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A model of economic growth based on the interregional networks approach and the foundation of a modern industrial strategy in Europe

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Abstract

This paper will illustrate a interregional growth model based on the network approach to innovation and productivity growth, where goods/services, capital, labour and technology flows within the region/nation and at the interregional/international scale and determine both the supply and the demand to the various productions. Differently from traditional macroeconomic models, this model is sectorally disaggregated and the output of each production or sector in the economy is determined as the result of the equilibrium between the demand and the supply of the respective product or service. The paper will also illustrate that a new European industrial strategy should not promote, as in the past, financial/fiscal transfers to the individual companies, but rather promote the diversification of the overall European production system, especially in medium income countries, through the increase of the demand of selective productions ("smart specializations"). That requires to promote new modern material and immaterial investment and innovation within the companies and especially within the networks of goods, services, knowledge, capital and people, through public-private partnerships and a multilevel governance approach.

JEL Classification:
O Economic Development, Innovation, Technological Change, and Growth
F International Economics

Key words:
networks, innovation, European integration, separatism, institutions, industrial and regional policies, governance,

This paper will illustrate a interregional growth model based on the network approach to innovation and productivity growth, where goods/services, capital, labour and technology flows within the region/nation and at the interregional/international scale and determine both the supply and the demand to the various productions. Differently from traditional macroeconomic models, this model is sectorally disaggregated and the output of each production or sector in the economy is determined as the result of the equilibrium between the demand and the supply of the respective product or service.

From a theoretical perspective, according to this model, the well-known network paradigm is not only a useful tool for just describing the changing structure of economic and social relations in a region/country, while it may be included within a quantitative model capable to estimate the economic impact on the economic flows by the various policy instruments at the European, national or local level.

The paper will also illustrate that a new European industrial strategy should not promote, as in the past, financial/fiscal transfers to the individual companies, but rather promote the

diversification of the overall European production system, especially in medium income countries, through the increase of the demand of selective productions ("smart specializations"). That requires to promote new modern material and immaterial investment and innovation within the companies and especially within the networks of goods, services, knowledge, capital and people, through public-private partnerships and a multilevel governance approach.

A new European Industrial Strategy should focus on the growth of the internal market within the European economy and on the changing needs and the well-being of the citizens, rather than only promote export, competitiveness and "value creation" for the individual firms. That leads to recognize the crucial role of the territory and cities, as the most appropriate framework for an industrial strategy and it allows to mobilize the active participation of local and regional community in innovation and projects of material and immaterial investments.

1. The growth model and the internal demand and supply

1) $X = (I-A)^{-1} (C + I^* + G + EX - IM)$
2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$
3) $(EX_i - IM_i) = n_3 (p_i, Y_d, X_i^*, \text{external demand, governance})$
4) $p_i = u_i + w_i N_i / X_i^*$
5) $u_i = f (X_i / X_i^*)$
6) $w_i = f (p_i, u_i, X_i^*/N_i, N)$
7) $Y_d = \sum_i w_i N_i + \sum_i u_i X_i$
8) $N_i = f (X_i, X_i^*)$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4 (\text{input flows}_{i\,t} \ldots, \text{input flows}_{i\,t-n})$
11) $\text{Productivity}_{i\,t}^* = n_5 (\text{knowledge flows}_t, \ldots \text{knowledge flows}_{t-n})$
12) $\text{Knowledge flows}_t = n_6 (\text{output flows, input flows, knowledge flows, governance})_{t-1}$
13) $\text{Input flows}_t = n_7 (\text{output flows, input flows, knowledge flows, governance})_{t-1}$

The vector of the productions (X) in the various sectors depends on the demand of each sector, which is determined (equation 1) by the traditional components of the aggregate demand according to the national accounting and a Keynesian approach.

Consumption (C) is disaggregated according the various producing sectors and is a function (equation 2) not only of the GDP but also of the price level in each sector, of the knowledge flows (productivity*), as the preferences of the users may be affected by their level of knowledge, and of the production capacity of the respective producing sector.

The investment level (I) in this model is an exogenous variable and it could be estimated according to the alternative approaches or it could be determined exogenously by the policymakers (public national and local institutions and companies).

At the aggregate level, there is a well-known trade-off between investments inside the country and investment abroad (either real investment or financial investment), as indicated by the identity between internal private (S) and public saving (T-G) and domestic investment (I) and external investment (X-M):

In fact, a positive balance of trade indicates a flows of financial funds toward the rest of the world in terms of direct or real investments or financial investments, such as acquisition of foreign companies, purchase real assets abroad or purchase of foreign stocks and foreign

private and public bonds and other forms of lending to foreign actors through various forms of financial securities.

$X - M$ = accumulation of real and financial assets abroad

$S + (T-G) - I = X - M$

This identity can also be rewritten as follows and it indicates that internal investment can increase according to the size of internal private and public saving and it decrease when financial funds are transferred abroad or viceversa can increase in the case of inflows of financial funds.

$I = S + (T-G) - (X - M)$

Therefore, an excessive current external surplus indicates that the internal demand (consumption and investment) is lower than internal supply and that, in particular, internal investments could increase without compromising the financial stability of the country.

At the sectoral level, the sectoral allocation of investment (I_i *) is oriented by industrial policies. In particular, industrial policy could orient the investments toward the exporting sectors, thus increasing their competitiveness and the exports, or toward the internally oriented sectors, thus increasing the production capacity in these sectors. That, will allow the consumers to increase the consumption of these goods or services and that will reorient the consumption pattern toward the consumption of internally produced services or goods and will reduce the imports of foreign produced goods and services.

In particular, the export-import balances of each sector ($EX_i - IM_i$) are a function of the price level in each sector, of the internal demand (GDP), the external demand (world GDP) and also of the investments and production capacity of each sector (X_i*). Therefore, industrial policies and the sectoral allocation of material and immaterial investments may either aim to increase the performance of export sectors or the expansion of the sectors addressed to the internal demand, thus containing the imports.

The price level (p_i) of the various sectors is determined (equation 4) as mark-up function of the respective unit labour costs. The mark-up (u_i) or the unitary profit (depends (equation 5) on the capacity utilization in the various sectors.

The wage level (w_i) in the various sectors depends (equation 6) on the price level of the same sector, the unit profit level in the same sector, the productivity level at normal capacity level in the sector considered and the aggregate employment level (N).

Since the wage level are determined by productivity level at normal production capacity, which increases, when the capital stock and investments increase. Thus, the aggregate demand is positively affected by an increase of investment, which increase the labour productivity, the wage level and labour incomes.

The level of internal income (Y_d) is the summation of labour income and of profits in the various sectors.

The employment (N_i) level in each sector is positively affected (equation 8) by the current production level and by the production capacity in the same sector, since an increase of

the production capacity in a sector is linked to an increase of the immaterial investment in the hiring of new qualified employees.

The production capacity in the various sectors depends (equation 9) on the stock of production resources available in the same sector and the productivity of these resources.

The stock of production factors (such as capital/investment and labour) in the various sectors depends (equation 10) on the cumulated flows of inputs (I_{it}*, ... I_{it-n}*, N_{it}…….. N_{it-n}) in the previous periods.

The productivity of the various sectors depends (equation 11) on the knowledge level or the knowledge flows in the past periods. The knowledge flows between the various sectors are a key component of the interactive learning processes which leads to knowledge creation and are correlated (equation 12) to the flows of inputs and outputs between the various sectors and the knowledge flows in previous periods.

These knowledge flows are difficult to be measured and can be approximated by the flows of R&D expenditures, labour training expenses and hiring of qualified **personnel** and also production and R&D collaborations between firms of various sectors.

The input flows, such as capital and labour flows, to the various sectors, as in a network model, are correlated (equation 13) to the output flows of the same sectors, the input flows and the knowledge flows in the previous periods.

2. Key forms of interdependence in the model

The model determines the equilibrium output in each sector of the economy as the result of the equilibrium between the demand and the supply in each sector. This can be illustrated also in a graphical form as the production level of each sector is determined by the interdependence of the demand and the supply of each sector as indicated in price equation (4).

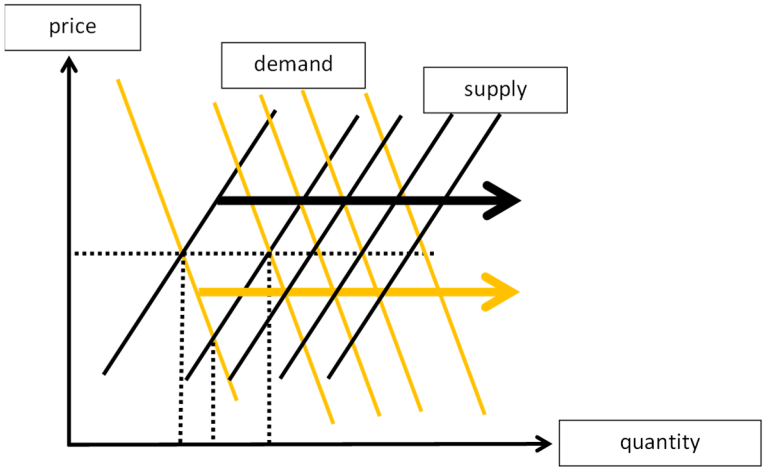

Figure 1: The growth of investment determines a shift of the sectoral demand and supply

In fact, according to this model, the equilibrium price of each sector (i) is determined by the price of the demand of the products/services of this sector (equations: 1, 2 and 3)

1) $X = (I-A)^{-1} (C + I^* + G + EX - IM)$
2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$
3) $(EX_i - IM_i) = n_3 (p_i, Y_d, X_i^*, \text{external demand, governance})$

and the price of the supply or the cost of the product/services in the same sector (equations: 4, 5 and 6) determined by productivity, the mark-up and by the wages determined in the labour market.

4) $p_i = u_i + w_i N_i / X_i^*$
5) $u_i = f (X_i / X_i^*)$
6) $w_i = f (p_i, u_i, X_i^*/N_i, N)$

Thus, there is a negative (demand side) relationship and a positive (supply side) relationship between price and sectoral production.

$p_i = f (N_i, X_i, X_i^*, (I-A)^{-1} (C + I + G + EX - IM), I^*, Y_d, \text{productivity}_i^*, \text{external demand})$

$p_i = f (X_i / X_i^*) + g (X_i^*/N_i, N)$

An increase of investment determines an increase of the production capacity and then of the normal productivity of labor (N_i / X_i^*) and that increases the supply, thus determining a shifts of the supply schedule to the right or to below:

4) $p_i = u_i + w_i N_i / X_i^*$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4 (\text{input flows}_{i\,t}, \ldots, \text{input flows}_{i\,t-n})$

The employment in new sectors depends on the growth the production capacity in these sectors, which depend on the increase of investments in these sectors. In fact, the demand of new productions can't increase if the supply in the same sectors is not available:

1) $X = (I-A)^{-1} (C + I^* + G + EX - IM)$
2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$

The national revenue depends on the salaries and these latter depend on the productivity which depends on the investments. Thus an increase of investment not only directly determines an increase of the aggregate demand but also determine an increase of wages and income and then of consumption

2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$
6) $w_i = f (p_i, u_i, X_i^*/N_i, N)$
7) $Y_d = \sum_i w_i N_i + \sum_i u_i X_i$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$

An increase of knowledge and innovation determines an increase of productivity of labor and the nit decreases the unit labor cost and the it increases the supply and leads to a shift of the supply schedule to the right and to below.

4) $p_i = u_i + w_i N_i / X_i^*$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
11) $\text{Productivity}_{i\,t}^* = n_5 (\text{knowledge flows}_t, \ldots \text{knowledge flows}_{t-n})$

The model indicates that the governance of networks is crucial since it determines an increase of the knowledge and of productivity and it determines an increase of investments flows and of the resources and then of the production capacity

9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4$ (input flows $_{i\,t}$ …, input flows $_{i\,t-n}$)
11) $\text{Productivity}_{i\,t}^* = n_5$ (knowledge flows$_t$, ….knowledge flows$_{t-n}$)
12) Knowledge flows $_t = n_6$ (output flows, input flows, knowledge flows, governance)$_{t-1}$
13) Input flows $_t = n_7$ (output flows, input flows, knowledge flows, governance)$_{t-1}$

A positive value of the external current balance implies a decrease of internal investments, as indicated by the well know identity:
S + (T-G) - (X – M) = I
Therefore, trade policies affecting the external surplus have a positive direct impact on the demand thorough the exports, but should be accompanied by expansionary policies on domestic demand (i.e. consumption and investments) in order to decrease the capital flows abroad and to increase the internal investments.
1) $X = (I-A)^{-1} (C + I^* + G + EX – IM)$
3) $(EX_i – IM_i) = n_3 (p_i , Y_d , X_i^*,$ external demand, governance)

3. The process of sectoral restructuring and the increase of GDP

The model indicated above considers the existence of various sectors and it is based on the microeconomic equilibrium between the demand and the supply in the market of each sector. That allows to consider the process of structural change and the diversification of the overall economy and of the individual firms, due to the decline of specific productions with lower productivity and the creation and growth of new productions, which have an higher productivity.

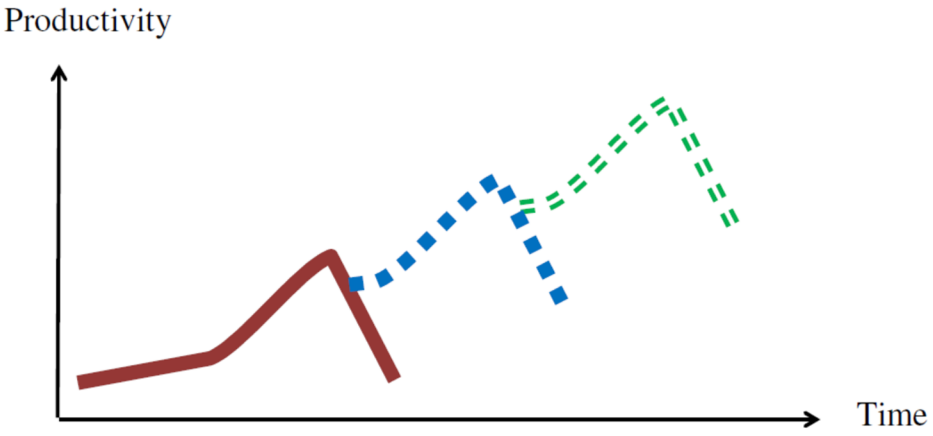

Figure 2: the evolution of productivity and the productions cycles

The sequence of many different innovation waves, according to the product life cycle model, determines the creation of new industries and the continuous increase of labour productivity, of wages and incomes and also of the internal demand, which drives the GDP growth. In particular, the development of the new productions requires major investments by new firms and existing firms and various financial instruments: public subsidies and venture capital (early stage) and private equity and bank credit (development phase).

As the average wage is determined by the weighted average of the wages in the various sectors

$w = \sum N_i / N_T * w_i$

a shift of employment to the sectors with higher wages will increase the average wage and also the national income and then the consumption level:and the GDP:

1) $X = (I-A)^{-1} (C + I^* + G + EX – IM)$
2) $C_i = f\ (Y_d , p_i , \text{Productivity}_i^*, X_i^*)$
6) $w_i = f\ (p_i , u_i , X_i^*/N_i, N)$
7) $Y_d = \sum_i w_i N_i + \sum_i u_i X_i$

4. The effect of investment policies on the demand and supply

The model underlines that the investment level in the various sectors is a key policy variable, which is affected by the various types of industrial policies being adopted. In fact, industrial policies may affect the employment by working both on the demand and on the supply side of the various sectors and in particular by stimulating the investment which increase the demand side and enhancing the production capacity on the supply side.

In a dynamic medium term perspective, various factors affect the structure of the consumer demand and then the production of the various and also affect the supply of producers in the various sectors. Industrial policies which can, through fiscal measures, act both on consumer demand for specific productions and also stimulate the productive capacities of companies through investment incentives.

The growth of investments determines an increase in aggregate demand :

1) $X = (I-A)^{-1} (C + I^* + G + EX – IM)$

and therefore determines a shift to the right of the demand sheet of the individual sectors.

On the other hand, an increase in investments determines an increase in the productive capacity of a sector and therefore an increase of labor productivity and a slack or unused production capacity that causes a decrease in the unit profit margins :

4) $p_i = u_i + w_i N_i / X_i^*$
5) $u_i = f\ (X_i / X_i^*)$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4\ (\text{input flows}_{i\,t} \ldots, \text{input flows}_{i\,t-n})$

Therefore, as shown in the figure above, an increase in investments leads to a shift to the right of both the demand schedule and the supply schedule and contribute to an increase of product and employment. Moreover, in the long term the increase in production capacity and labor productivity also translates into an increase in wages (equation 6) and as indicated above to an increase of income and of the private expenditure.

5. The effect of research and innovation policy

Another important policy instrument are the research and innovation policies, which may affect the knowledge levels and flows. In fact, knowledge flows have a positive effect on the supply side or on the productivity of the various sectors and their competitiveness, but also on the wage level (equations: 6, 9, 10, 11, 12) and thus on the level of the internal demand. That, may be represented by the following equation:

$w_i = f\ (p_i\ ,\ u_i\ ,\ n_4\ (\text{input flows}_t\ \ldots,\ \text{input flows}_{t-n}),\ n_5\ (\text{knowledge flows}_t\ ,\ \ldots.\text{knowledge flows}_{t-n})\ N_i,\ N)$

Knowledge levels and flows affect the production capacity (X_i^*), and this latter has a positive effect on the demand side since it decreases the price and it increases the demand, while they also determine a shift to the right of the supply schedule and an increase of the employment level, since they decrease the production costs. Therefore, knowledge levels and flows affect both the demand side and the supply side of the economy, as indicated in the two above equations of the aggregate demand and the aggregate supply.

Therefore, the model may be an useful conceptual framework for analysing the interdependence between industrial policies and the traditional macroeconomic policies. In fact, the traditional macroeconomic policies, such as the monetary policy should aim to financial stability or the balance between the liabilities and assets of the various actors and the fiscal policies should aim to fiscal equity and financial transfers from the wealthy to the poor through monetary transfers or supply of public good. On the other hand, industrial policies aims to promote investments and innovation and to increase the GDP and employment in a medium term perspective.

6. The management of the external balance

The aim of industrial policies is that to address internal saving and also external financial funds to the financing of internal investments. Moreover, investments, as indicated above, may be oriented to the aim of increasing export performance or to the aim of increasing the consumption of the internally produced goods and services and of decreasing imports.

Also the consumption may be oriented to the goods imported from abroad or to the goods and services produced within the country, through fiscal incentives but also through the appropriate investments in the expansion of the production capacity of the respective sector.

2) $C_i = f\ (Y_d\ ,\ p_i\ ,\ \text{Productivity}_i^*,\ X_i^*)$

Clearly a reorientation of consumption toward the internally produced goods and services would decrease imports and increase the trade balance.

7. From an analytical model to a policy model for the recovery of the European economy

We observe that a recession is looming in Europe, the United States and the world on an international scale. "Disruptive" digital innovations are changing not only the tertiary and industrial productions but also the relationship between citizens and politics and the same social relations between citizens. The power of finance has become prevalent with respect to the logic of industrial/productive development. We are witnessing an international conflict that is not only commercial but also industrial, technological and even strategic political-military and this slows down the economic growth and determines the instability of financial markets. Finally, the needs and priorities of citizens have changed profoundly, at least in Europe, and require a different response from the public institutions and also the private companies due to the greater sensitivity of citizens to the environmental problems

on a global and local scale, to the increasing importance of issues, such as that the leisure and the quality of work and the increasing social disparities. On the other hand, the new needs by the citizens create opportunities for the growth of new activities and can create new jobs.

The GDP growth rate has been very low or negative in Germany and Italy and in the Euro area it has been around 1.3% in the last three semesters, below that of the overall European Union and of the countries outside the Euro area (1,7%-1,4%) and well below GDP growth in the United States (2.7%-2.3%) and in China (6,4%-6,2%). The Manufacturing PMI index in Germany since January 2019 (and in Italy since October 2018) indicates a decrease of industrial production and it was decreasing already in the last half of 2018.

In fact, economic stagnation in the European Union has persisted for several years due to the inadequate policy response of the European institutions. Companies have been postponing investments in innovation and new jobs for years. The dissatisfaction of citizens is growing, as they do not see a new economic policy aimed at satisfying the new needs of environmental quality and safety, while the progressive erosion of essential public services continues and income and wealth disparities have enormously increased.

It is time that policymakers in the European Union change their orthodox neoliberal economic policy assumptions now dated to the second half of the 20th century:

- an expansionary monetary policy with interest rates close to zero is not capable to increase investments,
- a flat tax policy which benefits the richest people and subsidize private companies is not effective on investment and it only increases the corporate profits and the bank deposits,
- an increase of the indirect taxation (VAT) on consumers and an increase of the tariffs of the public services would only determine a decrease of the demand a profound recession.

The causes of the current crisis are:

- in the insufficiency of the domestic demand (consumption and investments, private and public), and in the excessive surplus of the Euro area current balance,
- in the lack of a medium-term "Industrial Strategy" at the European scale, which orients the investments of private companies, also through public investments, towards new strategic productions and societal needs.

The European Union must not only use monetary policy or public budget policy, but also a third instrument of economic policy, which is that of a "New European Industrial Strategy", whose strategic lines must be coordinated on a European scale.

The relaunch of growth in Europe requires, alongside the objective of stability of the financial system and the decrease of the public deficit and debt, also a new economic policy, which aims at an expansion of domestic/internal demand in Europe, in order to pull (according to a “demand led” strategy) innovations and investments for a reconversion towards new productions, capable of giving an answer to the new needs for a better quality of life for the European citizens.

The role of the demand side is indicated in the model by the equations:

1) $X = (I-A)^{-1} (C + I^* + G + EX - IM)$
2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$
3) $(EX_i - IM_i) = n_3 (p_i, Y_d, X_i^*, \text{external demand, governance})$

It is necessary to move to a development model driven by domestic demand, aimed at improving the quality of life of citizens and based on knowledge and new skills, on product innovations and the creation of new productions with high knowledge content. For this reason, the fundamental themes for the European economy are those of the recovery of the public investments and of the investments of private companies, in plants and buildings, and also the recovery of private and public consumption.

In very schematic terms, the proposal for a New European Industrial Strategy aims:

- to the growth in domestic demand for investment and consumption, both private and public, in the territory and in the cities and not only to the growth of exports in a increasingly fragmented and declining global market,
- to more innovation, not only technological and in scientific research, but also organizational and institutional, in companies and in society and institutions,supporting integration and digital networking between multiple platforms,
- to a better environmental quality and quality life of citizens in the territory and especially in urban areas as a tool for the creation of new productions and occupations.

Policy priorities are:

- to increase domestic demand in the European economy and to reduce the current account balance with abroad to zero. In particular, wages, private domestic consumption and gross and intangible fixed investments (in training, research and hiring of young and non-qualified young technicians) must increase until the European current surpluses are reduced to zero, like that of all the other countries in the world.
- a new "European Industrial Strategy" should promote a large private and public investment program at the European scale (approximately 500 billions a year equal to the current surplus of the EU current balance or the difference between internal production and domestic demand) articulated into 6 or more strategic investment programs at the European and national level.

In this international situation, in which the majority of financial securities, even in the medium term, have a negative return, the only thing that is not lacking is financial liquidity, while there is lack of courage to innovate and the lack of effort for increasing the aggregate productivity and for diversifying the production system and the individual companies into new productions with greater added value. The ratio debt/GDP should be decreased by increasing the GDP, which is stagnating in all Europe, and to this purpose the public investment should be excluded from the deficit calculation (“golden rule”).

As in the model, the level of investment by the companies as also by the public institutions is mainly “exogenous” and it can be explained by psychological factors (thrust) or political factors (values and policy priorities).

Private investments can only be increased if public institutions indicate the prospect of a growth in the domestic demand and encourage the development of new high productivity productions, that may respond to the needs of a better quality of life for citizens and create qualified jobs and higher workers' incomes.

New investments can promote the development of new productions or "lead markets", which are linked to collective and not only individual needs and which are concentrated mainly in urban areas and in the European city networks.

In the model the investment directly contributes to the creation of new production capacity and then of new employment

8) $N_i = f(X_i, X_i^*)$
9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4(\text{input flows}_{i\,t} \ldots, \text{input flows}_{i\,t-n})$

In fact, industrial policy must not only expand the supply capacity of companies by reducing costs and increasing productivity, but it must also stimulate consumer demand for new products that create new markets and can drive the investment effort of companies, diversifying the overall production system.

In the model the production level of the various sectors is determined not only by the demand but also by the supply as the price of the individual productions is the balance or “pivot” variable:

4) $p_i = u_i + w_i N_i / X_i^*$

In fact the price level is determined by the productivity of labor and then by the production capacity and past investments. Moreover, the price level affects the level of the demand:

2) $C_i = f(Y_d, p_i, \text{Productivity}_i^*, X_i^*)$
3) $(EX_i - IM_i) = n_3(p_i, Y_d, X_i^*, \text{external demand, governance})$

Therefore, it is necessary to expand domestic demand in the face of a continuous reduction in world trade.

A greater effort of private and public investment on innovation and knowledge is necessary, to act on the one hand on the productivity of companies and on the other hand on the orientation of the demand by the citizens towards new models of life and consumption.

The increase in aggregate demand must aim at improving the environmental quality in the territory and in the cities, which are the living environment of citizens, and must aim at the development of innovation and knowledge, which would allow a continuous increase in production and employment.

Only an increase of the aggregate demand will pull the increase of investments, which are linked to the increasing collective (“common goods”) and private needs by the citizens and also have a clear economic importance in terms of new employment and new productions, especially in the urban areas and the cities networks, such the investments in the following new productions:
a) food;
b) housing;
c) mobility and logistics;
d) culture, leisure and media;
e) health, social assistance and education;
f) environment, energy saving and spatial planning.

In the model the private and public consumption is disaggregated by the various sectors:

2) $C_i = f\ (Y_d, p_i, \text{Productivity}_i^*, X_i^*)$

And it is determined not only by the income, but also by the innovation/productivity level as an indicator of the price/quality ratio and on the availability of production capacity, since some consumption can't develop if there is not an available capacity in the area considered (e.g. music can't be demanded if there is not an auditorium and do not depend only on price and income).

The territory, the urban areas and the cities networks are the priority political and geographical framework for the new European industrial strategy since the quality of people's life depends on a well-preserved natural and urban environment. The new investments should promote modern productions and new qualified jobs. In fact, citizens and their living conditions represent the fundamental European "common good" that promotes the strengthening of the European Community.

The model does consider the role of the territorial networks in the development process and in particular the role of knowledge networks. In fact as indicated by the equations:

9) $X_i^* = \text{Resources}_i * \text{Productivity}_i^*$
10) $\text{Resources stock}_{i\,t}^* = n_4\ (\text{input flows}_{i\,t} \ldots, \text{input flows}_{i\,t-n})$
11) $\text{Productivity}_{i\,t}^* = n_5\ (\text{knowledge flows}_t, \ldots \text{knowledge flows}_{t-n})$
12) $\text{Knowledge flows}_t = n_6\ (\text{output flows, input flows, knowledge flows, governance})_{t-1}$
13) $\text{Input flows}_t = n_7\ (\text{output flows, input flows, knowledge flows, governance})_{t-1}$

The material inputs and the immaterial knowledge flows affect the endowment of factors and their productivity and thus determine the production capacity of the various sectors.

8. The design of the industrial strategy at the European level

A new European Commission should launch some specific strategic national and European projects, focus on investments in research and development, stimulate agreements between different companies, the mergers between companies in the same production chains, the growth in the size of SMEs, promote the development of modern financial services for businesses, support greater spending on infrastructures, both tangible and intangible, the growth of the domestic demand by the consumers of new products / services, so as to create new markets for new productions of companies and new qualified jobs. Crucial in this perspective is a reform of the strategic guidelines of the National Development Banks and of the European Investment Bank, which should be explicitly financed by the European Central Bank, instead of lending mainly to commercial banks, which in fact do not lend to companies but invest in financial securities.

A new industrial policy must necessarily be coordinated at the European scale, similarly to monetary policies and fiscal policies, as if country should act independently in industrial policies, they would determine positive or negative external effects ("spillovers") for other countries.

A new industrial strategy cannot be adopted unless there is a relationship of trust between the different countries and regions based on a common European identity. The European

identity is based on the three “republican values”of freedom. equality and fraternity, which are also important in a modern society / economy of knowledge.

However, a new industrial strategy that raises GDP growth and improves the quality of life of the European citizens, with investments and innovations and greater employment, contributes to creating a common identity, stimulates common trust and strengthens the European institutions.

In particular, a new industrial strategy that raises GDP growth, decrease income disparities and improves the quality of life of European citizens, through investments and innovations that respond to the new needs by European citizens, will strengthen the European institutions and it will certainly represent a "European added value"

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Forum
"A New European Industrial Strategy"
oriented to the citizens and the territory
for a reform towards post-neoliberal economic policies

in partnership with the
European Economic and Social Committee
4th December 2019, Bruxelles

POLICY AIMS AND PROPOSALS
(preliminary draft)

1 The economic stagnation in the European Union has persisted for several years due to the inadequate policy response of the European institutions.

4 The causes of the current crisis are in the insufficient domestic demand (consumption and investments, private and public) and in the excessive surplus of the Euro area current balance.

5 The European Union must not only use monetary policy or public budget policy, but also a third instrument of economic policy, which is that of an "New European Industrial Strategy", aimed to orient the investments of private companies, also through public investments, towards new strategic productions. Moreover, European governments together should contrast the widespread and profound financialization of the economy, that has weakened the real economy.

6 A New European Industrial Strategy should aim to more innovation, not only technological and in scientific research, but also organizational and institutional, in companies and in society and in institutions, supporting integration and also digital networking between multiple platforms.

7 A New European Industrial Strategy should aim to a better environmental quality and better quality life of the citizens in the territory and especially in the urban areas, also as a tool for the creation of new productions and occupations.

8 A new "European Industrial Strategy" should promote a large investment program at the European scale (approximately 500 billion every year: equal to the surplus of the EU current external balance or the difference between internal production and domestic demand) articulated into 6 or more major public-private investment programs, such as: a) food; b) housing; c) mobility and logistics; d) culture, leisure and media; e) health, social assistance and education; f) environment, energy saving and spatial planning.

9 The territory, the urban areas and the cities networks are the priority political and economic framework for the New European Industrial Strategy, since the quality of the people's life depends on a well-preserved natural environment, on liveable cities and on a greater availability of affordable housing in congested areas.

10 A new European Industrial Strategy that raises GDP growth, promotes interregional cohesion, decreases income disparities and improves the quality of life of European citizens, through investments and innovations that respond to the new needs by European citizens, will contribute to creating a common identity, stimulate common trust and strengthen European institutions and it will certainly represent a "European added value".