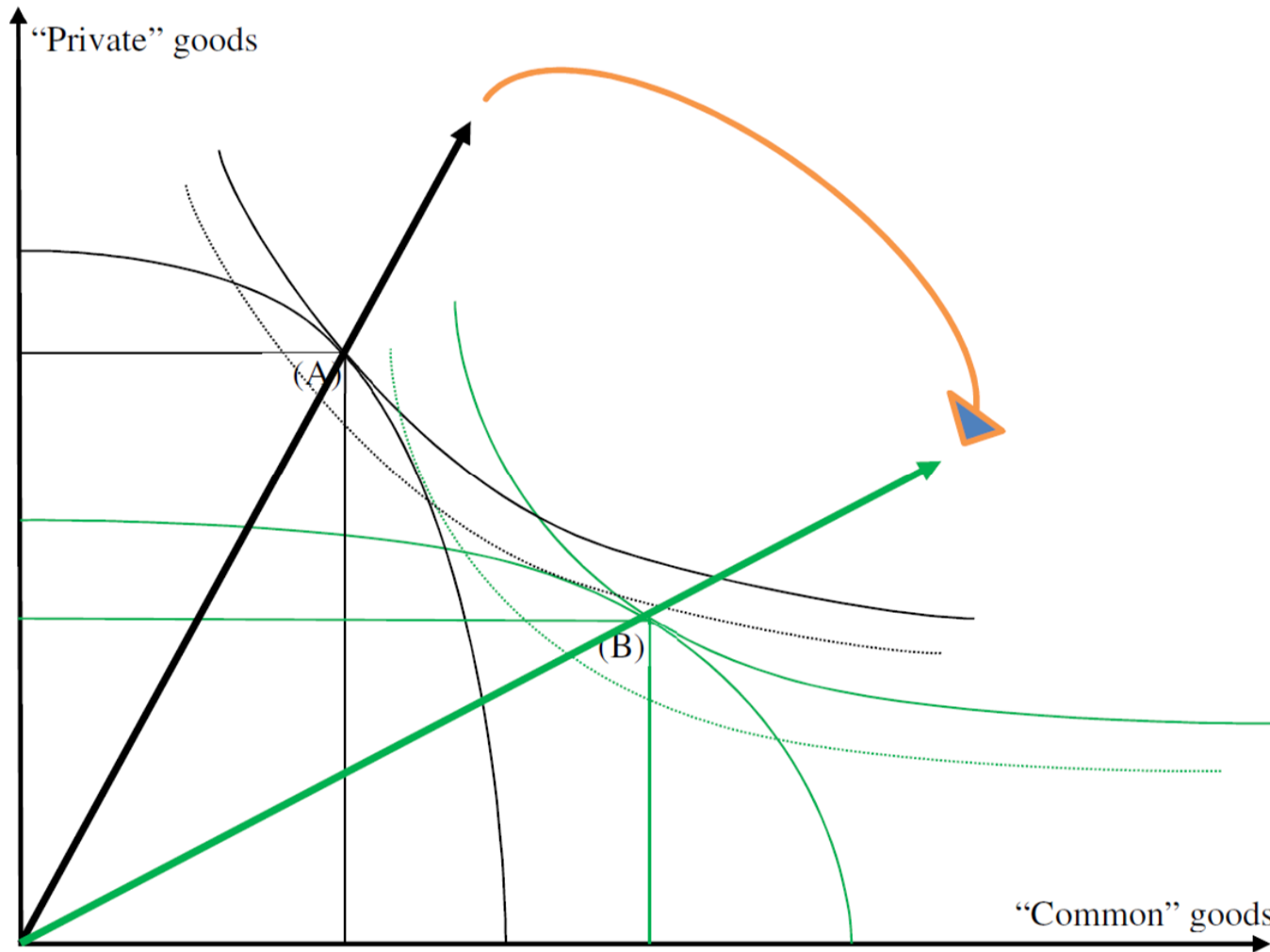


THE INTERDEPENDENCE BETWEEN THE HOUSES IN A VILLAGE



The sustainable or ESG development in cities and territories

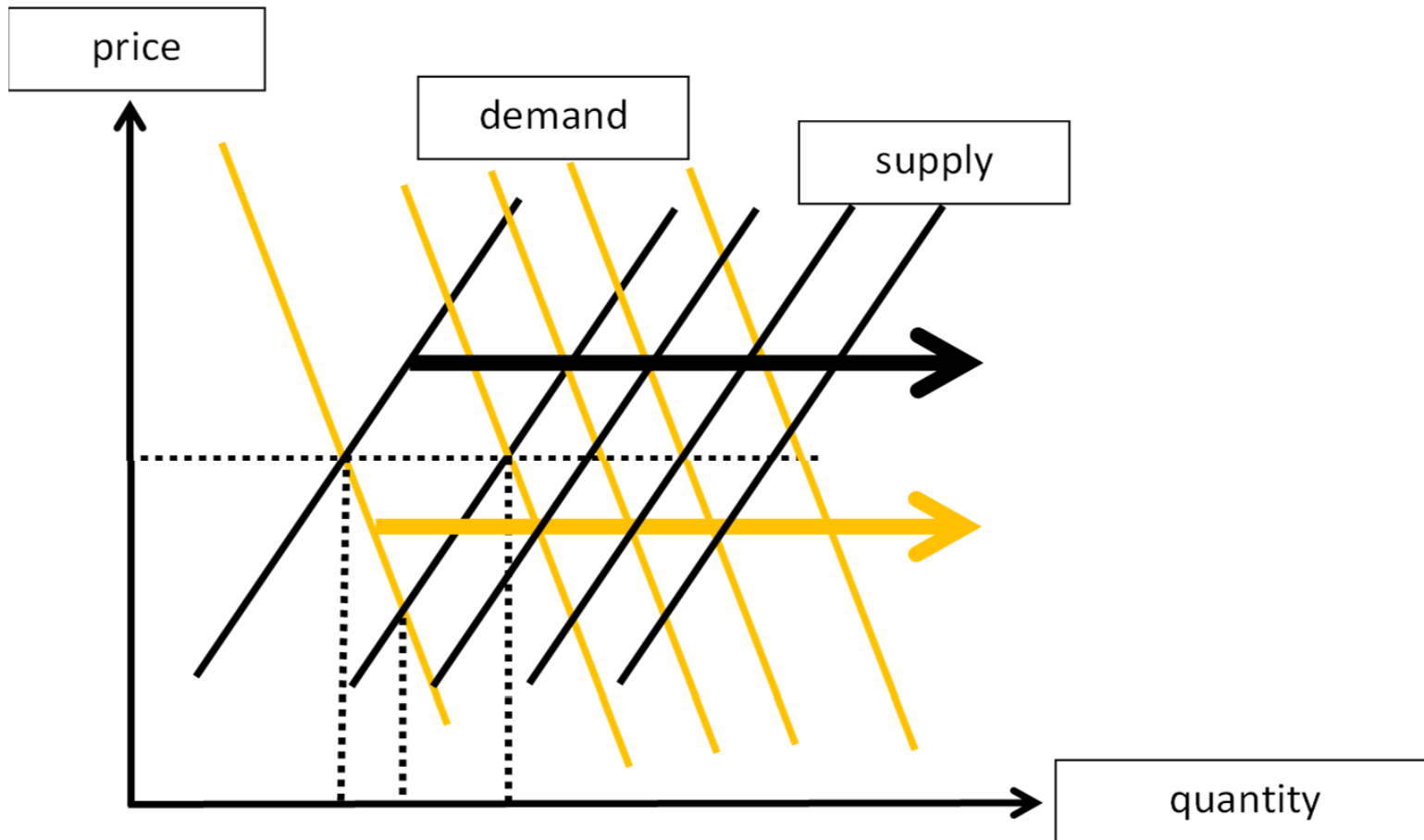
The maximization approach in policy making according to neoclassical economic theory





The static equilibrium of a balance where the pan on the right (the demand) and the left plate (the supply) defines the weight (the price) of a good

The growth of investment determines a shift of the sectoral demand and of the supply

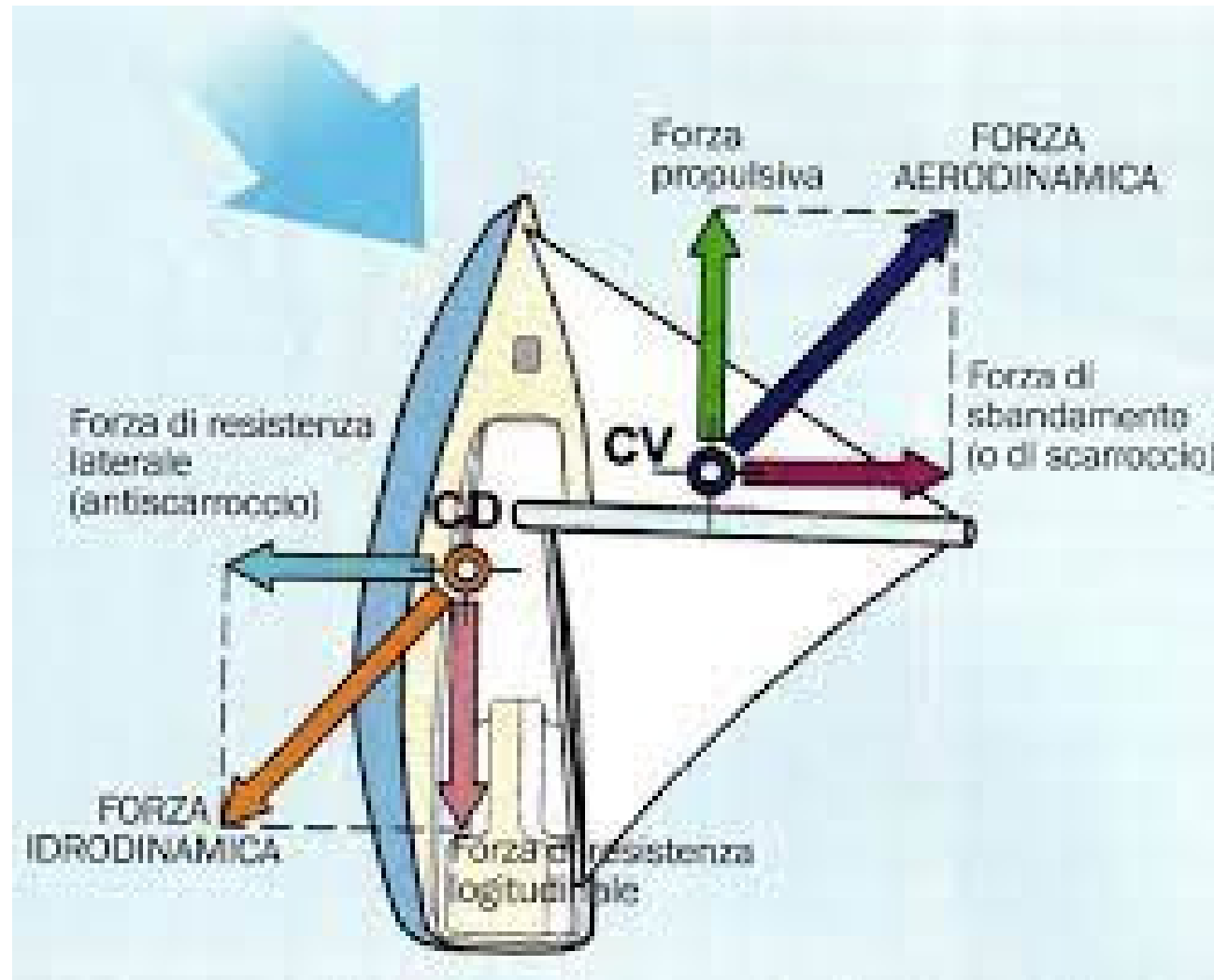




Industrial policies promote a dynamic balance between the new demand by innovative consumers and the new supply by innovative companies



Upwind sailing: the boat goes against the wind up to about 45% of the wind direction

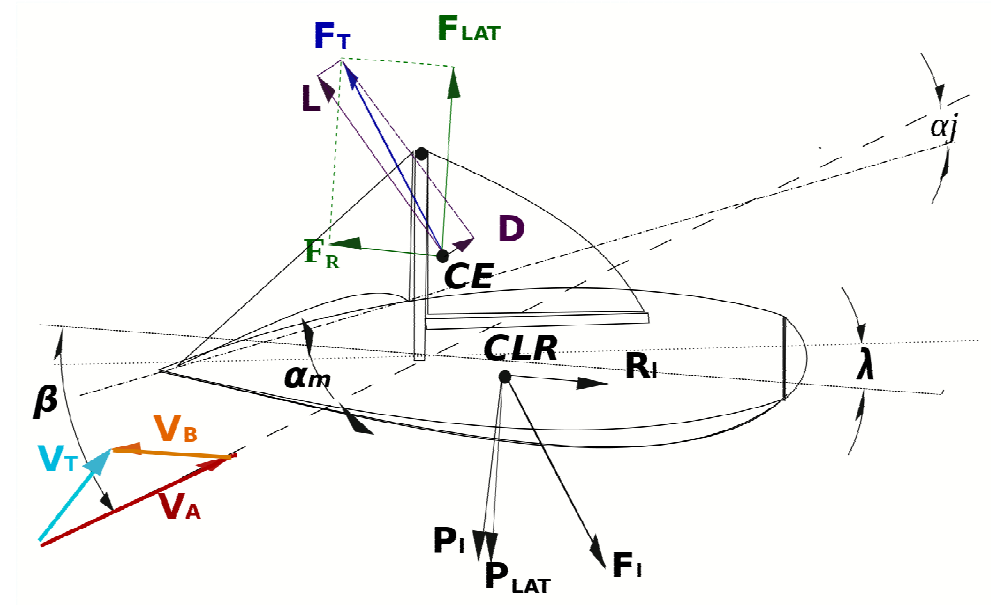


The dynamic balance between the sail and the keel of a boat

https://www.scuolanautica.biz/wp-content/uploads/teoria-della-vela-rev.1_ps.pdf

In the case of two economic and social actors and a policy maker: each with its own strength and objectives, the overall result depends on the balance of the forces of the two actors and on the strength of the policy maker, who can influence these actors and also act independently and therefore orient on the overall result.

This is similar to the case of a sailing boat, where direction and the speed depend on the strength of the wind on the various sails and on the regulation of the sails and of the rudder by a skilled skipper.

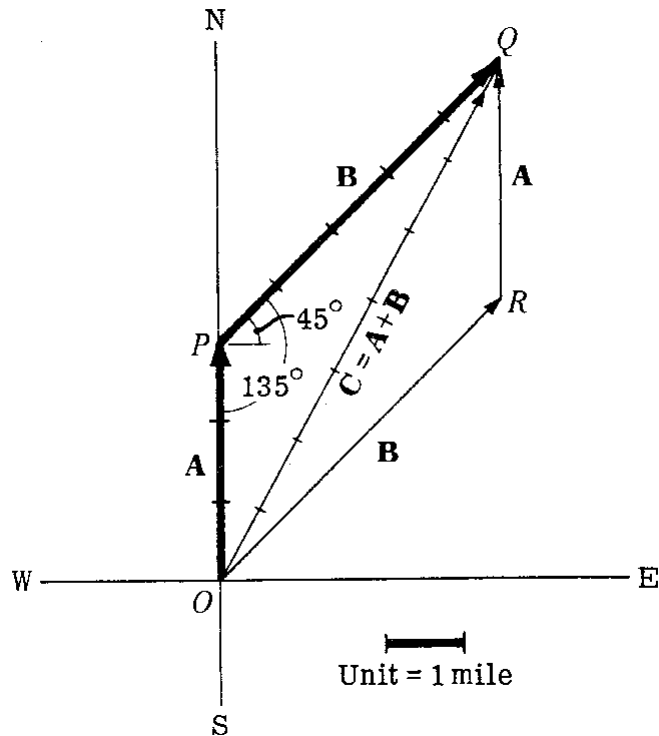


Aerodynamic forces in balance with hydrodynamic forces on a close-hauled sailboat

Source: Wikipedia, Forces on sails, https://en.wikipedia.org/wiki/Forces_on_sails

The problem can be analysed with a method different from the maximization approach adopted in standard microeconomics, which looks for a stable equilibrium between the supply and the demand through the market

price mechanism. On the contrary, the vector analysis¹ indicates that the vector **C** which is the graphic resultant or the sum of two vectors **A** and **B** can be obtained according to the parallelogram law of vector addition by constructing the parallelogram having the two vectors **A** and **B** as sides and as diagonal the vector **C**, which is the sum of the two vectors.



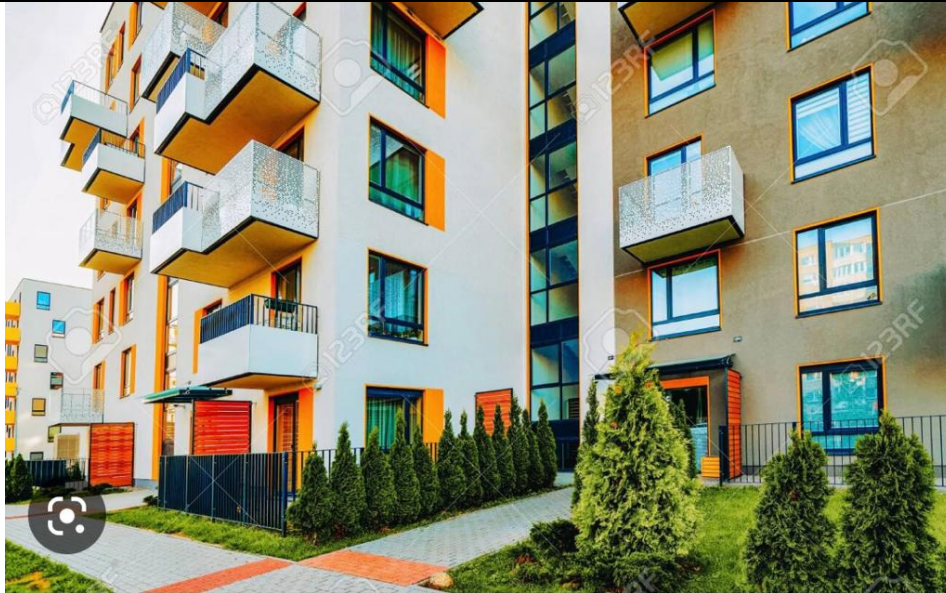
The corresponding analytical determination of the resultant vector according to the law of cosines is indicated by the equation:

$$C^2 = A^2 + B^2 - 2AB \cos \text{ of the angle between the directions of the two vectors}$$

¹ Spiegel M.R., Vector Analysis, Schaum Outline Series, McGraw Hill, 1959

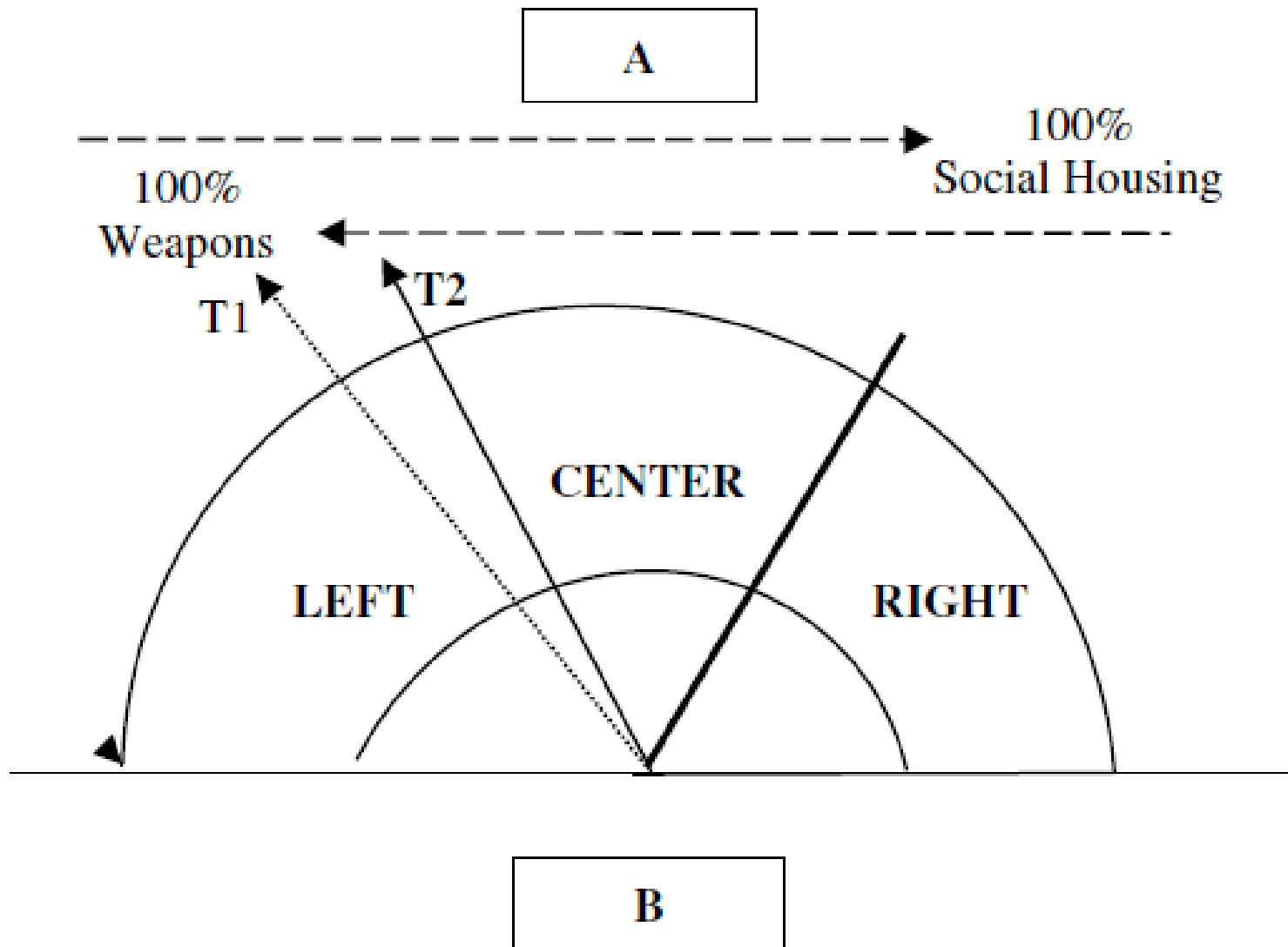
POLICY CHOICES

LEFT

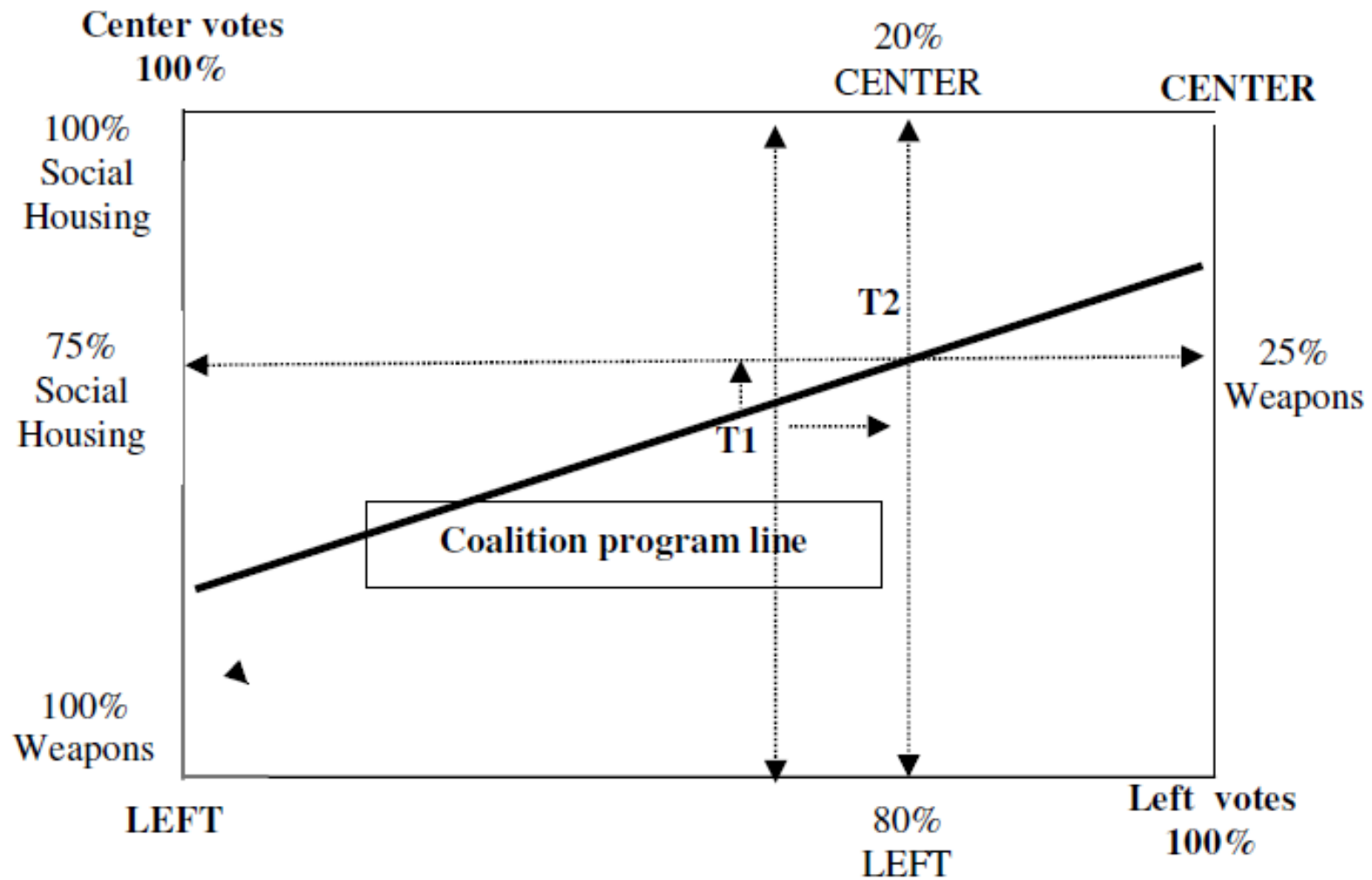


RIGHT





The change in the bargaining power of parties and the change in government priorities



The change in the political power and the shift along the line of the coalition programme

8. The role of the State in implementing a modern national industrial strategy.

The evolutionary model of innovation and the standard neoclassical model differ on the one hand for the key factors which determine the process of economic and social development, but also for the role assigned to the institutions.

The economic development of a local and regional area and even of the national economy is not the simple sum of the effects of individual public spending measures that benefit specific individual economic actors.

The traditional management-type tools adopted in Italy, such as calls for tenders, improperly establish a temporal sequence and a clear distinction between the planning and the implementation responsibilities and for this reason they are outdated or anachronistic in an innovation-driven economy.

Industrial policy must not only use the instrument of financial subsidies to businesses by violating the assumption of free competition, as it is indicated by the race for subsidies that both the European Union and the United States intend to use to develop individual technologies and individual businesses, which represent their respective “national champions”.

Public policy should operate not only through public spending but also through other instruments, such as integrated "strategic programmes" in the various policy fields. These strategic programmes should activate an interdependent and distributed response over time by the different companies, institutions and even individual citizens within a given local community or in the various sectors of the national economy and should strengthen the sense of belonging and common identity of the specific community considered.

Complex interventions such as the industrial restructuring of a large company or the implementation of large productive reconversion or urban expansion or environmental redevelopment projects require new types of institutions or "institutional innovations". In particular, ad hoc institutional tools are needed, such as: "special purpose companies", "joint companies" and "control rooms", as they are more frequent in other countries such as the USA and France.

It is necessary that the State and the Regions follow a bottom-up approach based on "structural innovation" or a "Schumpeterian creative destruction" and that they promote adequate and timely organizational changes and not just the adoption of modern technologies.

Political actions emerge from the interaction between different actors and should be decided by bottom-up forces and not imposed top-down. The politician should not impose his own solutions as in a neoclassical economic model, but he should create institutional structures that allow the self-discovery of the solution through the interaction between the economic actors

It is necessary to facilitate the bottom-up participation of private operators and citizens in the conception and planning and then to define innovative procedures of multilevel "governance" in the relations between the various actors involved, in order to reduce the times of the implementation phase.

Therefore, the regional, national and European "industrial strategy" must create the "institutional framework" which ensures strategic coordination between the various economic and social actors and guides and favours the process of "entrepreneurial discovery" by private companies towards new productions innovative.

The theory of endogenous territorial development and the evolutionary theory of innovation call for a new European economic policy after the 2024 European elections

- a) Financial funds such as the NGEU, MES and REPowerEU are not enough to promote development and also the ECB monetary policy is not effective on inflation
- b) There is the need of a new European macroeconomic policy and of a new European industrial strategy based on the growth of the domestic demand, of private and public consumption and of citizens' incomes
- c) The governance of national and European development should start bottom-up from the territory and strengthen the participation of citizens and stakeholders without which there is no innovation and development
- d) The realization of the "European social model" and not the fight against "climate change" must be the new development paradigm
- e) A new economic development strategy in Europe is also the tool to strengthen democracy and overcome the old nationalism in East European countries
- f) An immediate truce is needed in Ukraine as also new geo-strategic alliances between the European Union and the USA and also with Russia, China, Turkey, Iran, the Arab world, India, Brazil, Africa, Latin America and the BRICS countries

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ABSTRACT

Modern theories of development on a national and territorial scale indicate that it is necessary to change the traditional models of governance in development policies, which are often based on:

- a) a "dirigiste" and macro-economic model, which attributes a central role to taxation and the distribution of financial aid, or on
- b) a "liberal" and micro-economic model, which is based on the mere regulation of competition and denies the usefulness of public intervention.

A third model is the model of "governance", which has an intermediate or "meso-economic" dimension and is indicated by the modern theories of industrial and regional development.

The paper contributes to the theory of economic policy with an original model based on the approach of regional endogenous development, which emphasizes the need to promote the interdependence and cooperation between the various companies and between companies, citizens and national and local public institutions.

1. Cities and woods are ecosystems characterized by spatial and temporal contiguity.

The most relevant production units for sustainable development in an ESG (“Environment Social Governance”) perspective both in a less region, such as Sicily, and in a more developed region, such as Lombardy, are not mainly small manufacturing companies or even medium-large companies, but the medium and large cities, that continuously diversify their productions, have a strong collective identity, relate to other near and far away cities, are resilient and long-lasting, overcome crises and ensure a good employment for young people and a supply high quality collective services to citizens.

In summary, a regional or local production system, be it a metropolis of a few million inhabitants or a small urban centre of a few thousand inhabitants, is an "ecosystem" that can grow from within through an increasing specialization of its parts and not only by exporting more to outside areas.

In particular, a large or even a small city can be considered similar to a forest², which is made by many trees of different sizes and species and which grows by increasing its internal density and expanding outwards.

In fact, cities develop like a forest that extends to the contiguous areas and in which the trees generate seeds, which carried by the wind make other trees grow in the contiguous free areas inside and outside the forest. At the end of their life, the trees give way to other trees that grow in the soil that has become free. Similarly, the city is made up of buildings that have a limited life and which, when they collapse, allow the construction of other buildings, sometimes even on top of the ruins, as happened in Roman cities.

² This metaphor is illustrated in: Cappellin, R. (2022), Time and space in the recent economy of cities, in S. Beretta and S. Colloca, Economic thought and public institutions, Essays and memories for Italo Magnani, Quaderni della Rivista "The Politician" No. 65, Department of Political and Social Sciences of the University of Pavia, pp.51-62.



PHOTO 1: The borders of a forest



PHOTO 2: the interdependence between the trees in a forest



PHOTO 3: The trees of a forest are at a rather regular distance one from the other

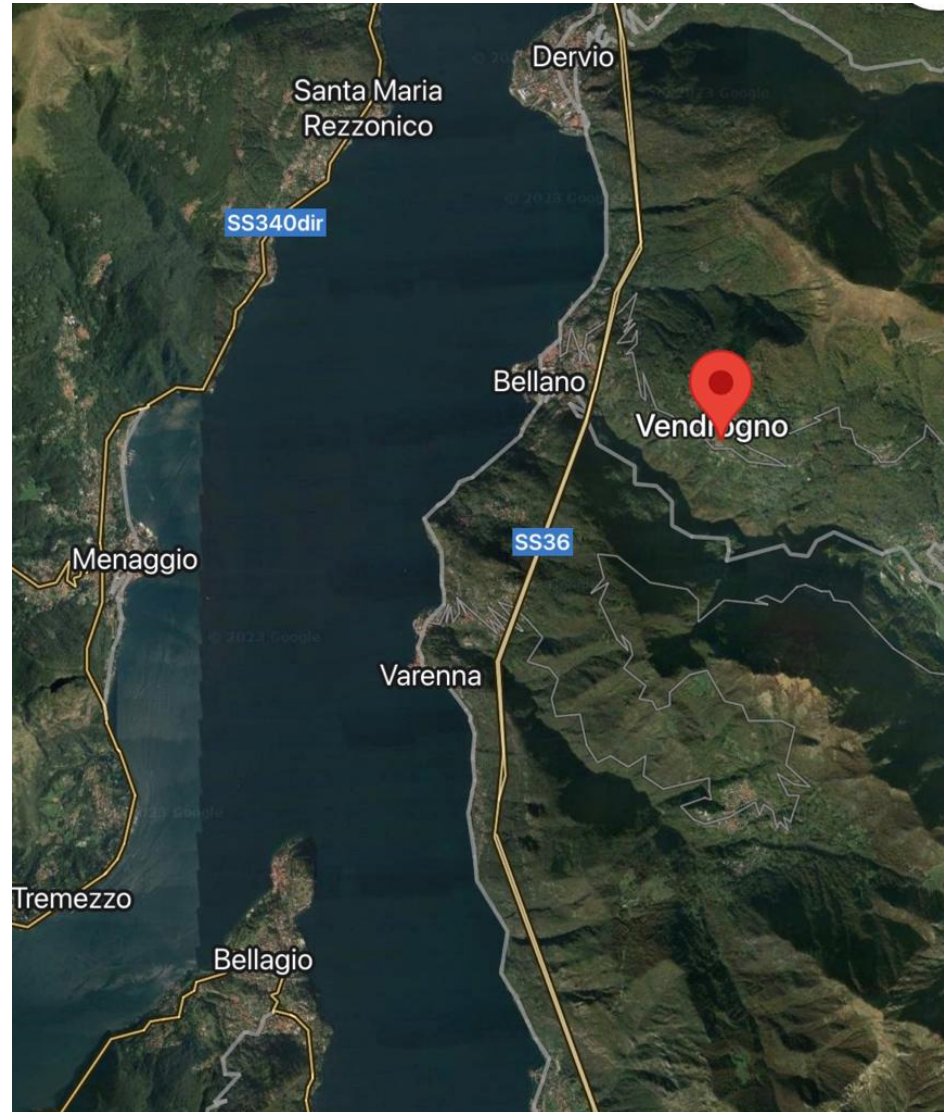


PHOTO 4: Villages and forests around the lake of Como

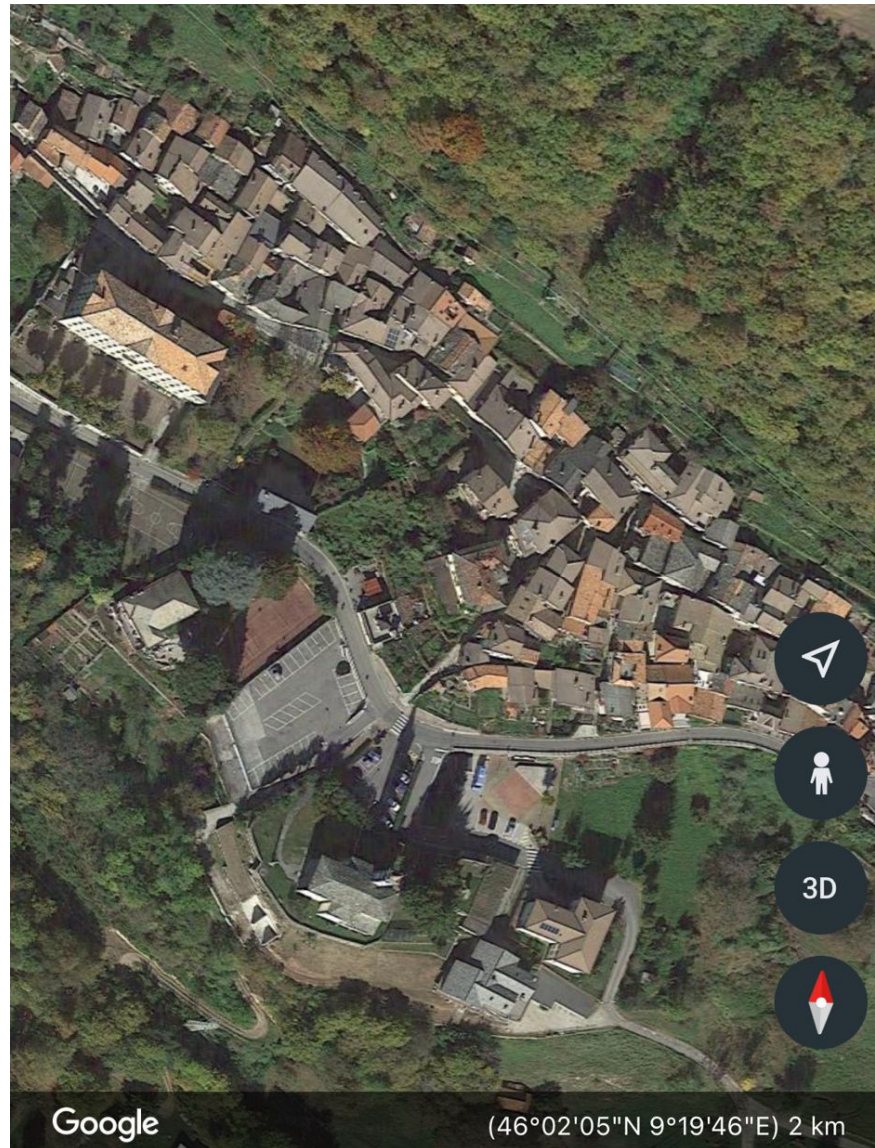


PHOTO 5: the borders of a village



PHOTO 6: The interdependence between the houses in a village

Plants like any living beings are programmed to have a limited life and after a few years they die and other plants are born from their decomposing remains. Similarly, the growth and transformation of the city can be more or less rapid and is connected to the life span of buildings and to that of individuals and of their families and of companies as they are replaced by other families and companies. There is an internal demographics in the single house, in the neighborhood and in the city made by incoming and outgoing people.

Space and time are two dimensions of the development process. From a territorial perspective, there are forces which push towards agglomeration and others which repel and lead to a distancing of the different elementary units. In fact, geographical distance affects the intensity of the forces, which explain the birth and development of physical structures, families and the businesses, that make up a city.

On the other hand, in a temporal perspective, the speed of change of a city depends on the speed and intensity of the temporal evolution of multiple economic, demographic, cultural and even physical factors. These changes are not the result of an optimizing calculation by an exogenous decision-maker or a "deus ex machina", but have an incremental nature and occur by successive approximations or by trial and error ("trial and error"), as a response to an external stimulus and starting from sub-optimal solutions and proceeding towards better solutions, according to a path of least resistance.

In particular, in the case of a forest, as well as in the case of a city, development depends on factors operating on the supply side and on other factors operating on the demand side.

Plants grow because their needs or their "demand" for external resources (water, CO₂ or sun light) is compatible with the availability or the "supply" of these resources in the surrounding environment. Similarly, , looking on the supply side, the existing built environment, the availability of construction materials necessary for the construction of the buildings and the availability of skilled labour are relevant for the growth of an urban centre.

Moreover, the supply varies at different distances from the city centre and the availability of land is affected by access to communication routes and proximity to other cities. On the other hand, looking to the housing demand side, the economic resources and the preferences of the citizens, who live in the city and who wish to live in the buildings to be built, are relevant.

In summary, even in the case of constructions as in the case of all economic productions, the cost which is determined by the "supply schedule" must be lower than or equal to the value of the building, determined by the "demand schedule".

In a dynamic perspective, the process of growth of a city or of a national and regional economy is due to the process of change and to the restructuring of both supply and demand. In particular, the process of restructuring on the supply side consists in the shift of resources and employment towards sectors with higher productivity and capable of paying higher wages. Instead, the restructuring of the demand consists in the change of the consumption patterns by the citizens, who are oriented towards higher quality goods and having a higher relative price.

Then, the greater quantities and the greater prices of the demand stimulate the production of the enterprises and on the other hand the development of new productive capacities and their higher relative cost favour the growth of the demand.

Therefore, the city and also the local and national economy in general are similar to a forest and must not be interpreted as a stock determined in a certain moment by a balance between supply and demand, but they are the result of flows or changes that connect previous situations to future ones over time and are also the result of the flows that connect a city to other contiguous urban centres according to a territorial point of view.

2. The collective dimension of human action in an ecological system.

The essential difference between a forest or a natural system and a city or a national and regional economy consists in the action of man, given that only human intelligence allows the calculation of the compatibility between the demand (or needs) on the one hand and the offer (or capabilities) on the other. This allows for a much more rapid and even more unpredictable development than what happens in nature since each man can make rational choices, that innovate with respect to inherited productive solutions.

As Carlo Cattaneo (1861)³ said, economic development requires both the "intelligence", that allows the calculation of benefits and costs, and the "will", that leads to action.

In a similar way, we can argue that unlike a forest, in a city as well as in a national or regional economy change is determined by the interdependence between, on the one hand, "objective" factors such as: a) external stimuli and b) the needs of individuals and on the other hand the "subjective" reaction or decision to act of citizens and businesses, which is driven both c) by intelligence and d) by emotions, as indicated in figure 1.

³ Cattaneo, C. (1861), *Thought as principles of public economy*, Ami Books, ebook, copyright www.associazionemazziniana.it.

"The public economy of a nation can therefore be explained neither by Montesquieu nor by Adam Smith; it is not explained either with nature or with work, but with the intelligence, which grasps the facts of nature; which presides over work, consumption, accumulation; which makes them be one way or another; which makes them be or not be". p. 26

"The inner man possesses two forces: intelligence and will. The will is the principle of wealth as much as the intelligence...its instinctive passions, without ever really changing their nature, finally take the form of rational or deliberate volitions. Those impulses which determine the will to purchase goods are called interests" p. 34

"Collecting, we will say that every new treatise on public economy should formally classify intelligence and will among those sources of the wealth of nations; intelligence, which discovers goods, which invents methods and tools, which guides nations along the paths of culture and progress: the will, which determines action and faces obstacles. If the legislators cannot with a stroke of the magic rod create in every country the goods which nature has too unevenly scattered over the earth, if they cannot multiply the number of hands and the power of labor at will, if they cannot always win the favor of the arbiters of capital, certainly they can become promoters and avengers of free intelligence and free will. p. 46

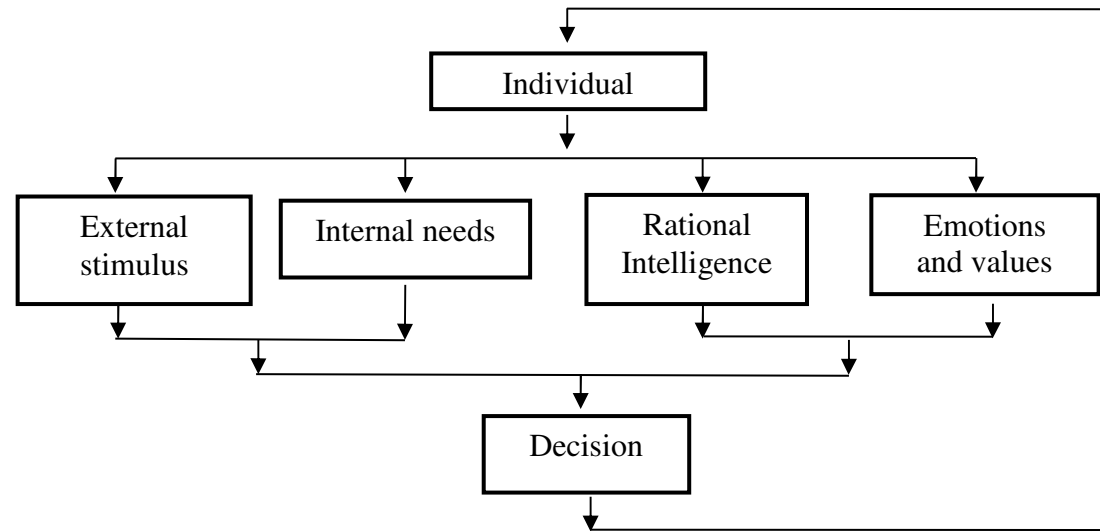


Figure 1 – Physical and cognitive levers of the individual choice

Therefore, the choices of individual citizens and businesses are driven by an external stimulus together with the internal or perceived needs and that causes a reaction which is driven by both intelligence and emotions. It may be said that these two classes of "objective": external stimulus and internal needs, and "subjective" factors: intelligence and emotions, are in fact conceptually similar to the demand schedule and the supply schedule in the neo-classical economic model.

Moreover, it is important to underline that human action allows not only slow incremental changes but differently from the above case of a forest it allows very fast changes in a wider temporal and spatial perspective and in very different directions from the previous situation. In fact, cities are the work of choices made by politicians, architects, urban planners, economic operators and not just the spontaneous result of the incremental growth of the built environment.

Then, the architectural design activity allows the construction of buildings that are totally different and distant from the pre-existing ones and the use of new materials and construction types that respond to totally new needs compared to existing buildings. In particular, a building and urban planning project has the task of anticipating future demand and organizing the financial and material investment, that will allow to satisfy that demand. It is therefore clear that the historical development of cities is affected by the evolution of technology, by the economy and by the needs of the citizens. In particular, the evolution from an industrial society to a post-industrial society makes it necessary for politicians and operators and technicians to plan the future evolution of cities and territories, as it has occurred after the great economic crisis caused by both Covid and the energy crisis.

Individual decisions are subject to a mechanism of collective interdependence. Both intelligence and emotions have not only an individual dimension but also a collective dimension. In fact, knowledge develops through interactive learning processes between people and emotions depend on empathy with or antipathy with other individuals. In the case of firms, results depend not only on the technical relationships between inputs and outputs or between monetary costs and benefits, but also on knowledge and innovation, which depend on tacit knowledge that develops through interactive learning processes between the various companies.

Moreover, the action of the human being has not only a subjective or individual dimension but also a collective dimension, as it is clear in the above example of the woods in the natural world. In particular, with respect to our discourse on regional and national growth policies, it is important to underline that both human intelligence and emotions have not only an individual but also a collective dimension. Thus, individual behaviours are not autonomous but interdependent and depend on the flows which bind together the various citizens, businesses and institutions on the territory and within the individual local, regional and national communities.

In fact, the individual reaction to the external stimuli subsequently feeds back on the behaviour of other individuals and businesses, as there is an objective interdependence between them especially in the specific territorial area to be considered.

Thus, the intelligence or knowledge that guides economic decisions is not only the result of an individual activity, such as in a logical-mathematical calculation or in continuous "learning by searching" processes, but it has also a collective dimension.

In fact, interactive learning between the different actors leads to the creation of "shared tacit knowledge".

Similarly, the emotions or feelings and the consequent will to act are certainly individual and dictated by selfish interests, but also dictated by empathy or compassion with other human beings within the family or the local and national community, as in the case of the behaviour of the political groups, since they are affected by shared and collective emotions, by the sense of regional or national identity and the civic spirit.

Therefore, individual behaviours are not autonomous, while they are interdependent and affected by the relationships or flows that link different citizens, businesses and institutions on the territory and within the various local, regional and national communities.

When applied to the problem of the economic development of a territory or of a company, this theoretical model of collective decisions indicates that development depends on:

- a) the changes in product and input markets and technology studied by economists and statisticians,
- b) the internal organizational changes and skills of the managers and workers, studied by sociologists, psychologists and statisticians,
- c) the technical ability of engineers, economists and urban planners to conceive industrial and building projects and
- d) the will or motivations of citizens and politicians to approve them.

3. The evolution of citizens' needs and the demand for "common goods".

The analysis of citizens' needs is essential for determining the evolution of market demand and also the guidelines of public policies. Cities involve benefits and costs which are common for all their citizens and the analysis of citizens' needs is of great help in planning urban and industrial policy interventions.

The authors of a recent book on the so-called "Restorative cities"⁴ identify seven different types of factors that determine the success of an urban centre and influence the development of both the demand by the citizen and the supply of private and public services and productions intended for common use.

The first is the green city, which is the most robustly restorative attribute of the urban space. Integrating nature in the heart of the city can reduce depression and stress and improve brain function, as well as improve sleep quality.

The second is the blue city. Research evidence shows that water, in both natural and man-made environments, makes us feel calm and relaxed. The benefits are thought to work in similar ways to green spaces.

The third is the sensory city. City designers often focus on eliminating sensory experiences such as a smell or noise that people have found unpleasant. It is therefore important to reduce noise pollution and create a sound refuge - a quiet place in the city.

⁴ Roy, J. & McKay, L. (2021), *Restorative cities*, Bloomsbury Visual Arts, London.

The fourth is the neighborhood city or the so-called 15-minute city. Designing a neighborhood city means promoting social interactions in daily life and reducing loneliness, which is a problem that has increased during the Covid-19. This requires the design of shared places for socializing in condominiums or pedestrian areas or cycle paths or commercial areas or centres for social and religious activities but also the design of gardens and parks that facilitate social interactions.

The fifth is the active city, which means integrating physical activity into people's daily routines. From this perspective, areas that can be walked or cycled naturally provide physical benefits, but they also offer benefits for mental health and brain function.

The sixth is the playable city. Games and sports and musical, artistic and cultural events foster resilience and harness people's curiosity. It is very important that play and sport opportunities are not only for children but also for adults and workers.

The seventh is the inclusive city. This pillar underlies all the others. In order for people to make the most of the planned opportunities, they must have a sense of belonging and develop a common identity which is based on common traditions and customs and which requires an investment in cultural events which facilitate relations between citizens and the sharing common values.

For the Group: "A New Industrial Strategy", active since 2014 and which brings together about seventy Italian economists, the theoretical framework illustrated above operationally means that it is necessary to launch a "new industrial strategy" at the regional, national and European level in order to respond to the major emerging and past needs of the citizens in the urban areas and regions of the EU. These needs broadly correspond to the seven different types of cities mentioned above and are the needs^{5 6 7}of:

1. food,
2. dwelling,
3. leisure, culture and tourism,
4. people mobility and production logistics,
5. health and higher education and continuing education,
6. energy, natural environment and defense of the territory from natural disasters.

These needs and the related new service or industrial activities that satisfy them are mainly localized in cities of different sizes and drive the growth of many different industrial enterprises and their respective supply chains and surrounding areas. These “lead markets” are given by the intersection of new needs of citizens and of new opportunities and technological skills within the companies. Therefore, the needs of citizens in a regional and national "industrial strategy" perspective are the drivers for the development of new businesses as well as existing businesses. They create new “lead markets” which must be the priority object of a new European Industrial Strategy aimed at diversifying towards innovative productions and creating new jobs.

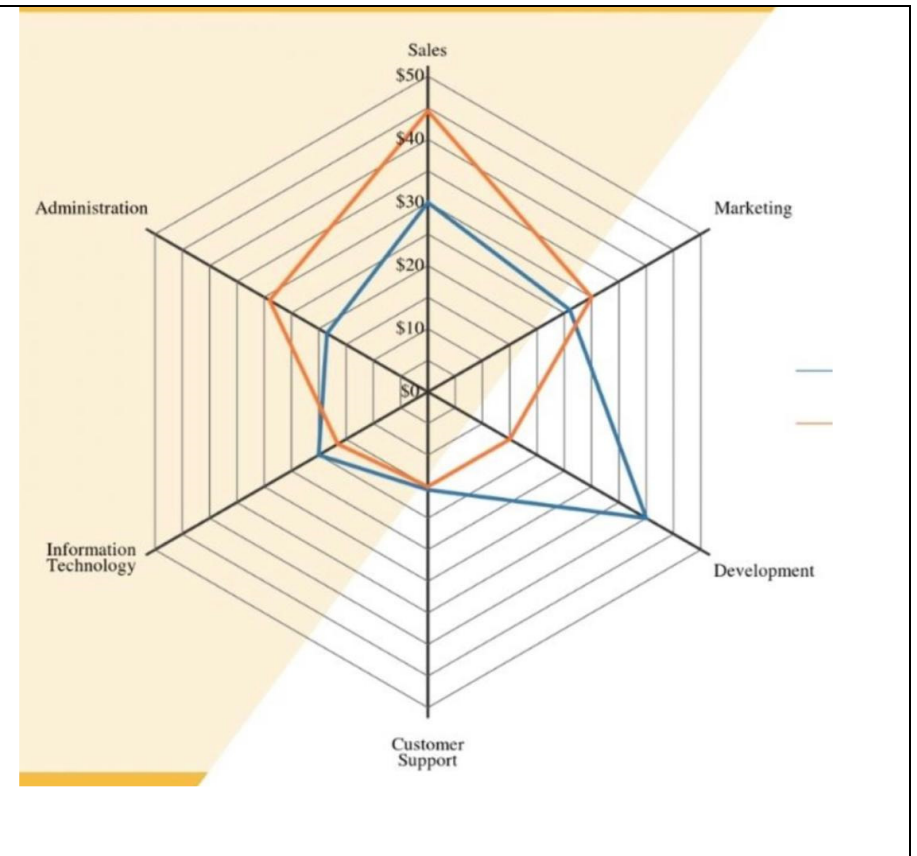
⁵ Cappellin R., Baravelli M., Bellandi M., Camagni R., Ciciotti E. e Marelli E. (2015), a cura di, *Investimenti, innovazione e città: una nuova politica industriale per la crescita*, Milano: Egea.

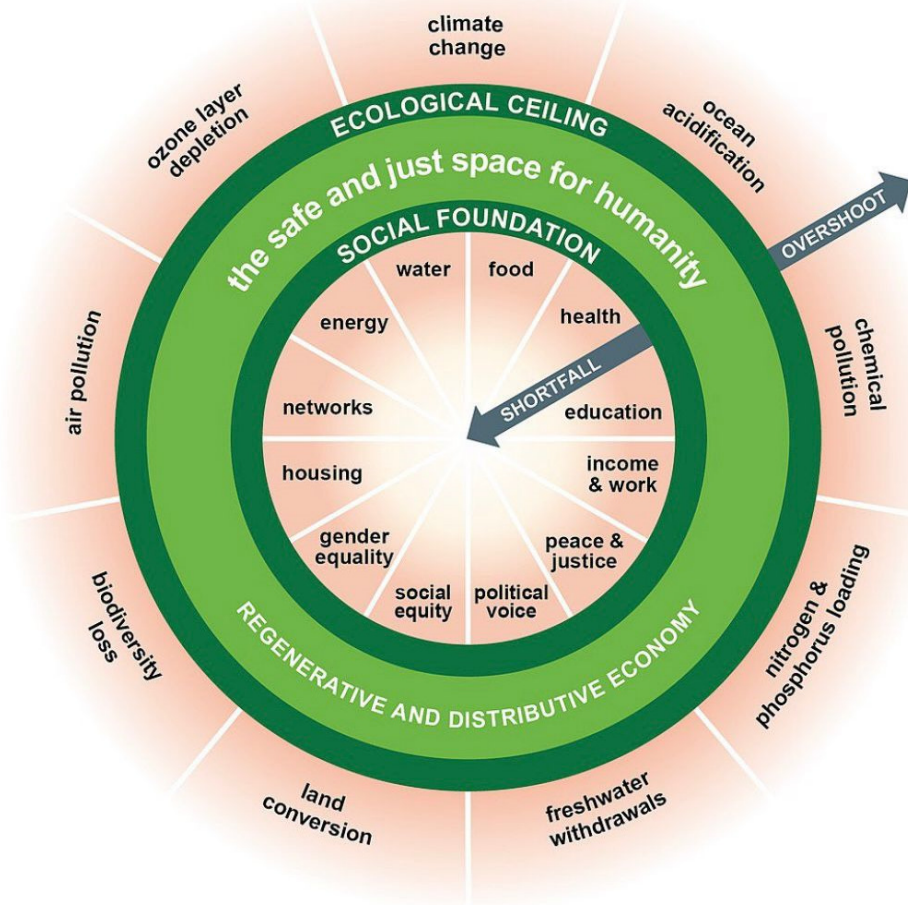
⁶ Ciciotti, E. (2020). A New Territorial-Industrial Policy after the Covid 19 Crisis. *Symphonya. Emerging Issues in Management* (symphonya.unicusano.it), 2, 25-32.

⁷ Similarly, the European Commission in proposing the industrial strategy for the European Single Market indicates the following 14 Industrial Ecosystems: 1. Aerospace and Defence, 2. Agri-food, 3. Construction, 4. Cultural and Creative Industries, 5. Digital, 6. Electronics, 7. Energy Intensive Industries, 8. Energy-Renewables, 9. Health, 10. Mobility-Transport-Automotive, 11. Proximity, Social Economy and Civil Security, 12. Retail, 13. Textiles, 14. Tourism.



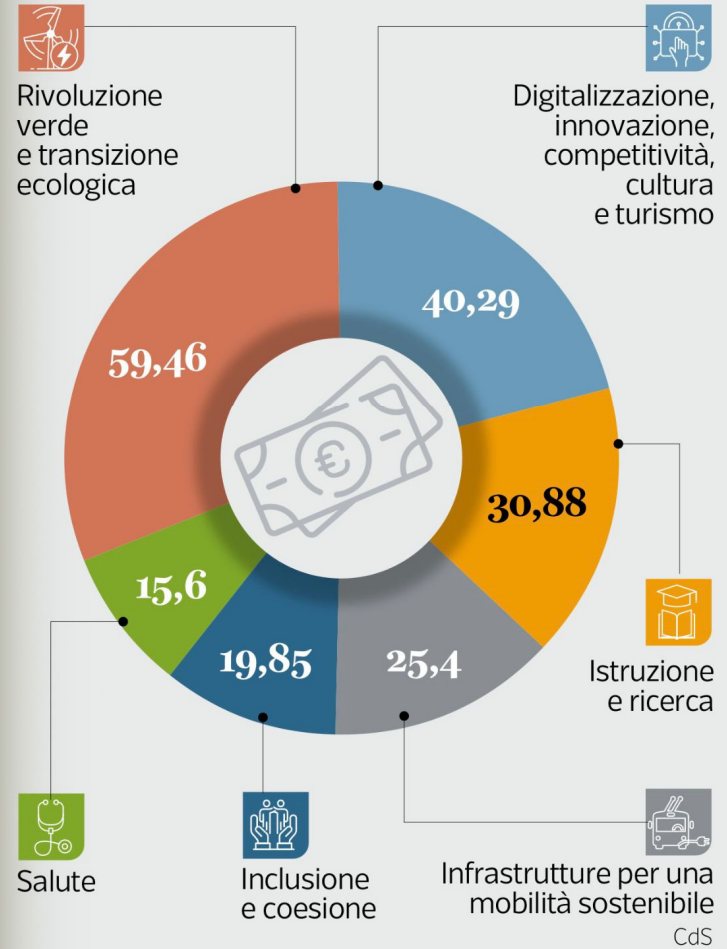
Figure 2 – The development of new leading markets for the diversification of the European economy





PNRR: LE SEI MISSIONI

Dati in miliardi di euro



These “lead markets” are connected to each other, as they are complementary in the use by citizens and also in the production processes. Therefore, the development of the horizontal and vertical integration between different companies is important.

Some needs can be satisfied by 'private goods', but other needs require joint production for multiple users and therefore require a supply of 'common goods' ⁸.

The latter need not necessarily be produced by public institutions, since they can also be produced by private companies, as in the case of roads or aqueducts. Furthermore, some "common goods" such as water and the environment are of a physical nature but others are of an immaterial nature such as safety, health, culture and also mutual solidarity and the reduction of inequalities. In the latter cases, a collective or political decision is certainly fundamental.

In an "industrial strategy" perspective, the needs of citizens in urban areas represent the drivers for the development of new businesses and the creation of employment and the development of new productions at a European, national and local. Therefore, on these needs and productions should concentrate the national Recovery Plans and also the national and European Community regional cohesion policies.

⁸ Cappellin R. (2016a), Il cambiamento dell'industria, le economie di urbanizzazione e il ruolo delle città nella crescita economica europea, in Becchetti L. (a cura di), Le città del ben-vivere, Roma, ECRA.

4. The evolution of production systems, knowledge and innovation.

The development process is the result of structural change or innovation, which has not only technological but also an economic, social, territorial and institutional character. Therefore, an economic system not only has a productive dimension characterized by monetary or real variables⁹, but also a "cognitive" dimension characterized by information and knowledge as is typical of a modern learning society¹⁰, as innovation requires the circulation of information and knowledge. These factors are particularly important for regional and national development policies.

Thus, according to a technological and cognitive perspective¹¹, the evolution of the structure of relationships in business networks can be associated to the evolution of the connections between neurons in the neural network model. Indeed, an innovation in a regional or national economic system is the result of an adaptive learning or research process, which leads to new synaptic connections. In particular, a scientific discovery and innovation occurs when the joint impulses coming from other nodes are not only compatible with the considered node, but also exceed a certain intensity threshold. This allows a node to perceive this stimulus and it can therefore decide whether to conflict with it or better adapt to it. Therefore, if the external stimulus is compatible with the cognitive system considered, through interactive processing it is possible to identify an incremental solution to a current problem and this stimulates innovation. Indeed, innovation is the result of an interactive learning process¹² and collective decision-making.

⁹ Cappellin, R. (1983), Observations on the inter- and intra-regional distribution of productive activities, in G. Fuà and C. Zacchia (eds.), *Industrialization without Fractures*. Il Mulino, Bologna: 249-271; Capello, R. (2004), *Regional economy*, Bologna: Il Mulino.

¹⁰ Nelson, R.R. and S.G. Winter (1982) *An Evolutionary Theory of Economic Change*, Cambridge, Mass: Harvard University Press; Williamson O. E. (1981), *The Modern Corporation: Origin, Evolution, Attributes*. *Journal of Economic Literature*, 19, 4: 1537-1568; Malerba, F. (2001), a cura di, *Economia dell'Innovazione*. Roma: Carocci Editore; Fagerberg J. (2005), *Innovation. A Guide to the Literature*, Fagerberg J. , Mowery D.C., Nelson R.R., *The Oxford Handbook of Innovation*, Oxford University Press, Oxford, pp. 1-26; Lipczynski J, Wilson J.O.S. e Goddard J. (2010), *Economia Industriale: concorrenza, strategie e politiche pubbliche*. Pearson Education, Prentice Hall: Milano-Torino; Tidd, J. & Bessant, J (2014), *Strategic Innovation Management*, Wiley. ISBN: 978-1-118-45723-8.

¹¹ Cappellin, R. & Wink, R. (2009), *International Knowledge and Innovation Networks: Knowledge Creation and Innovation in Medium Technology Clusters*. Edward Elgar Publishing, Cheltenham; Cappellin, R. (2010), *The governance of regional knowledge networks*, *Scienze Regionali*, 9, 3, 5-42

¹² Lundvall B.A. and Johnson B., (1994), *The Learning Economy*, *Journal of Industry Studies*, vol. 1, no. 2, 23-42.

Secondly, it is necessary that the different actors are able to carry out forms of reciprocal coordination and we can define this second requirement as organizational integration or "institutional proximity". It is explained by a second set of three variables which have a "subjective" character and which promote a strong organizational and institutional integration between the different actors of a regional and local production system and favour the initiative or the collective decision-making capacity of these actors. These variables are: 4) common identity, 5) creativity or the creation of new knowledge and the design of a common strategy, 6) the ability to govern reciprocal relationships between actors in the implementation of innovation.

The relationships between "cognitive proximity" on the one hand and "institutional proximity" on the other are indicated in figure 1. In particular, the combination of low cognitive proximity and low institutional proximity is the one that characterizes isolated firms or spontaneous clusters and it tends to be less dynamic (case 3). Conversely, the opposite combination of high cognitive proximity and high institutional proximity (case 2) is the one that characterizes the networks of the most innovative companies capable of giving themselves a common growth and innovation strategy. The intermediate solutions are those of the industrial districts of SMEs (case 4) at risk of local closure on the one hand and the separate plants of large companies at risk of obsolescence and closure on the other (case 1).

	High institutional proximity		
Low cognitive proximity	1 Individual isolated plants of large firms: bottlenecks – closures discontinuous innovation	2 Strategic networks of firms: associative governance innovation strategy	High cognitive proximity
	3 Productions cluster: isolation fragmentation stagnation	4 Industrial districts of SME: informal cooperation closure risk incremental innovation	
	Low institutional proximity		

Tab 1: Cognitive proximity and institutional proximity in the relations between firms

This theoretical approach is useful for framing the evolution of the production systems in Italy.

The Italian industrial system has evolved from an original phase of small enterprises isolated from each other to a second phase characterized by small and medium-sized enterprises concentrated in restricted areas, that are defined as “industrial districts”, and finally it may evolve into a third phase which is that of networks of medium-large enterprises tightly connected within their respective production chains.

In particular, starting from the 70s after the great oil crisis, the evolution of clusters took place according to the model of "industrial districts of SMEs" or of “local production or innovation systems” (case 4) in which the fundamental factor is the development of a strong collective identity and the creation of relationships of trust between companies, which led them to develop subcontracting relationships and an increasing specialization in production phases that are different from each other but strongly integrated into a production chain¹³.

The innovation process in the "industrial districts" is important, but it mostly takes place in the direction of "near" technological fields ("related diversification") and is favoured not only by lower "cognitive distance", favoured by the geographical proximity between the various companies, but also and above all by the strong identity and common trust that favour the circulation of information and knowledge and lead to the development of an important common "tacit" know-how and therefore of collaborations between companies.

¹³ Bellandi, M. (2020). *Some Notes on the Impacts of Covid-19 on Italian SME Productive Systems*. *Symphonya. Emerging Issues in Management* (symphonya.unicusano.it), (2), 63-72.

In these industrial districts of SMEs, unlike the case of a production cluster, the relevant "cognitive proximity" is integrated by a relevant "institutional proximity" in the sense of the TKM indicated above and in particular by an important sense of belonging or by a strong identity. In fact, the common collective identity, the feeling of common belonging and the existence of common rules increase mutual trust and decrease cognitive distances, and that promote forms of spontaneous creativity sustained over time.

Within a territorial economic system, the economic relations between the various actors are not only the demand for purchases and sales of products and services, but also the demand and the supply of labour and the demand and the supply of capital, as in a pure neoclassical general equilibrium market model. In fact, other relations are also important, such as the exchange of technological and commercial information and the social relations of friendship or enmity between the different actors.

Moreover, the bilateral relations between two specific actors are not isolated but should also be adjusted by taking into account the complex relationships of each actor with the other actors in the economic system. That represents a difference with respect to the pure neoclassical market model. Therefore, a local production system is different from the model of the "invisible hand" of Adam Smith and it is also different from an ecological system, such as a forest of trees. Still, a local production system seems to be capable to evolve spontaneously without any policy intervention through recursive interdependent marginal adjustments, as the intervention of economic policy is not in general indispensable for the discovery of new productions, while it is important in insuring the access to the production factors.

Finally, only in a third phase of development, that started in the 1990s in some industrial districts of the more developed regions, a gradual transition from the “industrial district model” to the “strategic network model” (case 2), and that envisages the development of the coordination of many small and medium-sized enterprises by some medium-large “leader” enterprises and by public institutions. In this perspective, through the organization of networks, companies are able to decrease the resources and the time needed to adopt an innovation, compared to the situation in which all the capabilities must be developed internally. Networks promote learning and evolution processes and are a form of organization that learns and ensures a greater overall dynamic efficiency.

As indicated in table 1, these three models and different phases of the process of industrial development indicate the importance of “cognitive proximity”, which depends on the interactive learning process between different companies and on the combination of different technologies. However, in the two last models and phases of development it is important also the concept of “institutional proximity” or of an organizational and institutional integration between the different regional actors.

“Institutional proximity” requires various factors, such as: a) actors have a strong sense of a common identity, b) actors are capable of starting a creative process of designing new solutions to common problems and c) actors have the organizational and institutional capacity to implement these new solutions or policies by creating ad hoc hard institutions (SPV, joint ventures).

5. The evolutionary or Schumpeterian model and the "ESG" synergies between the actors.

The synthetic considerations illustrated above on the evolution of the behaviour of citizens as consumers and of companies as producers can be a guide for the economists, who must define economic policy measures that aim to promote a sustainable development.

Unlike the neo-classical model, the evolutionary or Schumpeterian ¹⁴model is based on a new approach to innovation and development policies in which the different actors are linked together by learning processes, which allow them to develop their respective skills and also to discover their respective needs, compatible with their individual and collective "identities". In particular, this model differs from the neoclassical model because:

a) the firm interacts with other firms and defines their strategies as a complex agreement between the most relevant stakeholders: both internal to the firm, such as managers, shareholders and workers, who bring different specialized skills and innovative capabilities, and also external to the firm, such as customers, suppliers of goods and services, banks and finance, universities and the world of research, citizens and other businesses in the contiguous area and the local and national institutions ^{15 16};

b) consumers or customers of the firm have an active role ("pro consumers"), they have new needs and collaborate with other firms in product innovations;

¹⁴ Schumpeter, J. (2006) *Capitalism, Socialism and Democracy*, 6th edn. London: Routledge.

¹⁵ Cyert, R.M. & March J.G. (1963), *A behavioral theory of the firm*, Englewood Cliffs, NJ, Prentice- Hall.

¹⁶ Business Roundtable (2019), *Business Roundtable Redefines the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'*, August.

c) "external economies", "common goods" and "public goods" and static and dynamic economies of scale are fundamental;

d) public institutions at the national and local level create various common programs with private entities and different new organizations suitable for their conception and implementation.

According to this "evolutionary" perspective of the process of economic development it is essential that the new demand for goods and services meets a new adequate supply or that the new production capabilities correspond to the development of new demands by citizens and consumers¹⁷.

Furthermore, in order to facilitate an interaction and synergy between supply and demand, it is essential that there is a geographical and cognitive contiguity between citizens, who determine the demand, as well as that there is contiguity between businesses and public administrations which determine the supply. This territorial contiguity implies the existence of external economies both in consumption between consumers and in production between firms.

In fact, as indicated above, a local or regional economy is analogous to an ecosystem, such as a forest made up of different plant species, where the individual components are interdependent and develop by replacing people or businesses that disappear with new people and businesses and moving outwards towards new areas and ambits of life and production. However, in an evolutionary model based on the concept of innovation, the relationships between companies and between citizens/consumers/workers are not only influenced by geographical contiguity, such as between the plants of a forest, but also influenced by technological, organizational and cultural distance.

¹⁷ Cappellin, R. (2020). *The New European Industrial Strategy and the Company's Organization Models*. Symphonya. Emerging Issues in Management (symphonya.unicusano.it), (2), 7-24.

In fact, citizens/consumers certainly aim to their respective individual well-being, but above all they are sensitive to the well-being of others within their respective family or local community. Phenomena such as fashion (imitating others) or snobbery (being "contrarian" or original), traditional uses and collective identity explain individual behavior more than utilitarian or "rational" calculation of an individual type, as it is assumed by the neo-classical model.

In this demand perspective, economic studies indicate that "common goods" are important¹⁸. They are those goods that can be enjoyed together by different individuals and that also require common rules so that the use of someone does not prejudice the use of others. A typical example is the use and care of natural parks, but also the arrangements of city streets or the organization of cultural and scientific events.

Moreover, considering the supply side, there are synergies between the individual actors also for the producers. That is the case of the so-called "team economies"¹⁹ which indicate that the overall result and also the result for each component of the team is higher than what the individual could have achieved by playing alone without coordinating with other people in the same team.

Therefore, the “synergy” between the actors, even more than the classic "competition", is the basis of the principle of the “division of labour” at a sectoral level and also at the international level.

¹⁸ Cappellin R., Becchetti L., Bellandi (2019), *The guidelines of a new industrial strategy oriented to the citizens and the territory*, paper presented at the Conference of the Rectors of the Italian Universities - CRUI, “Universities for sustainable development”, Udine, May 2019; Morgan, K. (2021). *After the Pandemic: Experimental Governance and the Foundational Economy*, Symphonia. Emerging Issues in Management (symphonia.unicusano.it), (1), 50-55.

¹⁹ Alchian, A. & Demsetz, H. (1972), *Production, Information Costs, and Economic Organization*. The American Economic Review.62(5): 777–795.

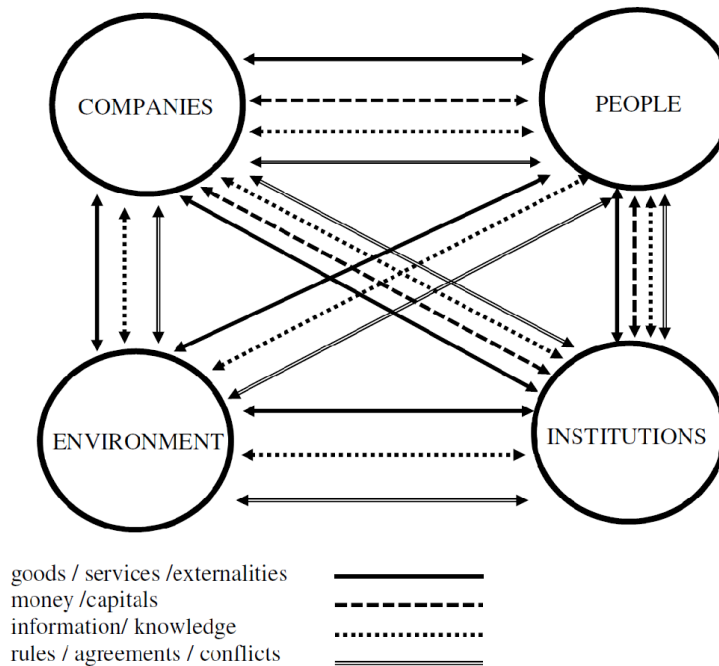


Figure 5 – The sustainable or ESG development in cities and territories and the relationships between companies, citizens, environment and institutions

As indicated in Figure 5, "sustainable" development, which we can also define with the acronym "ESG - Environment Social Governance", requires the regulation of relations between the main actors within a city or a territory, such as companies, people and institutions²⁰.

²⁰ The interdependencies between these four actors according are illustrated according to the formal economic language in Cappellin, R. (2023), The COVID Crisis and a New Industrial Strategy for Europe, in Chatterji, M., Luterbacher, U., Fert, V., Chen, B. (eds), Globalisation and COVID-19, Emerald Publishing Limited, Howard House, Wagon Lane, Bingley BD16 1WA, UK, ISBN: 978-1-80262-532-5.

In particular, the presence of “common goods” and the close relationships between different individuals and different businesses inevitably requires a change in the model of public intervention and the transition from a dirigiste or "top down" ("government") approach to a horizontal approach ("governance") to a "bottom up" approach, which aims to facilitate direct relations between the various actors ("stakeholders") of the regional or national economy and to orient them towards collaborative behaviours.

In conclusion, a new industrial strategy must take into account three different dimensions of a development policy:

- the relationships in the territory between the various economic actors: companies and individual consumers and workers vertically in the production chains and horizontally between the sectors in the territory,
- the dynamic relationships or over time, that link economic units together in their process of evolution and in the process of structural change in the economy,
- the political relations between the various institutions and the relations between the institutions and the private actors: companies, consumers and workers.

6. The role of "institutions" in guiding a sustainable economic development

While the rule of "competition" or the "market" requires that everyone be equal before the State, the rule of "cooperation" requires that the State also interacts with the various "actors" and leads everyone to collaborate with the others ²¹.

According to a cognitive approach, institutions are similar to human intelligence in that they are the tool for the fastest circulation of information and knowledge and for the creation of a collective design. That differentiates a social system from an ecosystem and also from the "invisible hand of the market", which are based on spontaneous changes leading to interactive adaptations.

The growth of the supply capacity of the production system depends on the synergies between the public and private sectors and on the synergies between the companies in the different production sectors, both industrial and tertiary. This requires institutions that play a strong role and are credible²².

Institutions are tightly linked to the transformation of a socio-economic system. In fact as indicated above, first of all, a "cluster" of economic activities, which is similar to an "ecological system", such as a forest, can evolve in the form of a "industrial district" or of an "economic-territorial system", whenever the various activities are sharing a sense of common identity or become linked by trust relationships.

²¹ Cappellin, R. (2009), The governance of innovation: free market and concertation in the knowledge economy, *Economic Policy Review*, 99, 4-6: 221-282.

²² Rodrik, D. (2004), Industrial policy for the twenty-first century. CEPR Discussion Paper no. 4767.; Cappellin R., Marelli E., Rullani E. & Sterlacchini A. (2014), (eds.), Growth, investments and territory: the role of industrial and regional policies, Website "Regional Sciences" (www.rivistasr.it) , eBook 2014.1 ; Cappellin R., Baravelli M., Bellandi M., Camagni R., Capasso S., Ciciotti E., Marelli E. (2017), edited by, Investments, innovation and new business strategies: what role for the new policy industrial and regional. Milan: Egea; Rodrik, D., (2020), New firms for a new era, *Social Europe*, 19th February 2020; Aiginger K. & Rodrik, D. (2020), Rebirth of Industrial Policy and an Agenda for the Twenty-First Century, *Journal of Industry, Competition and Trade*, 20: 189-207; Bianchi, P., & Labory, S. (2020). Industrial Policy and Covid Crisis: Mobilizing All Levels of Government for Smart Complementarity. *Symphonya. Emerging Issues in Management* (symphonya.unicusano.it), (2), 73-79. ; Garofoli, G. (2021). Investment, Employment and Aggregate Demand. A New European Industrial and Regional Strategy, *Symphonya. Emerging Issues in Management* (symphonya.unicusano.it), (1), 40-49; Marelli, E. (2021). Macroeconomic Policies for Recovery in Europe and in Italy, *Symphonya. Emerging Issues in Management*, (symphonya.unicusano.it), (1), 64-75.

Secondly, an “economic-territorial system” may evolve into the form of a “strategic network”, when there are institutions capable to design a common strategy of development, which requires to create ad hoc tools of governance of the relationships between the various local actors. These institutions are capable to substitute automatic incremental adjustments with planned innovations.

Institutions can have both a formal or “hard” character, such as public institutions, or an informal or “soft” character, as in the case of customs or rules of conduct or “intermediate” institutions, such as trade-union industry associations or non-profit associations of different types.

Institutions reduce uncertainties, create incentive systems, favour information flows and the sharing of codified and tacit knowledge. They reduce information asymmetries that hinder the mutual coordination of the actors. They guarantee positive externalities to all single local actors and insure the compatibility of the interests of the various local actors and favour the decision of a collective action.

The transformation of an “economic-territorial system” into a “strategic network”, institutions allow a crucial investment in common material of intangible resources, as in the case of the planning of new industrial and territorial policy interventions. That represent a progress with respect to the informal interactive changes which characterize a “economic-territorial syste”.

As indicated above, according to Claudio Cattaneo²³ the process of economic development requires both the “intelligence” and a “common will” or we may say with different words it requires new technology/research and formal decisions/planning.

²³ Cattaneo, C. (1861), *Thought as principles of public economy*, Ami Books, ebook, copyright www.associazionemazziniana.it.

In particular, by extending this conceptual framework, we may say that institutions are crucial to the decision of a common will since they favour:

- a) the development of a common identity and therefore the sharing of values and awareness of common problems,
- b) the development of a common learning process and the design of new technical and economic solutions or the creation of innovations and the design of intervention projects,
- c) the development of coordination procedures which favour the execution of common investments in the companies and the territory.

The goal of the institutions is not to directly maximize national income or collective well-being by selecting themselves specific goals and instruments (such as in a neoclassical economic approach), but rather in a more general perspective (such as that of the endogenous development approach) to insure the compatibility of the interests of people, of companies and of the institutions themselves, through negotiations and reciprocal adjustments which depend on the respective contractual strength in the bargaining between the different actors.

The State must reduce the obstacles that prevent the interaction between the various private and public subjects, for example by creating adequate institutional venues for their direct confrontation, such as elective assemblies. Moreover, the State must also act on their "receptivity", for example by promoting the circulation of information and knowledge in order to overcome information asymmetries.

In particular, the main obstacle to collaboration is the absence between the various actors of a common goal or the lack of awareness of a specific common problem and of specific rules that ensure the mutual convenience of collaboration with reasonable certainty.

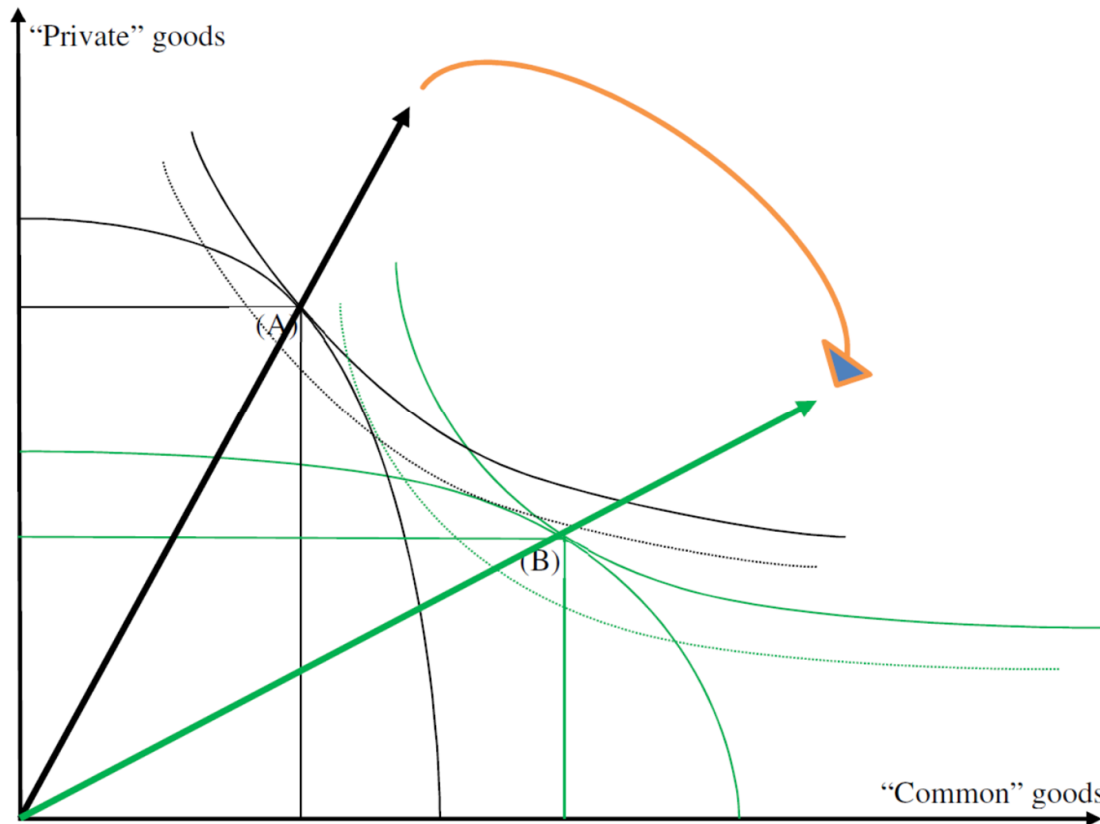
Therefore, cooperation between public and private subjects is as important and even more important than enforcing the principle of equality (in front of the law of the "State") or of insuring a "fair competition" (in the "Market"). In fact, public policies must not aim at reducing the immediate monetary costs by and individual actor having a conflict with another individual actor, but must avoid the loss of effectiveness or the loss of time in the achievement of objectives that require the joint contribution of different actors, which may be coordinated by public institutions.

Institutions facilitate strategic coordination, as they mediate conflicts between private actors and that leads to agreements on specific strategies and to the creation of joint ventures ("joint ventures", "SPVs") and it ensures the necessary stability even during change.

7. The “endogenous” approach to the theory of economic policy

Industrial and economic development policy, such as spatial planning or architecture is an "art", given that one needs to know where to intervene selectively, for removing obstacles to development and timely indicating new development prospects either on the demand or the supply, in the various sectors or in public goods or private goods.

Figure 4: The maximization approach in policy making according to neoclassical economic theory



According to a maximization approach (e.g. neoclassical approach) the policy maker should aim to achieve the highest level of aggregate wellbeing, which may be indicated for example by the GDP or other quantitative indicators, under the constraints of the production possibilities of the considered economic system. That requires the tangency between the highest social welfare functions and the existing curve of transformation (figure 1), which may be computed given the availability of production factors and the existing technology.

Once the optimal economic policy and the corresponding level of consumption and of production have been identified, the policy maker should decide the allocation of the public budget required in order to facilitate the behaviours by the consumers and the producers. That imply that the policy maker though the yearly budget law and other fiscal instruments will allocate the public budget to specific aims or policy domains and to the respective ministries, who should proceed to distribute the public money to the private consumers and producers in the considered sectors of the economy.

In reality, the various private lobbies do contact the politicians and these latter try to satisfy their respective constituencies by approving the most required policy measures, since the politicians are interested in their votes and financial contributions in order to be elected and retain the power.

The procedures are the same whatever the political priorities of the national government or of the EU institutions are. This optimization approach is highly flexible and may be followed to achieve policies, which may be very different as they respond to the different and often conflicting priorities by the politicians and their constituencies. Therefore, economic policies which seem almost opposite are in fact the result of the same and top-down optimizing approach in policy making.

In fact, the European Institutions and the National Governments through complex procedures of political negotiation arrive to determine the optimal combination of the various objectives (for example GDP growth and Environment Quality) and this decision is then transformed in the allocation of the European and national public budget. Then, the Parliaments in the various countries and the Ministries decide the funds to be allocated to the various private and public enterprises for the production of the decided products/services.

This model of policy making has a top down character or is highly centralised since the local institutions and the citizens can only evaluate and criticize ex post the policies adopted at the national level and may ask to changes of them when failures have occurred in the implementation of the policies.

The results of this approach are most often disappointing as it implies long delays in decision making and most often the uncapability to respond to the urgent needs of a specific emergency and also to spend all financial resources available. In fact, the process of decision and implementation is an iterative process and through trial and errors the policy makers try to approach the optimal solution.

The innovation theory and the theory of “endogenous” economic development (evolutionary approach) indicate an approach in policy making which is different from a comparative static and optimizing approach based on the neoclassical model of the production and utility functions.

Moreover, the neoclassical approach is based on the search of an equilibrium solution, while an evolutionary approach aims to indicate the evolution of the pattern of economic development. In fact, according to the perspective of economic development, it is not as interesting to understand what the new equilibrium position between the various forces will be but it is rather interesting to study the factors driving the change and how to modify the direction of the process of economic and social change in the considered territory or environment.

Therefore, the neoclassical model indicates the case of a static equilibrium, such as that between the two pans of a scale, given that it considers the balance between the two opposite forces of the supply and of the demand.

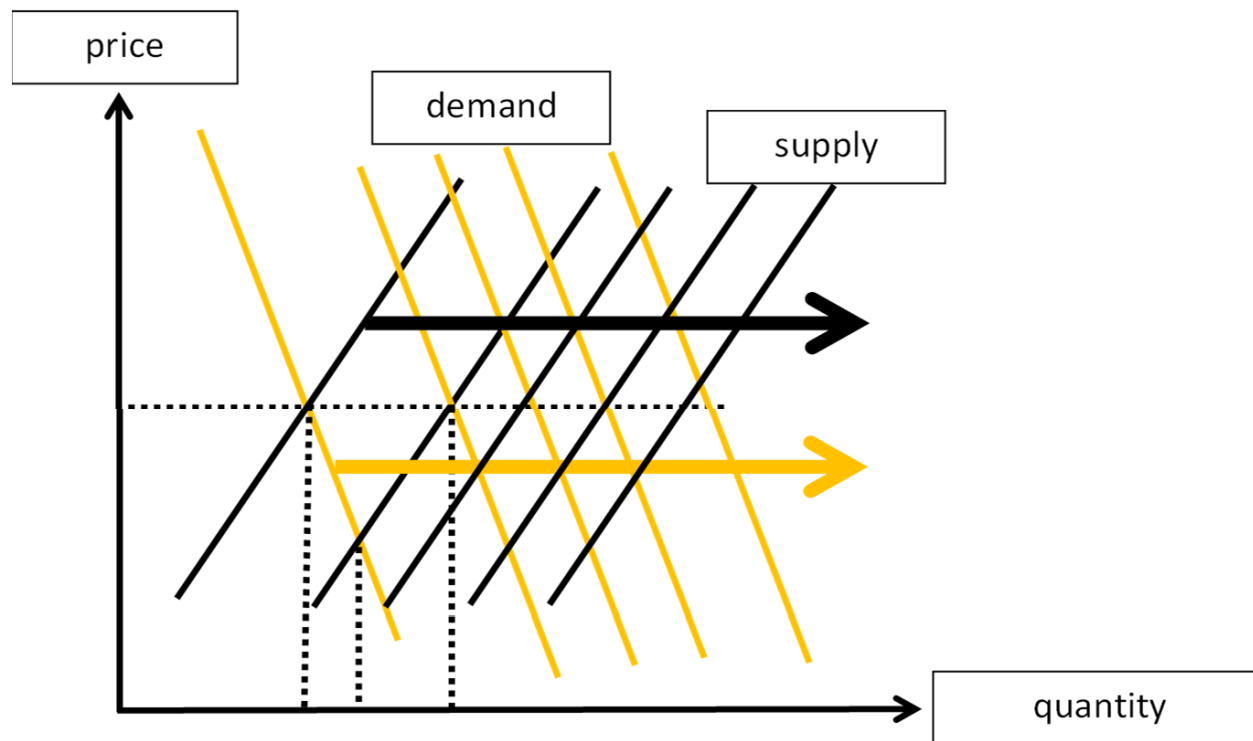


PHOTO 7: The static equilibrium of a balance where the pan on the right (the demand) and the left plate (the supply) defines the weight (the price) of a good

According to the traditional neoclassical model the public policy aiming to increase a specific production should promote a change of the demand or of the supply schedule through various financial transfers to consumers or the producers.

However, it is inadequate as a guide for public policies, given that the synergy between the different actors in a society or in a local production system and the interaction between the demand or the needs of citizens on the one hand and the supply or the material and immaterial resources on the other indicates the importance of a dynamic balance, which can lead to a progress and alternatively to a decline.

Figure 6: The growth of investment determines a shift of the sectoral demand and of the supply



This balance is in fact analogous to the dynamic balance between the left and right rows of a boat moving straight ahead (Photo 6) or to the balance between the force of the wind (Photo 7a) pushing the sail in one direction and the resistance of the rudder and keel of a boat that aim in another direction, which make the boat move forward. It is a dynamic balance between two forces that find their dynamic combination and it is different from the static balance between the supply and the demand schedules in a neoclassical model.



PHOTO 8: Industrial policies promote a dynamic balance between the new demand by innovative consumers and the new supply by innovative companies



PHOTO 9a - Upwind sailing: the boat goes against the wind up to about 45% of the wind direction

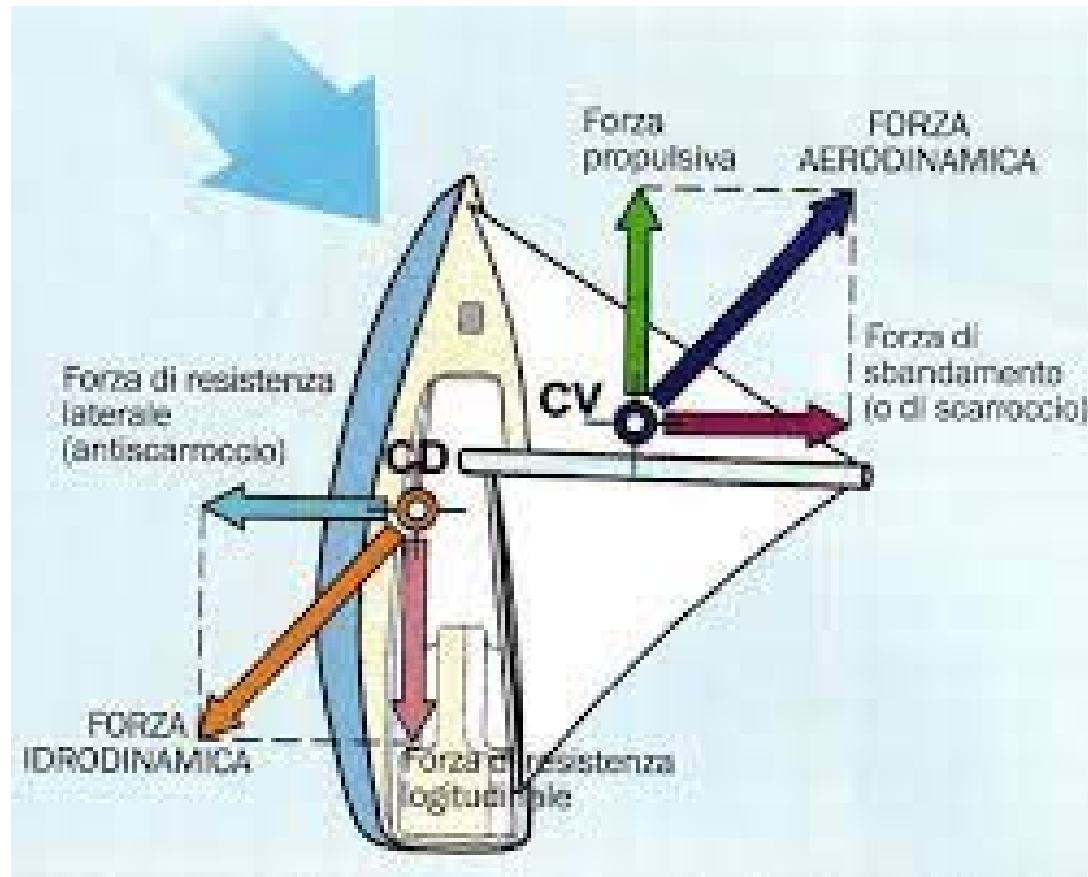
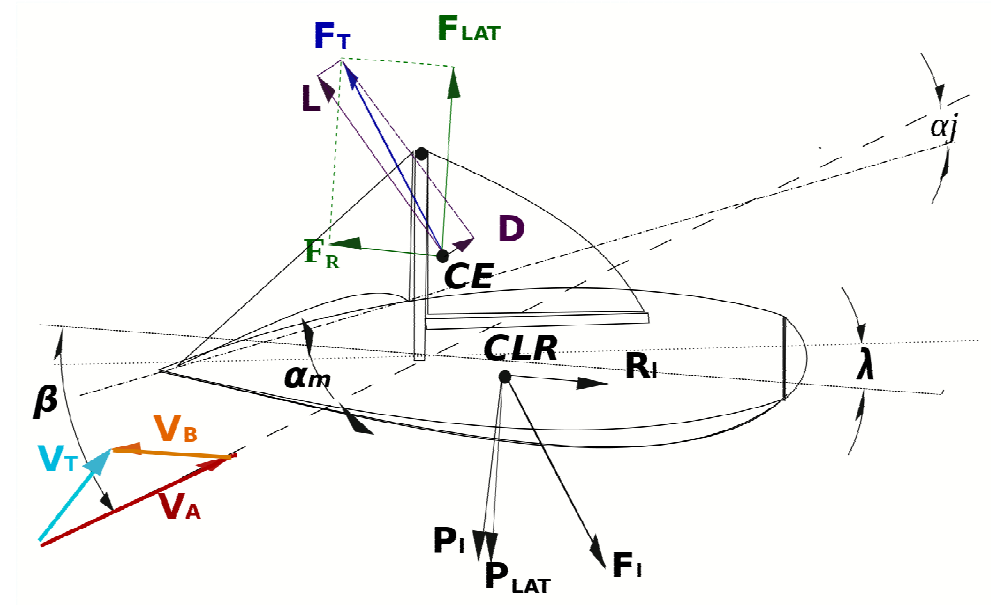


PHOTO 9b: The dynamic balance between the sail and the keel of a boat
https://www.scuolanautica.biz/wp-content/uploads/teoria-della-vela-rev.1_ps.pdf

In the case of two economic and social actors and a policy maker: each with its own strength and objectives, the overall result depends on the balance of the forces of the two actors and on the strength of the policy maker, who can influence these actors and also act independently and therefore orient on the overall result.

This is similar to the case of a sailing boat, where direction and the speed depend on the strength of the wind on the various sails and on the regulation of the sails and of the rudder by a skilled skipper.

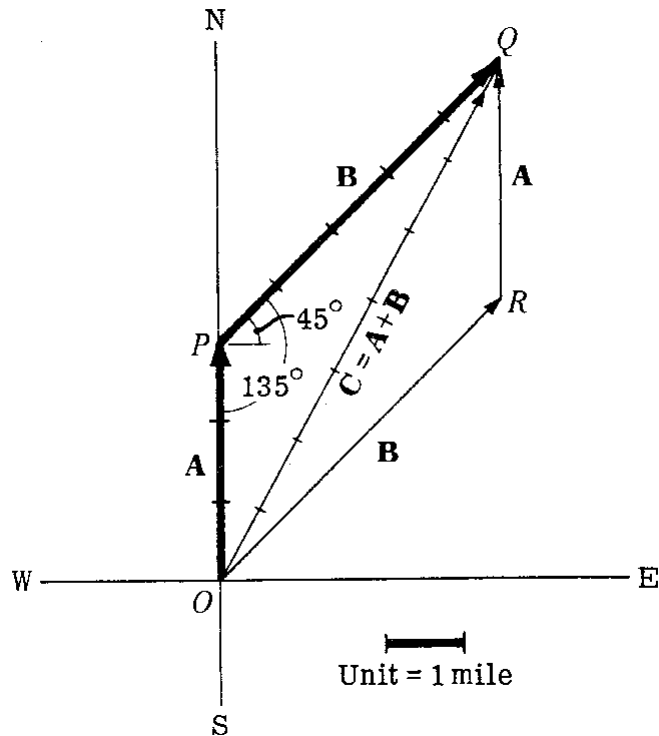


Aerodynamic forces in balance with hydrodynamic forces on a close-hauled sailboat

Source: Wikipedia, Forces on sails, https://en.wikipedia.org/wiki/Forces_on_sails

The problem can be analysed with a method different from the maximization approach adopted in standard microeconomics, which looks for a stable equilibrium between the supply and the demand through the market

price mechanism. On the contrary, the vector analysis²⁴ indicates that the vector **C** which is the graphic resultant or the sum of two vectors **A** and **B** can be obtained according to the parallelogram law of vector addition by constructing the parallelogram having the two vectors **A** and **B** as sides and as diagonal the vector **C**, which is the sum of the two vectors.



The corresponding analytical determination of the resultant vector according to the law of cosines is indicated by the equation:

$$C^2 = A^2 + B^2 - 2AB \cos \text{ of the angle between the directions of the two vectors}$$

²⁴ Spiegel M.R., Vector Analysis, Schaum Outline Series, McGraw Hill, 1959

Hence, institutions or political leadership play a role analogous to that of the boat pilot, who has to indicate the course and orients the direction of the boat and has to coordinate the rhythm or intensity of the oars or the tension on the sails.

Public institutions in a "governance" model must coordinate the actors and modify the laws, regulations, codified routines or informal customs, which give indications to the various actors of the local production system and must do so with the help of the same actors, who express the needs or the demand and control the resources or the supply.

In a governance model based on agreements and on the interaction between the various public and private actors, decisions depend on the contractual strength of the various actors and not on the decision of a superior "decision maker" or on the "invisible hand of the market" and therefore on the monetary exchanges and market prices.

In the case of an elected assembly, the result of the agreement between different parties can be described as in figure 7. Section A of the graph shows on one side the shares of spending ($x\%$) on social housing (from left to right) and on the opposite side (from right to left) the share of spending ($100-x\%$) on armaments, on the overall total spending on social housing and armaments.

Section B of the graph instead indicates the share of seats in the parliament belonging to three parties: the Left which prefers the maximum expenditure on social housing, the Center which prefers a balanced distribution between social housing and armaments and the Right which prefers the maximum expenditure on armaments. It is assumed that in time T2 the Left gains more seats than in time T1 to the detriment of the Center and that the percentage of seats for the Right remains unchanged.

Photo 10 -POLICY CHOICES

LEFT



RIGHT



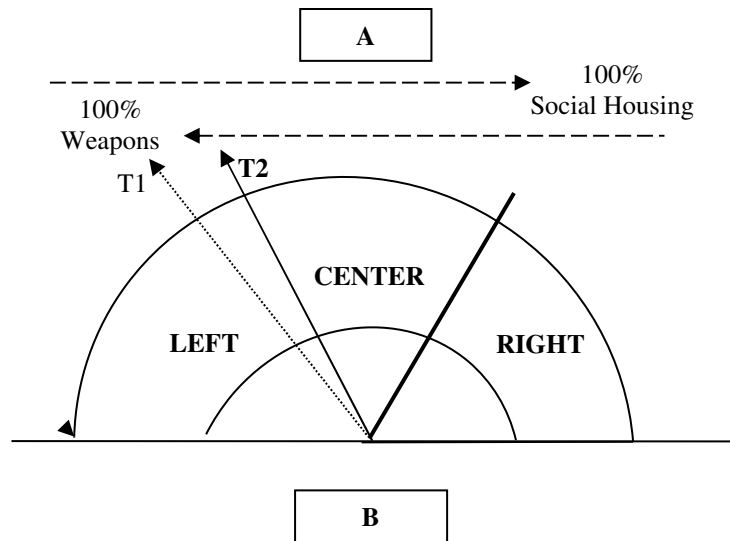


Figure 7 – The change in the bargaining power of parties and the change in government priorities

Therefore, an increase in the electoral weight of the Left will lead to an increase in its bargaining power with respect to the Centre and therefore will lead to a change in the political agenda of the Left-Centre coalition government, as indicated by the movement of the arrows from T1 to T2 in figure 7. Therefore, the government will prompt an increase of spending on housing and reduce military spending, as shown in both Figures 7 and 8.

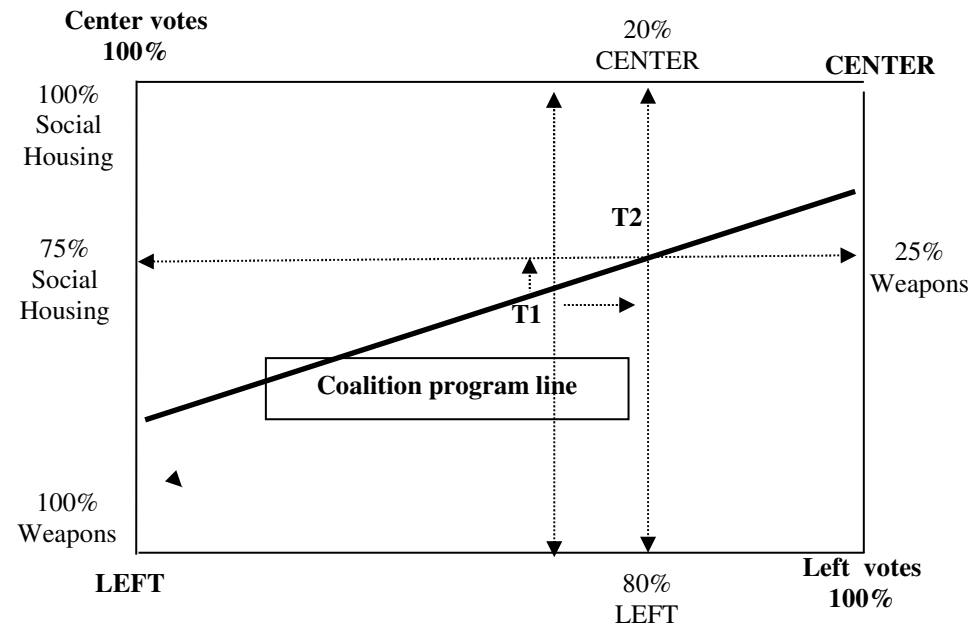


Figure 8 – The change in the political power and the shift along the line of the coalition programme

The "coalition program line" in figure 8 indicates that as the weight of the left increases, the share of the public budget allocated for housing increases and that allocated for arms decreases. The "coalition program line" of the "endogenous approach to policy making" is similar to the "contract curve" in Edgeworth's box²⁵ in a neoclassical approach. But while the latter does not address the problem of the optimal distribution of public spending, the "coalition program line" indicates the change in the distribution of public spending following a change in political balance between the two political forces, whose bargaining power increases or decreases.

²⁵ Becchetti, L., Bruni, L., Zamagni, S. (2014), *Microeconomia. Un testo di economia civile*. Il Mulino. Bologna.

Therefore, unlike a neoclassical model based on the static equilibrium between supply and demand which are both (opposite) functions of the equilibrium price, in the above model the final decision depends on the evolution over time of the respective contractual strengths of the various political or societies, pushing in opposite directions. This is true not only in relations between different political parties, but also in the negotiations between trade unions and companies or between different companies, which in their respective strategies assign a different weight to different economic policy objectives, such as the choice between the wage level and job stability or between GDP growth and sustainable development.

The traditional neoclassical paradigm underlines the horizontal dimension of the competition between the firms on the market and it focuses on the process of determination of an “equilibrium price”. On the contrary the endogenous paradigm underlines the vertical dimension of the relations of production integration between the firms, which participate to different phases of the “value chain”.

Within the neoclassical model of perfect competition, the firms are all equal and connected through the anonymous mechanism of the market. On the contrary, in the endogenous or network model the firms are all different and integrated between them through different types of relations, which have an intentional character. In particular, within a network, a crucial role is performed by relations and processes of exchange, negotiation, conflict, agreement and integration between actors, which are different and potentially complementary.

The concept of equilibrium and the balance between the two forces of demand and supply characterizes the neoclassical paradigm and it seems a very rudimentary model mainly based on the concepts of physics or mechanics as indicated in Photo 5. On the contrary, the crucial characteristic of a network of firms is not the concept of equilibrium and disequilibrium, as in the neoclassical model of the market, but rather the concepts of integration, sequential interaction, circulation diffusion and feedback, recursive processes, symbiosis and co-evolution.

In conclusion, the “market” of the neoclassical model may be considered as a “network”. However, the market is a very simple network, in which all actors are homogenous, although they may have a different supply schedule, and the distance or the transaction costs between actors are zero.

The neoclassical paradigm of the equilibrium between the demand and market supply schedules is static, while it seems more interesting to explain or predict the continuous change or evolution of the economic system and to influence the direction of this change and its speed. It is therefore important to influence the forces that act and combine with each other, rather than neutralizing each other in an opposition that leads to a situation of static equilibrium.

As in the above examples of a rowing boat or a sailing boat, it is the skipper's job to determine the course and speed of the boat and these depend on the evolution of the winds and weather conditions. Similarly, in the case of a political assembly illustrated above, the conflicts between the different parties and the changes in their electoral strength leads to changes in strategies and policies in order to ensure a government majority.

The politician must take into account that the conflict between the actors is structural and that it is advisable to ensure a positive evolution in the medium-long term of the social economic system in the collective interest and this depends on the ability of the politician or the institutions to ensure a positive interaction of the different relevant actors taking into account their objectives and the change in their contractual strengths.

On the other hand, from the point of view of the economist it seems less interesting to find the equilibrium price in the single market between the two opposing forces of supply and demand and more important to examine the evolution of prices and quantities in the various markets or productive sectors and explain or predict the evolution of the resulting combination of the interaction between the various actors involved and their respective contractual strength and their objectives, given that this explains the change in the overall economic system: The

economist's task is also to orientate the evolution of the economic system in terms of direction and speed of change.

8. The role of the State in implementing a modern national industrial strategy.

The evolutionary model of innovation and the standard neoclassical model differ on the one hand for the key factors which determine the process of economic and social development, but also for the role assigned to the institutions.

The economic development of a local and regional area and even of the national economy is not the simple sum of the effects of single public spending measures that benefit specific individual economic actors.

The traditional management-type tools adopted in Italy, such as calls for tenders, improperly establish a temporal sequence and a clear distinction between the planning and the implementation responsibilities and for this reason they are outdated or anachronistic in an innovation-driven economy.

In particular, the role of the State is fundamental in promoting new strategic industrial productions and supply chains. The State must identify in which sectors/chains it is necessary to make investments and increase production capacity and its efficiency and create new employment in line with the unsatisfied and latent demand of citizens both for private goods and for public or common goods. The State should carry out initial investments on critical and priority issues, creating the crucial infrastructure and basic investments that will afterward make viable the complementary private investments.

However, it is necessary to act not only on the supply side, but to take into account also the demand side. The government should stimulate the aggregate national demand and the demand in the individual sectors and take into account the new needs of consumers-citizens and stimulate the demand through credit, the increase of wage and income levels, the decrease of indirect taxes and also through the expansion of public expenditure, which generates more employment and therefore an increase in private consumption.

Industrial policy must not only use the instrument of financial subsidies to businesses by violating the assumption of free competition, as it is indicated by the race for subsidies that both the European Union and the United States intend to use to develop individual technologies and individual companies, which represent their respective “national champions”.

A new European industrial strategy must have different objectives, but also different procedures to achieve them, appropriate to stimulate a process of endogenous development of the various territories based on the self-government and the enhancement of local resources. That requires institutional structures and procedures that are different from those existing in a top-down neoclassical policy model.

Public policy should operate not only through public spending but also through other instruments, such as integrated "strategic programmes" in the various policy fields. These strategic programmes should activate an interdependent and distributed response over time by the different companies, institutions and even individual citizens within a given local community or in the various sectors of the national economy and should strengthen the sense of belonging and common identity of the specific community considered. They should promote all technologies and procedures of organizations that are relevant in the perspective of a ESG development.

Complex interventions such as the industrial restructuring of a large company or the implementation of large productive reconversion or urban expansion or environmental redevelopment projects require new types of

institutions or "institutional innovations". In particular, ad hoc institutional tools are needed, such as: "special purpose companies", "joint companies" and "control rooms", as they are more frequent in other countries such as the USA and France.

It is necessary that the State and the Regions follow a bottom-up approach based on "structural innovation" or a "Schumpeterian creative destruction" and that they promote adequate and timely organizational changes and not just the adoption of modern technologies²⁶.

A modern regional, national and European "industrial strategy" must be understood as an instrument of economic "governance" different from the dirigiste model of the "government" and from the liberal model of the "free market". It must aim to guide ("leadership") the decisions of the managers of private companies and define a common global framework, which can facilitate compatibility between the objective of monetary profits of individual companies ("shareholder value") on the one hand and the private interests and the collective needs of the other different stakeholders in society.

Political actions emerge from the interaction between different actors and should be decided by bottom-up forces and not imposed top-down. The politician should not impose his own solutions as in a neoclassical economic model, but he should create institutional structures that allow the self-discovery of the solution through the interaction between the economic actors

²⁶ The economic policy indications of the Group: "Growth, Investment and Territory" are indicated in the following two publications: Brondoni, S.M., Cappellin, R., & Ciciotti, E. (2020), Eds, 'The New European Industrial Strategy: Companies and Territories'. Symphonya. Emerging Issues in Management, no. 2 and Brondoni, S.M., Garofoli, G. & Rizzi, P. (2021), Eds., The New European Industrial Strategy: Institutions and Governance. Symphonya. Emerging Issues in Management, no. 1. The Group recently took the new name of "Group: A New Industrial Strategy" and it summarized its economic policy proposals on the occasion of the national general elections in a document: Cappellin, R., Ciciotti, E., Garofoli, G., Marelli (2022), The economic and industrial policy strategy for the new legislature: an alternative to neoliberal policies for sustainable and inclusive development, Document for the political elections Nationals 2022, July 18, 2022. Mimeo. It also elaborated a document for the subsequent regional elections : Group "A New Industrial Strategy" (2022), A new strategy for sustainable development in the regional territory, driven by the needs of citizens and the skills of workers. Writings by R. Biscardini, E. Battisti, R. Cappellin, E. Ciciotti, L. Consolati, F. Cortiana, F. Foti, G. Garofoli, G. Goggi, G. Longhi, P. Maranzano, E., Marelli , G. Menzaghi, O. Orlandoni, L. Pilotti, R. Romano. Edited by Riccardo Cappellin. Milan 9 February 2023, Mimeo.

It is necessary to facilitate the bottom-up participation of private operators and citizens in the conception and planning and then to define innovative procedures of multilevel "governance" in the relations between the various actors involved, in order to reduce the times of the implementation phase.

Therefore, the regional, national and European "industrial strategy" must create the "institutional framework" which ensures strategic coordination between the various economic and social actors and guides and favours the process of "entrepreneurial discovery" by private companies towards new productions innovative.

In this perspective, the PNRR should represent a "structural reform" to be experimented. It should be virtuous "reformism" that aims at ambitious objectives of development, employment and sustainability and not at the "neoliberal" type objective of the cost competitiveness of companies by removing the "hurdles" to the market forces.

**The theory of endogenous territorial development and the evolutionary theory of innovation
call for a new European economic policy after the 2024 European elections**

- a) Financial funds such as the NGEU, MES and REPowerEU are not enough to promote development and also the ECB monetary policy is not effective on inflation
- b) There is the need of a new European macroeconomic policy and of a new European industrial strategy based on the growth of the domestic demand, of private and public consumption and of citizens' incomes
- c) The governance of national and European development should start bottom-up from the territory and strengthen the participation of citizens and stakeholders without which there is no innovation and development
- d) The realization of the "European social model" and not the fight against "climate change" must be the new development paradigm
- e) A new economic development strategy in Europe is also the tool to strengthen democracy and overcome the old nationalism in East European countries
- f) An immediate truce is needed in Ukraine as also new geo-strategic alliances between the European Union and the USA and also with Russia, China, Turkey, Iran, the Arab world, India, Brazil, Africa, Latin America and the BRICS countries

THANKS FOR YOUR ATTENTION

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