

Investments, balance of payment equilibrium and a new industrial policy in Europe

Riccardo Cappellin

Faculty of Economics
University of Rome "Tor Vergata"
Via Columbia, 2, 00133 Roma - Italy
cappellin@economia.uniroma2.it

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ABSTRACT

This paper aims to indicate that an economic recovery of the European economy can be pulled by an increase of the aggregate demand and by the adoption of a new industrial policy having a territorial dimension. While the Domar's and Thirlwall's model indicates that growth is determined by the growth of exports and do not consider investments, the paper indicates that an appropriate distribution of investments between the exporting and the domestic sector can determine both an increase of GDP and an equilibrium of the balance of payment. The model of innovation and investment led growth illustrated in the paper, indicates that a greater immaterial investment in R&D, education and project design and planning leads to greater innovation; this latter is the factor leading to an increase of the propensity to invest by the firms and then the investment leads to an increase of GDP, which may be compatible with the constraint of the equilibrium of the balance of payment. The paper clarifies the specific characteristics of the domestic goods and services, such as those of: housing, mobility, health and education, leisure and culture, energy and environment, which aim to respond to the increasing needs by the European citizens of new goods and services and better infrastructures, especially in the largest European cities. A new industrial policy should be demand driven and organized according to selected new markets (*lead-markets*), rather than by key technologies and sectors, or by type of strategic companies, or just aiming to improve the supply of the traditional production factors.

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1. Introduction.

The fall of the investment both of private firms, of households and of governments is the main factor which has determined the economic crisis in Europe'. In the 2007-2014 period, at the European level the fall of investments represents the most important negative factor of the GDP, much more than the decrease of personal consumption. Therefore, the share of investment on the GDP has substantially decreased. In fact, investments have determined a 3,4 per cent decrease of GDP and their absolute decrease by 323 billion euro, at an yearly base almost, corresponds to the 300 billion of the announced Juncker Plan of the European Commission (EU Commission 2014). On the contrary, the EU plan has already been postponed and it will be spread on several years. Moreover, the positive contribution to the GDP determined by the increase of exports has been reduced almost by half by a large increase of exports.

Data demonstrate that, not only in a less developed country but also in the European case, the slow growth of investment is the cause of the slow GDP growth and that investment should be oriented both to the aim of improving the competitiveness of exports, as actual mainstream macro-economic policies emphasize, and to the aim of expanding the internal demand and in particular the production of those domestic goods and services, where the demand of citizens is continuously increasing and where profitable productions by private firms are increasingly becoming possible. Moreover, since the European Union has the highest share in world exports and it also has the highest GDP than any other country in the world, on the one hand it is almost impossible for the European GDP growth to be driven by the imports of many other smaller countries and on the other hand the size of European GDP indicates that there is a large potential internal market for the European firms, rather than focusing on the export to distant markets.

Since the future economic growth depends on the recovery of the capital expenditure, economic policies should identify the factors which have determined the decrease of investments by the firms and those which may promote them. In particular, the decrease of investment is not explained only by the decrease of public investments, due to the "sovereign debt crisis" in many European countries, but by the lower investment propensity by the private firms, even in countries with no public debt problems, as the firms prefer to hold large cash balances in the banks or to invest in public bonds or to buy back their own shares, in order to increase their value, compensate the shareholders and increase the stock options given to the managers, or to distribute high dividends, in order to avoid hostile acquisitions by other firms. Moreover, firms do very few "greenfield" investments aimed at expanding the productions into new markets and prefer to invest in the acquisitions of existing firms, especially at the international level.

Moreover, the crisis and restructuring of many large firms and the closure of many large production plants is continuing and the only positive change seems to be the increasing acquisitions of European firms by American and Asian multinational companies. However, the European shareholders often invest the revenue of these sales into financial assets in the international capital markets rather than into new productive activities, which could expand the production and employment in the national economy.

The prevailing economic policies in the European countries are the policy of "fiscal austerity", which aims at decreasing both the public expenditures and the taxes on the private firms, and the policy of the "structural reforms", which aims mainly at increasing the "flexibility" of labour and the possibility to fire the workers, thus decreasing the bargaining power of the trade unions.

In this perspective, the economic results obtained in Europe and in US and in China after eight years since the beginning of the economic crisis allow to make an evaluation of the characteristics and the effectiveness of two different models of economic thinking and of policy intervention. These models may be defined as the model aiming to the "financial stability" and the model aiming to the "economic growth". These two models seem to represent the actual political divide between

the “conservatives” and the “progressives” and to be now more relevant than the traditional 900 market divide between the political right and left, based on the confrontation between the free market model and the State intervention model, since almost all now agree that the intermediate model of public-private partnership is preferable.

Thus, according to the conservative political model prevailing in Europe, austerity and saving are a virtue. Any person, company and institution should respect the “balanced budget rule” and “not live beyond his own means”, he should “make order in his own house” and cut unnecessary expenses and reimburse his debts (deleveraging), since any debt is a sin (“Schulde” in German). This mind framework and the ensuing economic policy have led to similar behaviours (“*deleveraging*”) by the firms, which have dismissed the money losing or less profitable productions and have postponed the investments in R&D and in new productions, by the banks, which have decreased the loans and have covered the losses with capital increases, by the households, which have decreased the consumption and increased the saving, and clearly also by the public administrations, which have decreased the public investments and are aiming to a budget surplus in order to decrease the public debt. Clearly when all actors have an higher saving than the investments, also at the aggregate level saving is greater than investment, the balance of payment indicates a surplus, indicating a flows of financial resources toward abroad, and the GDP decreases or very slowly increases (“*balance sheet recession*”), as it is actually occurring in Europe.

Moreover, neither the largest firms nor the industry associations nor the governments have announced large investment projects in order to exit from the crisis, differently from what was done during the ‘30ties crisis. Since “financial stability” is the actual policy priority and an investment policy is not the focus of policy discussions or investments are considered important only for a distant future, that seems to indicate a shift in the preferences or the decision making models of the firms and of the policy-makers toward “short-termism”. In fact, the actual lack of investment propensity may be explained by the deep logical relationship between investment and innovation, as investments naturally do not appeal to a “conservative” opinion or to those who prefer the “status quo” and do not like changes, are averse to risky challenges and are not willing to set ambitious future goals.

Almost all academic international economists have criticized the “austerity” approach, but this latter is in fact still largely prevailing within the national and international governmental institutions and also in a large part of the public opinion and of the media in Europe (cf. Cappellin, Marelli, Rullani and Sterlacchini, 2014, Cappellin, Baravelli, Bellandi, Camagni, Cicioti and Marcellì 2015). That demonstrates that the divide between the two policy models indicated above may have more a cultural than a technical nature. Therefore, to underline the relevance of widely shared concepts, such as innovation and the need to respond to the emerging needs of many citizens, may be useful in order to increase the appeal of the alternative policy model, focusing on growth, investment and innovation and it may contribute to a change in the policy approaches by the governments.

In this perspective, this paperⁱⁱ aims to underline that the key problem of the economic growth in Europe is the recovery of investments and innovation in the private and in the public sector and the adoption of a “new industrial policy”, which could be much more effective than the mainstream policies of “quantitative easing”, of “budget austerity” and of “structural reforms”. In particular, the paper first illustrates a simple macroeconomic model, which allows indicating why new investment leads to an increase of the GDP not only in a long term but also in a short or medium term perspective, while it is not conflicting with the financial constraint of the equilibrium in the balance of payment. Then, it illustrates in which sectors investments should be concentrated by distinguishing between an export oriented sector and a domestic sector, pulled by the internal demand and responding to the increasing service needs of the citizens and the firms. That allows to clarify the territorial impact of this new industrial policy, especially for the urban areas in Europe

where the largest share of the European population lives. Finally, the paper indicates the policy implications of this new theoretical approach and the differences of a “new industrial policy” with respect to traditional industrial policies and also why the industrial policy qualifies itself as the necessary complement to the mainstream labour market, fiscal and monetary policies.

2. The relationship between investment and GDP growth and the balance of payment.

Nearly three and a half decades, Thirlwall (1979 and 2011) first promulgated his “rule,” or “law” as it has now become known (McCombie 1981 and 2011), which indicates that the maximum sustainable growth of a country or the balance-of-payments constrained growth rate is given by the equation:

$$BP = x/\pi = ez/\pi$$

where x is the growth of the volume of exports, π is the domestic income elasticity of demand for imports, e is the world income elasticity of demand for exports, and z is the growth of world income. The expression has also been defined as the dynamic Harrod’s (1933) foreign trade multiplier.

However, both the Harrod’s and the Thirlwall’s models do not consider the role of investment and are strictly demand driven model, thus not considering the supply side of the economy. In order to indicate the role of investment both on the demand and on the supply side of the economy, we may suppose that an increase of investment does not only increase the aggregate demand through the Keynesian multiplier, thus leading to an increase the import, but it may also increase the supply both by increasing the competitiveness of the export sector (Y_1) and also by creating new production capacity in the domestic sector (Y_2).

Moreover, consumption may be distributed between a domestic good (C_2), which can be only internally produced and can’t be exported, and an international good (C_1), which may be imported and also exported. The domestic good (C_2) together with the public consumption (G) is driving the production of goods and services (Y_2) of the domestic sector. These goods and services are related to the satisfaction of increasingly diffused needs, such as those of housing, mobility, health and education, leisure and culture, energy saving and environmental protection. These productions can be “public goods” (i.e. G), produced by the government and provided free of charge, and also by “collective goods and services” (C_2), produced by private firms only for the internal market and sold at the market price, even if they can also be partially subsidized by the government and provided at a lower price than their production costs. These domestic goods and services are competing with the international good (C_1) and may substitute it, according to the changing consumer preferences. Therefore, a government willing to increase the GDP, while respecting the balance of payment constraint, can increase the supply of the domestic good (Y_2) and in doing that it may reorient the pattern of consumption toward the domestic good.

The structure of the economy may be described by the following model:

$$\Delta Y = \Delta Y_1 + \Delta Y_2 \quad (1)$$

$$\Delta Y = \Delta C_1 + \Delta C_2 + \Delta G + \Delta I + \Delta X - \Delta M \quad (2)$$

$$\Delta C = c(\Delta Y - \Delta T) \quad (3)$$

$$\Delta C_2 + \Delta G = \Delta Y_2 \quad (4)$$

$$\Delta C_1 = \Delta C - \Delta C_2 \quad (5)$$

$$\Delta I = \Delta I_1 + \Delta I_2 \quad (6)$$

$$\Delta I_2 = s \Delta I \quad (7)$$

$$\Delta I_1 = (1-s) \Delta I \quad (8)$$

$$\Delta Y_2 = k_2 \Delta I_2 \quad (9)$$

$$\Delta X = k_1 \Delta I_1 \quad (10)$$

$$\Delta M = m \Delta C_1 \quad (11)$$

$$\Delta Y - (\Delta C_1 + \Delta C_2) + (\Delta T - \Delta G) - \Delta I = \Delta X - \Delta M \quad (12)$$

$$\text{IRR} (\Delta I) = r^* + \text{risk premium}^* \quad (13)$$

$$\text{IRR} = f(\text{R\&D, education, project design}) \quad (14)$$

Total consumption is a function of disposable income (equations 3, 4, 5), and it is distributed between the domestic good (ΔC_2) and the exportable good (ΔC_1). Consumption of the domestic good plus the public consumption (G) is equal to the production of the domestic good (ΔY_2). As indicated above, the taxes (ΔT) may finance both the public consumption (ΔG) and the subsidies given to the private firms or to the individual consumers for sustaining the demand of the domestic good (ΔC_2).

The value of total investment (ΔI) is given by the condition that the internal rate of return (IRR), which indicates the profitability of investments, should be equal to the interest rate (r) plus a risk premium. Moreover, the (IRR) depends on the "creativity" of the economic actors or on the innovation capabilities of the firms and on various variables which may affect these latter. In order to manage the national economy, the government can use as a policy variable the parameter (s), which determines the share on total investment by the domestic (ΔI_2) and by the exposed (ΔI_1) sector, and it can also decide the level of public expenditure (G).

The equation (12), which can be derived from the previous equations, indicates that the deficit of the balance of payment, which indicates an increase in the debt with respect to abroad, should compensate an eventual surplus of investment over the summation of the internal private and the public saving. That also implies that, when the balance of payment is in equilibrium, all investment is financed with internal saving^m.

The exports (ΔX) depends from the investments (ΔI_1) used in increasing the production capacity in the exporting sector (ΔY_1). On the other hand, the production of the domestic sector (ΔY_2) is determined by the share (s) of the total investment, which is devoted to the domestic sector (ΔI_2). The productivity of the investments in the exporting (ΔY_1) and in the domestic sector (ΔY_2) are indicated respectively by the parameters (k_1) and (k_2).

2.1 The Thirlwall's law

We may start with the same problem as in the Harrod's multiplier model or in the Thirlwall's dynamic multiplier model and find the value of ΔY which allows a balance of payment equilibrium. In particular, we can make the hypothesis:

$$\Delta I = 0$$

$$\Delta C_2 = 0$$

$$\Delta G = 0$$

$$\Delta T = 0$$

Then, the condition of the balance of payment equilibrium ($\Delta X - \Delta M = 0$) can be written as:

$$\Delta X = (m \cdot c) * \Delta Y \quad (15)$$

which is similar to the Thirlwall's law. This condition, given an exogenous value of the exports (X) and the propensity to consume (c), can be graphically represented with an equilateral hyperbole indicating a trade-off between the value of GDP and the propensity to import (m):

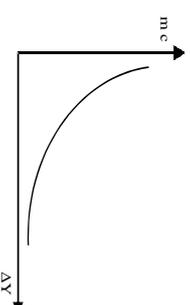


Figure 1 – The trade-off between the propensity to import and GDP

Thus the lower the propensity to import, the higher can be the GDP increase, given an exogenous increase of exports^{iv}.

2.2 The value of the investment multiplier

The above indicated Harrod's constraint to growth depends on the structure of the economy or on the one hand on the competitiveness of the exporting sectors and on the other hand on the domestic capabilities in the production of the imported goods. In this perspective, it is interesting to investigate the most appropriate distribution of investment between the exporting and the domestic sectors^v.

Given the expression (2) in the model indicated above and by substituting the other variables we obtain:

$$\Delta Y = c \Delta Y - c \Delta T + \Delta G + \Delta I + (1-s) \Delta I k_1 - m \cdot c (\Delta Y) + m \cdot k_2 \Delta I s$$

If we suppose that $\Delta T = \Delta G = 0$

We obtain the value of the investment multiplier:

$$\Delta Y / \Delta I = [1 + (1-s) k_1 + m \cdot k_2 s] / (1 - c + m \cdot c) \quad (16)$$

Similarly to the Keynesian multiplier in an open economy, the impact on GDP of a greater investment is positive and it is directly related to the propensity to consume (c) and inversely related to the import propensity (m).

However, given the characteristic of the model, this multiplier depends not only on the propensity to consume (c) and on the propensity to import (m), but also on the investment in the exporting sector (1-s), since that is leading to an increase of exports and of the aggregated demand, and on the investment in the domestic sector (s). That, allows to consider the supply side of the economy, which is missing in the Harrod's and Thirlwall's models. In fact, a greater investment in the domestic sector would increase the consumption of the domestic good (ΔC_2) and this latter would substitute the consumption of the international good (ΔC_1) and that would lead to a decrease of the imports, which has a positive impact on internal demand and the GDP.

2.3 The impact of the distribution of investment (s) on the income multiplier

It is also interesting to analyse how the value of the investment multiplier is affected by the share of the investments (s) in the domestic sector, by calculating its derivatives with respect to (s):

$$\delta (\Delta Y / \Delta I) / \delta s = m k_2 - k_1 > = < 0$$

$$\text{if } m k_2 > = < k_1 \quad (17)$$

This condition indicates that an increase of the share of investment in the domestic sector (s) may determine an increase of the income multiplier, if the productivity of capital in the domestic sector (k_2) multiplied by the propensity to import (m) is higher than the productivity of capital in the exporting sector (k_1).

We may also compare the values of the investment multiplier ($\Delta Y / \Delta I_{s=1}$; $\Delta Y / \Delta I_{s=0}$) in the two extreme cases of (s=0) and (s=1). In fact, if (s=1) and all investment goes to the domestic sector the expression (16) becomes:

$$\Delta Y / \Delta I_{s=1} = (1 + k_1) / (1 - c + mc) \quad (18)$$

and if s = 0 and all investment goes to the foreign sector the expression (15) becomes:

$$\Delta Y / \Delta I_{s=0} = (1 + m k_2) / (1 - c + mc) \quad (19)$$

In particular:

$$(1 + k_1) / (1 - c + mc) > = < (1 + m k_2) / (1 - c + mc) \quad \text{if } (1 + k_1) - (1 + m k_2) > = < 0$$

or we may state that:

$$\text{if } (k_1 - m k_2) > = < 0 \quad \text{then } \Delta Y / \Delta I_{s=0} > = < \Delta Y / \Delta I_{s=1} \quad (20)$$

These results coincide with the indication of the equation (17), which indicates an increasing value of $\Delta Y / \Delta I$ when (s) increases, if ($k_1 < m k_2$).

Therefore, if all investment is allocated to the exporting sector (s = 0), that may determine a greater GDP than in the case when all investment is allocated to the domestic sector (s = 1), only if (k_1) is larger than ($m k_2$). Otherwise, if ($k_1 < m k_2$), it is more convenient to allocate most investment to the domestic sector, since on the one hand the productivity of investment on export (k_1) is low and

on the other hand by allocating the investment to the domestic sector it would be possible to greatly decrease the import and also that has a positive impact on the GDP. That decrease of imports is due to the fact that the increase in the production and consumption of the domestic good (C_2) determines a decrease of the demand of the international good (C_1) and then of the imports.

The value of the marginal propensity to import and of the productivity of investment in the two sectors clearly is an empirical question. However, in a modern economy we may suppose that the process of globalization has changed the consumer preferences and it has greatly increased the marginal propensity to import (m). Moreover, the development of technology has made increasingly difficult to develop international competitive products and that implies a greater intensity of capital or a lower (k_1) productivity capital. On the contrary, the high labour intensity of the domestic sector, which is made mainly by service related productions, implies a rather high productivity of capital (k_2). Thus, we may suppose that the condition ($k_1 < m k_2$) is generally verified in most modern economies, such as those in Europe. Therefore, an increase of the distribution of investment (s) in favour of the domestic sector (Y_2) usually determines a greater increase of GDP than the opposite, since it decreases the values of imports and it increases the internal demand.

2.4 The impact of the distribution of investment (s) on the balance of payment

As anticipated above, it is important to consider the balance of payment since we may agree that in a long term perspective it is necessary for a national economy to have an equilibrium of the balance of payment^{vi}.

Thus, the model may be extended by considering the balance of payment constraint, as indicated by Domar and by Thirlwall, and the condition of equilibrium of the balance of payment ($\Delta X / \Delta I = \Delta M / \Delta I$) can be rewritten, when investment is increased, as:

$$(k_1 (1 - s) \Delta I) / \Delta I = m \Delta C_1 / \Delta I$$

$$k_1 (1 - s) = m (\Delta C - \Delta C_1) / \Delta I$$

$$k_1 (1 - s) = m c \Delta Y / \Delta I - m k_2 s$$

and by substituting the expression $\Delta Y / \Delta I$ indicated above (16) we obtain the following expression of the balance of payment:

$$\Delta X / \Delta I - \Delta M / \Delta I = k_1 (1 - s) - m c [1 + (1 - s) k_1 + m k_2 s] / (1 - c + mc) + m k_2 s \quad (21)$$

It is therefore interesting to examine the change of the balance of payment with respect to an increase of the share of investment in the domestic sector (s) or to compute the derivative of the surplus of the balance of payment with respect to (s):

$$\delta (\Delta X / \Delta I - \Delta M / \Delta I) / \delta s > = < 0$$

From equation (21), after some elaborations we obtain^{vii}:

$$\delta (\Delta X / \Delta I - \Delta M / \Delta I) / \delta s = (1 - c) (m k_2 - k_1) > = < 0$$

Therefore the derivative of ($\Delta X / \Delta I - \Delta M / \Delta I$) is positive

$$\text{if } m k_2 > = < k_1 \quad (22)$$

This expression is identical to the above condition (17), which refers to the derivative of the investment multiplier ($\Delta Y/\Delta I$) with respect to (s).

Therefore, the balance of payment improves when the share of investment allocated in the domestic sector (s) is increasing, in the case of ($m k_2 > k_1$). In fact, an increased production in the domestic sector (Y_2) would lead to a decrease of the imports, which is greater than the increase of the exports to be obtained if the same investment would have been allocated to the exporting sector (Y_1).

The conditions (22) and (17) are clearly similar the “Thirlwall’s law” of growth, which establishes a relationship between the growth rate of GDP and the growth of exports and the propensity to imports. Therefore, we may call (22) and (17) the “Cappellini’s law” of the impact of investment on the balance of payment and on the GDP growth. This condition indicates that an increase in the share (s) of investments in the domestic sector with respect to the share of investments in the exporting sector has a positive impact on the balance of payment and on GDP if ($m k_2 > k_1$) or if the productivity of capital in the domestic sector (k_2) multiplied by the marginal propensity to import (m) is higher than the productivity of capital in the export sector (k_1). This condition can also be indicated as ($m > k_1 / k_2$).

Therefore, an important conclusion of the model is that there is not a trade-off between the growth of GDP and the surplus of the balance of trade, as they both increase or decrease when the share of investment (s) in the domestic sector increases. This result depends on the condition ($m k_2 > k_1$).

In fact, the relationship between the income multiplier ($\Delta Y/\Delta I$) and the share (s) and the relationships between (s) and the balance of payment ($\Delta X/\Delta I - \Delta M/\Delta I$) are linear and have both a positive slope (if $m k_2 > k_1$) or a negative slope (if $m k_2 < k_1$). Therefore, the level of (s) which leads to the maximize the GDP and the surplus of the balance of payment has an extreme value: either (s=1) in the case of ($m k_2 > k_1$), or (s=0) in the case of ($m k_2 < k_1$), as indicated above.

Therefore, it is also interesting to examine the value of the balance of payment in the four extreme cases when (s=0) or (s=1) and when (k_1) or (k_2) are very high. In fact:

$$\text{if } s=0 \quad \text{then } \Delta X/\Delta I_{s=0} - \Delta M/\Delta I_{s=0} = k_1 - m c (1 + k_1) / (1 - c + m c) \quad (23)$$

$$\text{if } s=1 \quad \text{then } \Delta X/\Delta I_{s=1} - \Delta M/\Delta I_{s=1} = -m c (1 + m k_2) / (1 - c + m c) + m k_2 \quad (24)$$

In conclusion, we may state that high values of the (k_1), high values of (k_2), low values of (c) and low values of (m) contribute to a surplus of the balance of payment.^{viii}

2.5 The distribution of investment (s) and the equilibrium in the balance of payment

Finally, we may compute that specific value of the share of investment (s*) between the domestic and the exposed sector, which is compatible with the balance of payment equilibrium. As indicated above, my model is different from the Harrod’s and Thirlwall models, because the share of imports on GDP and the value of exports are not fixed, but they depend on the investment and in particular on the effect of investment on the supply of exports and on the production of the domestic good and then on the decrease of the demand of the international good and of imports.

From the expression (21), it is possible to derive that:

$$\text{if } s^* = [k_1 (1 - c) - m c] / (k_1 (1 - c) - m k_2) \quad \text{then } \Delta X/\Delta I - \Delta M/\Delta I = 0$$

This value of (s*) insures an equilibrium of the balance of payment and it is normally intermediate between the extreme values (0) and (1). By calculating the derivatives of (s*), it is possible to verify that the value of the share of investment (s*) which insures the equilibrium of the balance of payment varies as anticipated by economic logic.

$$\begin{aligned} \delta s / \delta k_1 &> 0 \\ \delta s / \delta k_2 &< 0 \\ \delta s / \delta c &< 0 \\ \delta s / \delta m &< 0 \end{aligned}$$

In fact, when the productivity of investment in the exposed sector (k_1) is increasing, that leads to an increase of exports and that requires a corresponding increase of imports and therefore the increase of the income (Y_2) and of the investment (I_2) in the domestic sector.

When the productivity of investment in the domestic sector (k_2) is increasing and that leads to a decrease of imports and to insure the equilibrium of the balance of payment there is the need to decrease the imports through a decrease of the share (s) of investment (I_2) in the domestic sector.

When propensity to consume (c) is increasing that leads to an increase of imports and that requires a corresponding increase of exports or an increase of the share (1-s) of investment in the exporting sector and a corresponding decrease of the share (s) of investment (I_2) in the domestic sector.

Finally, when the propensity to import (m) is increasing that leads to an increase of imports and, as in the previous cases, that requires a corresponding increase of exports or a decrease of the share (s) of investment (I_2) in the domestic sector.

2.6 The impact of the distribution of investment (s) on GDP and the balance of payment

It can be noticed that when (s=1) the balance of payment can be negative also when ($m k_2 > k_1$) (i.e. case D in the note), and when (s=0) the balance of payment can be negative also when ($m k_2 < k_1$) (case A). In fact, the absolute value of the balance of payment, as indicated by equation (21), does not depend only from the values of (k_1) and (k_2), but also on the values of (m) and (c).

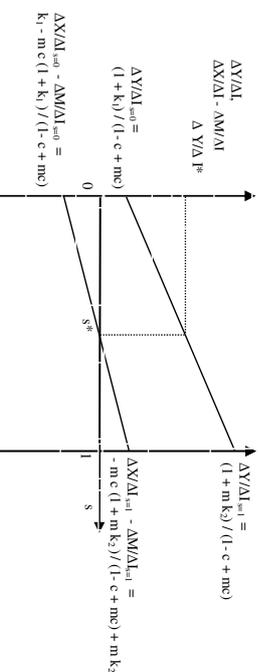


Figure 2 – The impact of investment in the domestic sector on the GDP growth and the balance of payment

The figure 2 considers the most common case in the developed countries (i.e. $m k_2 > k_1$) and it indicates the income line, which has a slope: $\delta (\Delta Y/\Delta I) / \delta s = m k_2 - k_1 > 0$

and the balance of payment line, which has a slope:

$$\delta (\Delta X/\Delta I - \Delta M/\Delta I) / \delta s = (1-c)(mk_2 - k_1) > 0$$

In particular, figure 2 indicates the values of the GDP and of the balance of payment in the two situations, when $(s=0)$ and $(s=1)$, and also the specific value (s^*) , which insures an equilibrium of the balance of payment.

The model indicates that there is not an incentive to choose an intermediate share (s^*) , since, as indicated above, there is not a trade-off between the growth of GDP and the surplus of the balance of trade, as they both increase or decrease when the share of investment (s) in the domestic sector increases. That represents a major difference between a policy of innovation and investment led recovery and a traditional Keynesian policy based on public expenditure expansion, as this latter policy would inevitably determine an increase of GDP, but it would also imply a greater deficit of the balance of payment¹⁸.

The model indicates that the share of investment in the domestic sector (s) may have only an extreme value $(0$ or $1)$. That depends on the hypothesis that the productivity in the two sectors $(k_1$ and $k_2)$ are constant and on the hypothesis that an increase of the production of the domestic good corresponds to a greater consumption of this good and a decrease of the consumption of the international good. In reality, investment will be shared between the two sectors of the economy for various reasons. First of all, the two sectors represent two different social groups of actors and they will bargain in order to insure a more balanced distribution of the available financial resources. Second, the productivity of capital in the two sectors may indicate decreasing returns. Third, the innovation capabilities of the economic actors in the two sectors are limited and often there are not enough profitable investment projects to be financed. Finally, also the demand by the consumers may depend on the scarcity of the good considered, due to a decreasing marginal utility, and that may decrease the revenues of the firms and the relative profitability of investment in the domestic or in the international sector.

In conclusion, in order to increase the GDP and the balance of payment, the share of investment in the domestic sectors (s) should increase, if the propensity to imports (m) , the productivity of capital expenditure in the domestic sector (k_2) are high. On the contrary, it should decrease when the effect of investment on the competitiveness of export sector (k_1) is high.

The model indicates that to maximize the value of exports (according to a "mercantilist" perspective) is not the most appropriate policy and that it is more reasonable to aim to increase the GDP and to consider that in some cases when $(mk_2 > k_1)$, the balance of payment could be improved also by an increase of the share of investment in the domestic sector (I_2) , which is leading to an increase of the productions and consumption of the domestic good (C_2) and a decrease of imports.

In general, the industrial and investment policy of the government can direct the investment either to the increase of the competitiveness of the exports or to the increase of the production capacity of the domestic sector and the criterion of choice respectively are the conditions $(mk_2 < k_1)$ or $(mk_2 > k_1)$.

3. The key role of innovation in the recovery of investments and growth in Europe

The model illustrated above indicates that GDP growth depends on investment, since this latter allows an increase of the production both in the exporting sector and in the domestic sector.

Therefore, it is important to investigate why the private enterprises and the Government in Europe and US during the last decade have decreased both the material and the immaterial investment¹⁹ and how to increase the investment.

In fact, while the prevailing opinion among professional economists seems to be that in order to promote an economic recovery there is the need of higher investments, there is not a consensus on the what type of investment, by which actors, in which territorial areas and how organize the investment projects.

The design of a new development strategy based on an investment recovery should be based on the new emerging characteristics of the economic and industrial structure in Europe. In this respect, the crucial radical change with respect to the economic structure prevailing in the 900 century is the current evolution toward the model of the "knowledge economy", which underlines the key role of innovation not only on the supply of new productions, but also on the change of the patterns of demand by the citizens and the firms.

In principle, an increase of GDP can be determined both by an increase in existing productions and by the creation of new productions. Completely new productions responding to new needs by the users would allow a diversification or the actual industrial structure, create additional employment and avoid to determine a partial crowding out the existing productions and an inevitable decrease of the existing employment. New productions should be different from existing productions, since they are produced with different technologies and are addressed to a different market. That is a characteristic of the domestic productions (Y_2) in the model above, as they are addressed to the internal market rather than to the international market.

In particular, for the private investors a necessary condition for investment is the profitability of the investment project and new productions should be competitive either because produced at lower costs (process innovation) or because they have a superior quality (product innovation) than the competitive productions. But also for the public institutions social benefits should be higher than social costs. Thus, the production created with the investments need to be capable to generate adequate revenues in the market or an adequate increase of taxation, in order to repay the financial loans received for the investment. The new productions should respond to the new needs of the users and citizens, which are the real drivers of a new investment policy since the benefits of the new productions for these actors will determine their willingness to pay, in term of market price or of specific or general taxes to be collected by the public institutions.

Innovation becomes a crucial factor for investment decision in two perspectives: first as the new productions should be an innovation or be different with respect to the existing productions, and second because innovation has a key role in determining the expected revenues and costs of the new productions²⁰. In fact, innovation may allow to decrease the production costs of the new good and service to be produced, an advantage with respect to the competitors and an increase of the willingness to pay by the users and an increase of the revenues for the new producers. Therefore, the internal rate of return of an investment project (IRR) is linked to innovation, as innovation may imply an increase of revenues, a decrease of the costs of the investment and also a decrease of the time required for its completion or an extension of the time of life span of the revenues linked to a new production. Finally, innovation is also important because it allows to decrease the risks or the variability of the expected returns, by allowing a greater certainty on the future flows of costs or of revenues²¹.

Innovation in modern industry is neither the result of a "manna coming from the sky", nor the result of a gradual "learning by doing" process, nor the result of "serendipity" by intelligent individual

entrepreneurs, but mainly the result of an organized activity, which requires economic resources or a committed "investment". Recent theories developed in the economics of innovation, regional economics and management sciences (Lundvall and Johnson 1994, Fagerberg 2005, Capello 2007, Cappellin and Wink 2009, Cappellin 2010, Foray 2015) have greatly expanded the knowledge of the innovation process and have identified various factors of innovation, which lead to innovation, both within the firms and in their external local environment. These factors are often neglected by macroeconomists, which believe that innovation may be only relevant in the "long term", as it would determine a shift of the potential GDP or of the natural rate of unemployment (NARU or the not accelerating inflation rate of unemployment) and then a downward shift of the aggregate supply schedule (AS).

In particular, an important factor is the form of the relationships between the firms and the other firms and institutions, both in a local and in an international framework. In fact, innovation is not done in isolation and it should occur not only in those firms which do an investment, but also in their suppliers, thus determining a decrease of the costs, or in their clients, thus leading to an increase of demand and revenues. Therefore, an adequate financial return of the investment does not only require technological or financial innovation, but also organizational and institutional innovation, since an appropriate governance of those external relationships, which are crucial in the process of investment, allows to save costs, maximize revenues and especially decrease the risks of the investment.

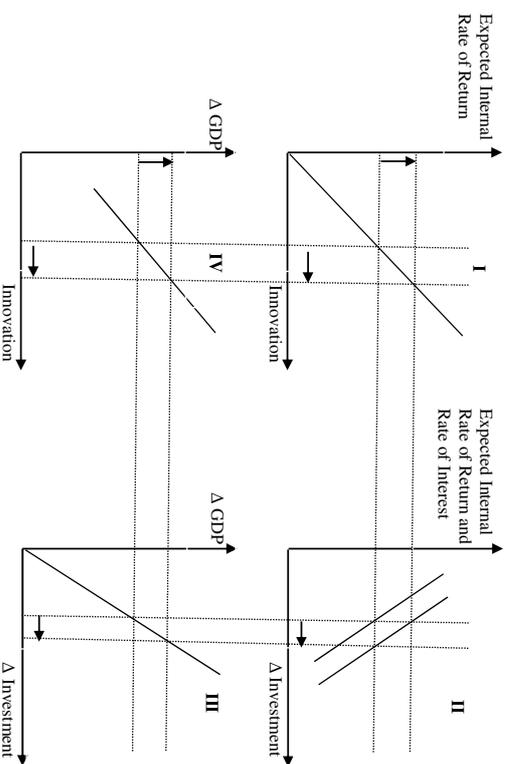


Figure 3 – A model of innovation and investment led growth

Therefore, innovation requires that adequate financial resources should be allocated to the investment in R&D, in the training of the labour resources, in the technical/economic/financial design (project capability) and in the creation of technological and economic and financial collaborations with other firms, the trade unions, the universities and the public local, national and international institutions and the other actors of the regional and national system of innovation

(NIS). These factors may be summarised with the aggregate variable indicated as "innovation" in figure 3.

The quadrants I and II of figure 3 indicate that innovation leads to an increase of the (IRR) or of the profitability of the individual investment projects. That would then lead to an upward shift of the traditional Keynesian investment function, which represents the various investment projects organized according to decreasing (IRR), and to an increase of the level of aggregate investment with respect to the level, which corresponds with the intersection of the initial Keynesian investment function with the line of the market interest rate (r^{*S}), determined by the monetary policies and which we may suppose is fixed.

Then, the quadrant III indicates the positive relationship between investment and GDP, which may be derived from the above illustrated macroeconomic model. In particular, this model has demonstrated that investment has a positive effect on GDP (i.e. equation 16), given a specific distribution (s) of investments between the two sectors: the domestic and the exporting sector. Moreover, the model has also indicated the specific value of this share (s^{*S}), which insures the equilibrium of the balance of payment. Thus, the relationships indicated in quadrant III is compatible with the hypothesis of the macroeconomic equilibrium between saving and investment.

Finally, the quadrant IV indicates that innovation leads to an increase of GDP. Therefore, we may conclude that the model indicates that a greater immaterial investment in R&D, education and project design leads to greater innovation, this latter is the factor leading to an increase of the propensity to invest by the firms and then that investment leads to an increase of GDP, which may be compatible with the constraint of the equilibrium of the balance of payment.

In particular, the model^{ixiii} indicates two basic instruments of industrial policy, which may be used by the government: a) the use of various fiscal subsidies and coordination measures which may affect the share (s) of investment which goes to increase the production capacity in the domestic sector or in the exporting, b) the use of public expenditure and various public programs, aimed at increasing the required preliminary investment in R&D, education and project design effort, as that "immaterial" investment affects the flow of innovation by private firms and increases the profitability (IRR) of the "fixed" investment projects in the various sectors.

4. The industry diversification into six new productions driven by the internal demand

The model described above is based on the distinction between international goods and services and domestic good and services. Thus it is important to clarify the characteristics of this second category of goods and services. In particular, there is a large consensus between planners and economists and also within a wide spectrum of the informed public opinion that Europe is characterized by a wide gap between the needs and the actual endowment in the following modern services: 1) housing, 2) mobility, 3) health and education, 4) leisure and culture, 5) energy and environment. Moreover, these services are tightly related to a sixth sector: represented by the advanced manufacturing productions, which are needed as specialized suppliers to these services. Therefore, investment policies addressed to fills this gap are both socially useful and also contribute to the growth of the aggregate demand and of GDP. The new goods and services addressed to the internal demand have various important different characteristics with respect to the traditional manufacturing goods addressed to exports, to be explicitly considered by the investment projects in the six sectors indicated above^{xiv}.

First, the demand of the goods and services indicated above can't be satisfied individually but in a collective way, after aggregating the individual demands. The demand is rapidly growing, but is

also becoming more sophisticated and customized and the product innovations are often induced (*demand pull innovation*) by the behaviours of the most expert users (*lead users*), which pull the demand of the other users (*followers*). The evolution of the demand is crucial for the investment decisions and successful new productions have often developed by following the evolution of the demand of existing local users, rather than by developing potentially useful applications of new technologies and by looking for new distant markets.

The six activities indicated above represent new markets ("lead markets"), which are increasingly important due to the increase both of the number of the innovative users and of the innovative firms in the European countries. In fact, the economic growth depends on a dynamic process where the demand and the supply of new productions interact (Markusen 2007, Markusen and Schrock 2009, Cappellin 2011 and 2014). On the one hand the development of new production capabilities in innovative goods and services by the most innovative firms stimulate the final demand by the consumers and/or the intermediate demand by the firms to test these new goods and services. On the other hand, the rise of the new needs by the communities of innovative users pulls the demand of the market and induces the producers to modify the productions of the traditional goods and services. In fact, especially in the case of services and in the development of new productions, users and producers tightly collaborate in introducing the specific innovation and there is the need that industrial policies promote the tighter integration of producers and users.

The key actors determining the demand of the collective services indicated above may be represented by groups of consumers and citizens, organized in their local communities or in sectorial interest groups. In particular, the six productions indicated above are also mainly clustered in large urban areas, as they need to be close to the areas, where most of population lives and where the per-capita income levels are higher. They are organized in network ("value chains") expanding also at the international level. That requires that investment policies by the European institutions (i.e. the Juncker Plan) and national Governments should also have a territorial or urban perspective.

Therefore, the demand of the new "domestic" goods and services seem to have an higher income elasticity than that of traditional international goods, which suffer by the almost saturation of their internal demand and by the slow increase of export to other areas. Moreover, to concentrate the investments into new domestic productions seems to be easier, as the domestic goods (such as many private and collective services) are not subject to external competition and they require a strong interaction between the users and the producers and have to be produced very close to the final users. Moreover, the development of new technologically advanced productions for the internal demand would exploit the comparative advantage, existing in Europe in these productions with respect to less developed countries, due the high experience and high labour skills, which have accumulated during the past decades and which are required in these productions. Finally, in the future, these new productions, initially developed only for the European market, could then promote the investments by European firms in foreign countries, in order to be the first to introduce similar goods and services in these countries.^{xv}

Also the supply of these new goods and services has specific new characteristics. In fact, a key characteristic of the collective services in the six productions indicated above is the fact that while their production was traditionally reserved to public institutions the growing demand, the increasing specialization of the citizen's needs and the development of new technologies and forms of organization has led to the development of an increasing number of private firms working for the market.

However, the investment projects imply the collaboration of different firms, which operate in different sectors and may have complementary competences. Investments by the individual firms are not sufficient, while large, very innovative, integrated and complex, medium term and risky

investments require the cooperation between different firms^{xvi}. The existence of various forms of external economies determines that the private firms do not have an incentive to operate alone, due to the high risk and the low return of individual investments undertaken by a single firm in isolation, and there is the need that a public actor is capable to coordinate the various investment projects, for example within a large urban area, in order to exploit the synergies between the various private firms. Therefore, the investment requires a joint action with other firms and it depends on the identification of a joint aim, the creation of strategic alliances, the thrust relationships between the firms, the definition of new institutional schemes and the sharing of experience and common cultural models^{xvii}.

As indicated above, the fixed investment in the creation of production capacity in new productions should have an high innovation content in order to be financially profitable. Thus, there is the need of a preliminary "immaterial" investment in R&D, in technical, economic and financial design and in the qualification of the labour force, and that leads to an increase of the share of immaterial investments within the capital expenditure in developed economies^{xviii}.

In particular, since the initial effort in the design and planning for large investments may require also various years and since these preliminary investments often can't be supported by the individual entrepreneurs with their own capital or also with the capital borrowed by the banks, there is the need that this phase of design and planning should be supported by a patient capital and by a tight private-public collaboration.

Moreover, the need to aim to qualified projects should lead the industrial and regional policies to mobilize the best competencies existing in the territory and first of all those of the universities and research centres. In fact, there is the need that industrial policies induce the firms to combine in an original way the complementary tacit and codified knowledge of various firms and organizations, operating in different technologies and production fields.

In conclusion, the new "lead markets" of the new productions in the field of collective services require a new type of "entrepreneur", different from the traditional individual entrepreneur in the industrial SMEs and also from the typical corporate organization of the large multinational companies, which sell industrial goods or services in the international markets. This new entrepreneurial actor should have the characteristics of a "vehicle organization", which combines the characteristics of an engineering company and of an investment bank. In particular, it should perform various activities: stimulate and aggregate the demand of many scattered individual consumers, attract the supply by large national and international firms active in the production of new services, regulate the relationship between the provider and the final users of the service in the definition of the contracts and of the price of this latter, promote the raising of the required financial funds and finally manage the physical implementation of the investment projects^{xix}.

Moreover, it has been often observed that the "pipeline" of the feasible projects is empty and that is one of the major reasons why the available public funds for investments can't be spent^{xx}. Therefore, the financing institutions should not only provide the funds, but also an assistance to the firms in the phase of planning and design. The banks should finance the often very long and expensive works of preliminary design and planning and promote the tight integration of the various actors participating to the project, as it normally occurs within the "innovation networks".

The banks and also specialized financial intermediaries are important partners in the national and regional industrial policies. The development of the six new lead markets indicated above requires that the banks be present in the territory and be close to the firms of the various industrial and service sectors. In order to promote and develop new investment projects, the banks can't just focus on the financial evaluation of investment projects, which have already been completely defined, as

these projects could be improved with a more complete integration of the various competencies. Thus, also the large banks should tightly work together with the universities and the engineering companies, in the fields of the technological, economic, financial and legal design, and also with the public institutions of the different levels, which are responsible of the planning of the various measures of public intervention.

It would be useful to create a "task force" within each region, in order to promote the discovery of innovative productions and the investments of the private companies in new infrastructures, to mobilize the public resources required for the preliminary and complementary investments and also in order to remove the administrative obstacles, which slow down the implementation of the investments of the private companies. That public-private task force for an economic recovery of the investments in European firms should define a common strategic platform and organize a limited number of "action plans", such as those in the various strategic fields of infrastructure and collective services indicated above and also in other innovative manufacturing productions, which may be feasible and of high priority. That task force should insure the participation of the various economic actors of the specific considered sectors, of the organizations of the citizens and of the users of the new services, the universities, the world of professional services, the project finance companies, the local SMEs, the public utilities companies, the trade unions, the chambers of commerce and the industry associations.

These policy indications are especially relevant for the countries and regions of Southern Europe, such as Greece and the Italian South^{xix}. In fact, the well known gap in the endowment of public and collective services, especially in the largest urban areas of the countries and regions of Southern Europe, should not be understood only as an obstacle to growth but rather as a strategic option, since the new productions should first be developed in those sectors where there is already a large local latent demand rather than aims to develop new productions which may not find a corresponding demand in the international markets.

Moreover, traditional policies have not focused on innovation as a precondition for productive investment. That points out to the choice of the same traditional industrial sectors which are already in a crisis in the other European regions, such as steel, petrochemical and automobile sector, rather than to new productions. A key problem is a lack of adequate public resources and policy focus on the crucial preliminary investments in research, professional education and especially in a good design and planning of innovative profitable investment projects.

Institutional innovations are also required and there is a lack of entrepreneurship and governance capabilities, since policies have missed to create in these regions those new institutions and organizations which could organize an investment and innovation policy, as indicated above, since both the traditional public administrations, at the national and at the regional level, and also the remaining large manufacturing firms are not appropriate for organizing large investment projects having a complex impact in the urban areas or on the territory and requiring the collaboration with many local actors.

5. The guidelines of a new industrial policy.

In this study we have examined how innovation and investments can change both the propensity to import and the level of exports and the trade-off between a policy aiming to an export led growth and a strategy of innovation and investment led growth, focusing on the increase of the internal demand. On the contrary, orthodox macroeconomic policies focus on the supply side and on the international competitiveness. Thus they link the national growth only to the growth of export and they underestimate the role of the internal demand. In fact, according to the Thirlwall's model, the

growth of an economy is limited by exports and the constraint of the equilibrium of the balance of payment. My model is different since it indicates that innovation affects the investments and these latter promote the GDP growth, first by expanding the internal demand, but also by removing the constraints of the balance of payment equilibrium, through the growth of the export capabilities and through the decrease of imports, induced by the growth of production capabilities in the new productions oriented to the internal demand.

In this theoretical perspective, fiscal and monetary policies and also the policies of structural reforms are less effective than industrial policies in promoting a growth of GDP and employment, especially in the actual situation of European countries.

In particular, the traditional Keynesian fiscal policy, based on the growth of public expenditure, is ineffective, since the European Union can't allow a greater flexibility of the "Stability Pact" or less fiscal "austerity", due to the high public debt of many countries, especially in Southern Europe^{xxii}.

On the other hand, also the monetary policy of "quantitative easing" has proved to be ineffective both on investment and also on the price level, and it has only had an effect on the exchange rate and on the financial stability of the banks. In fact, in a stagnation situation, which is similar to the cases of a liquidity trap or of an investment function rigid with respect to the interest rates, a decrease of the market interest rates on the capital markets does not have any effect alone on the capital expenditure. On the contrary, an increase of the private investments would also require a reform of the banking system and the development of new financial intermediaries, such as a National Development Bank (e.g. KfW, Banquefrance, Cassa Depositi e Prestiti), capable to support the investments of the firms, due to the fact that commercial banks find too risky to give new loans and prefer to invest in financial assets in the international capital market.

Finally, also the so called "structural reforms" are insufficient, since they lead in fact only to a decrease of the costs and act on the supply side of the economy, while they contract the employment and labour incomes and therefore contract the internal aggregate demand, from which depends the productions of many industrial and service firms selling on the internal market. In particular, the policy of labour flexibility determine a decrease of wages, a greater un-security on the working places and an increase of company profits and income disparities, having a negative impact on the consumption demand. Moreover, the structural reforms on the labour market did not have an effect on labour productivity, which has decreased, since the labour productivity depends on the capital intensity and on investments, innovation, continuous training on the job, and that has been discouraged by a greater flexibility of labour and the development of short term and part time jobs.

Therefore, the traditional macroeconomic policies have not been capable to promote the exit from the economic crisis and stagnation. They have aimed only to a decrease of the costs and to promote the international cost competitiveness and exports. They have only acted on the supply, which is now greater with respect to the demand. They have even lead to a decrease of the aggregate demand and not only of the public expenditure but also of the private investments and of private consumption, since they have determined a greater insecurity or a lower thrust on the future, due to the decrease of wages and employment.

This paper has underlined that key problem of economic growth in Europe is the recovery of investments and the adoption of a new industrial policy. The new paradigm of innovation imposes a radical re-orientation of the adopted macroeconomic policies and a change of perspective from the austerity policies to the policies aiming to promote investment and innovation. In fact, the sooner the policies are changed and the sooner the recovery could start.

A “new industrial policy” should promote a change in the production structure of the economy and a dynamic adjustment of the demand and of the supply in the various production sectors, in order to create new productions and increase employment and the average productivity in the economy.

The new industrial policy should focus on the new needs of the consumers or citizens, on the creation of new markets (“lead markets”) and on the creation of new productions. Market forces are not sufficient and the new markets should be created. In particular, there is the need to improve the internal demand and the domestic sectors of the economy. The new markets are not only those in distant countries, but rather the new emerging markets of products and services, which are created by the changing demand patterns, related to the new and life styles and needs both of the citizens and of the firms, in particular those in the urban areas.

In fact, innovation is not only made by the new technologies or by the improved labour skills of the workers, but also by the original capability to identify the new markets of new productions. There is the need to develop the internal demand of collective goods and to adopt structural interventions in the economy in order to promote the economic and social change, the innovation and the improvement of the quality of life.

A new industrial policy should be demand driven and organized according to selected new markets (*lead-markets*) and not any more according to the traditional vertical sectors and specific technologies (i.e. high tech sectors). Neither, it should consider only the manufacturing sector (*industrial compact*), while it should consider explicitly also the service sectors and especially those related to the infrastructure networks. It should not be organized according to individual companies and consists in the support of the large firms with strategic importance (*national champions*) or in the support of the dynamic medium size firms or in the defence and in the financial mergers of the small firms.

On the contrary, there is the need for a tighter integration of the most innovative firms, which want to expand with the other firms of the territory in the framework of the respective clusters, supply chains and innovation networks. A development strategy requires that the innovative firms should collaborate with other key partners, such as the workers and the trade unions, the banks and the institutions and this cooperation should be enlarged to the consumers and the citizens within the respective local community or the respective national and regional “innovation system”. This collaboration would allow to decrease the uncertainty, which is hindering the firms in adopting innovation and launch large investment projects.

A strategy of industrial development is missing at the national and European level. Also, the traditional horizontal industrial policies (*factors oriented industrial policies*), made by fiscal subsidies or selective tax decreases to the small and medium sized firms may be useful at the margin or as a background for the less dynamic part of the economy, while selective and strategic industrial policies should support the most innovative and dynamic productions, which may be capable to pull the overall economy. In other words, there is the need of a shift from a “balanced growth” strategy to an “unbalanced growth” strategy, as indicated by Perroux and Hirschman many years ago, aiming to a change not only in technology, but also in the needs of the users and in the relationships between the public institutions, the citizens and the firms.

The economic recovery requires the identification of new productions, oriented not only to the foreign markets but also to the internal demand and to respond to the increasing needs by the citizens of new goods and services and better infrastructures, in territory and especially in the largest cities. There is the need for a large plan of private and public investments, at the national, regional and local level, not only in industry but also in services and in the cities, where the largest part of population concentrates.

In this phase of evolution toward a new model of industry, the lack of industrial and regional policies is the factor which explains the persistence of the economic stagnation in Europe. This study indicates that public institutions, universities, banks and new financial intermediaries should be capable in a “smart” way to anticipate the emerging change in the needs and behaviours of the users as also the improved production capabilities of the firms and the workers. There is the need to support the innovative firms in this transition towards a new competitive and organizational model, to promote technological and organizational innovation, which is the necessary condition in order to first design and then implement large and small profitable investment projects. In a new industrial policy, the drivers of growth are not exports, but the innovations, the new preferences of consumers, the investments and the efficient governance by the institutions of the changes in the relationships between the actors.

There is the need for a new strategy of investment and an industrial policy capable to promote the cooperation between the worlds of the large multinational firms, the SMEs, the financial organizations, the universities and the research centres, the trade unions and the public administration on large industrial and infrastructural projects, organised in the territory and focused in the urban areas, in order to promote the creation and the development of new productions and higher growth and employment.

In conclusion, there is the need for a change of course in the national and European economic policies, which have to focus on the internal demand and in particular on investment and innovation and should promote an integration of mainstream macroeconomic policies with a “new industrial policy” having a territorial dimension.

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Notes

¹ As indicated in table 1, GDP growth has been positive in Germany. However, investments have only slightly increased and private consumption has had a much greater role in the economic recovery and the growth of imports has been even greater than the growth of exports. Also in France (-5.9%) and especially in Spain (-3.5%), the decline of investment has had a negative role on the GDP growth. The growth of exports has been lower than the growth of imports in France, while in Spain the decline of imports has had a greater contribution to GDP growth than the growth of exports. Finally, also in the United States and in the United Kingdom, where the GDP has greatly increased, the share of investments on the GDP has decreased and the private consumption has had a greater positive role on GDP growth than the net exports. These data indicate that investment have had a major role on the negative role of GDP in the major European countries and that the internal demand and the imports have had a more important role than the exports. Moreover, also considering the US and UK, the data demonstrate that the evolution of investment has been crucial in the evolution of GDP and that the evolution of net exports is most often less important than that of the internal demand components.

In Italy, the GDP decrease in the period 2007-2014 has been -8.9% and the decrease of investment has been the very most important factor, since it had determined a 6.5% decrease of GDP. If the GDP decrease has been of 150 bill. Euro yearly, the investments have decreased by 109 bill. at constant prices comparing these two years. Also the trend of the investment in the first quarters of the 2015 has been totally unsatisfactory.

In Italy, the actual data contradict the largely spread opinion according to which the most important factor of decline would have been the "stagnery" in the public expenditure, since the decrease of public consumption has had a largely smaller negative effect (-0.5%) than the investments and also the private consumption have determined a smaller decrease of GDP (-4.5%).

In Italy, exports did not have a positive effect, as it is often indicated, but rather a negative effect on the GDP growth (-0.4%), since they have decreased due to the international crisis. On the contrary, the important decrease of imports has had an important positive impact on GDP (3.7%) and that demonstrate the capability of the national firms to regain the internal market.

An international comparison of Europe with the US and China, as indicated by table 2, indicates that Europe can hardly increase its share of world exports and that the size of the internal market in Europe is even larger than these two large countries, thus highlighting the potential of the internal demand for new productions. However, the need for a different economic policy in Europe is highlighted by the larger unemployment rate and the slower growth rate and also the smaller investment propensity. Finally, the large share of services in Europe highlights than new non-manufacturing productions will certainly have a key role in the European future growth.

As indicated in table 3, Italian GDP growth has finished to decline in the I and II quarters of 2015, but it smaller than 1% and it is much slower than in Spain, UK, Germany and France, where it is greater than 1% :

Italian household consumption has started to increase since the II quarter 2014 but they are increasing a slower pace than in Spain, Germany and France.

Italian public consumption have finished to decline and are stable but they growth less than in Germany, France and Spain, Italian investments have finished to decline and are stable but much less than in Germany and Spain and in France they still decline, Italian exports growth less than in Germany, France and Spain in 2015 indicating a weakening of the competitiveness, Italian imports growth less than in Germany, France and Spain in 2015 indicating the weakness of the internal demand.

Table 1- The role of Investments on the GDP growth rate

GEO	NA_ITEM/TFE	2007	2014	Contribution 2007	Difference 2014-2007	SHARE- 2007	SHARE- 2014	SHARE- 2014/2007	Growth 2014/2007
Euro area (12)	Gross domestic product at market prices	9.549.807	9.454.491	-0.99%	95.016	100.0%	100.0%	100.0%	-4.0%
Euro area (12)	Consumption expenditure of general government	1.965.498	1.995.600	0.32%	30.102	20.6%	21.1%	1.5%	1.5%
Euro area (12)	Household and NPISH final consumption expenditure	2.183.702	1.897.714	-3.29%	-323.989	22.9%	19.7%	-14.8%	-0.7%
Euro area (12)	Gross fixed capital formation	3.657.750	4.129.961	4.94%	472.211	38.5%	43.7%	12.9%	12.9%
Euro area (12)	Exports of goods and services	-3.515.478	-3.789.199	-2.46%	-234.661	-36.8%	-39.7%	-6.7%	6.7%
Germany	Gross domestic product at market prices	2.595.542	2.724.610	4.97%	129.069	100.0%	100.0%	100.0%	5.0%
Germany	Consumption expenditure of general government	457.974	512.835	2.11%	54.861	17.6%	18.8%	12.0%	12.0%
Germany	Household and NPISH final consumption expenditure	1.429.082	1.517.704	3.41%	88.622	55.1%	55.7%	6.2%	6.2%
Germany	Gross fixed capital formation	519.836	544.787	0.96%	24.951	20.0%	20.0%	4.8%	4.8%
Germany	Exports of goods and services	1.088.539	1.275.543	7.20%	186.984	41.9%	46.8%	17.2%	17.2%
Germany	Imports of goods and services	-916.611	-1.092.820	-6.79%	-176.209	-35.3%	-40.1%	19.2%	19.2%
Spain	Gross domestic product at market prices	1.108.450	1.053.296	-4.98%	-55.154	100.0%	100.0%	100.0%	-5.0%
Spain	Consumption expenditure of general government	198.010	214.022	1.44%	16.012	17.9%	20.3%	8.1%	8.1%
Spain	Household and NPISH final consumption expenditure	644.568	588.966	-5.02%	-55.602	58.2%	55.9%	-8.6%	-8.6%
Spain	Gross fixed capital formation	327.711	213.402	-10.31%	-114.309	29.6%	20.3%	-34.9%	-34.9%
Spain	Exports of goods and services	285.742	325.588	3.59%	39.846	25.8%	30.9%	13.9%	13.9%

Spain	Imports of goods and services	-351,746	-288,682	5,69%	63,064	-31,7%	-27,4%	-17,9%
France	Gross domestic product at market prices	2,015,415	2,060,872	2,26%	45,457	100,0%	100,0%	2,2%
France	Consumption expenditure of general government	453,945	504,665	2,52%	50,720	22,5%	24,5%	11,2%
France	Household and NPISH final consumption expenditure	1,094,571	1,136,242	2,07%	41,691	54,3%	55,1%	3,8%
France	Gross fixed capital formation	471,153	443,134	-1,39%	-28,019	23,4%	21,5%	-5,9%
France	Exports of goods and services	536,108	590,555	2,85%	57,447	26,6%	28,8%	10,7%
France	Imports of goods and services	-558,621	-630,123	-3,55%	-71,502	-27,7%	-30,6%	12,8%
Italy	Gross domestic product at market prices	1,687,965	1,537,125	-8,94%	-180,838	100,0%	100,0%	8,9%
Italy	Consumption expenditure of general government	321,496	313,938	-0,45%	-7,559	19,0%	20,4%	-2,4%
Italy	Household and NPISH final consumption expenditure	994,207	918,015	-4,51%	-76,193	58,9%	59,7%	-7,7%
Italy	Gross fixed capital formation	368,620	290,157	-6,48%	-109,463	21,8%	16,9%	-29,7%
Italy	Exports of goods and services	435,248	448,837	0,38%	6,410	27,0%	29,2%	-1,4%
Italy	Imports of goods and services	-461,900	-400,210	3,65%	61,690	-27,4%	-26,0%	-13,4%
United Kingdom	Gross domestic product at market prices	1,869,051	1,946,174	4,13%	77,123	100,0%	100,0%	4,1%
United Kingdom	Consumption expenditure of general government	380,104	406,802	1,43%	26,698	20,3%	20,9%	7,0%
United Kingdom	Household and NPISH final consumption expenditure	1,209,050	1,234,670	1,37%	25,620	64,7%	63,4%	2,1%
United Kingdom	Gross fixed capital formation	337,467	337,467	0,00%	-	18,1%	17,3%	0,0%
United Kingdom	Exports of goods and services	525,972	564,936	2,08%	38,963	28,1%	29,0%	7,4%
United Kingdom	Imports of goods and services	-586,233	-610,220	-1,28%	-23,987	-31,4%	-31,4%	4,1%
United States	Gross domestic product at market prices	11,356,565	12,281,891	8,15%	925,326	100,0%	100,0%	8,1%
United States	Consumption expenditure of general government	-1,945,351	-2,163,688	-1,92%	-218,337	-17,1%	-17,6%	11,2%
United States	Household and NPISH final consumption expenditure	7,699,772	8,410,891	6,26%	711,119	67,8%	68,5%	9,2%
United States	Gross fixed capital formation	2,424,715	2,370,261	-0,48%	-54,453	21,4%	19,3%	-2,2%
United States	Exports of goods and services	1,294,827	1,630,532	3,04%	344,705	11,4%	13,3%	26,6%
United States	Imports of goods and services	-1,882,602	-2,024,895	1,25%	142,293	16,6%	16,5%	-7,6%

Source: Eurostat data base.

Table 2 - Exports, investments and growth in EU, US and China (2014)

	EU	USA	China
Export on world (2013)	16,1%	11%	15,4%
Import on world (2013)	15,2%	13,3%	13,3%
GDP value (2014)	18460	17419	10360
Per capita GDP euro (2013)	25700	39900	
Share of Industry (2013)	23,7%	20,5%	42,6%
Share of Services (2014)	74,7%	78,5%	48,2%
Unemployment rate (2014)	10,8%	7,4%	4,6%
Growth rate (2014)	0,1%	2,4%	7,4%
Gross capital formation share (2013)	19,1%	19,3%	4,7%
Per capita GDP \$	36318	54629	7593

Source: <http://data.worldbank.org/indicator/FRYR3>

Table 3 - Recent macroeconomic evolution in European Union, Germany, France, Italy and Spain

Source of data	Eurostat						
	Chain linked volumes, percentage change computed to same period in previous year						
UNIT	Seasonally adjusted and adjusted data by working days						
S_ADJ	GROTIME	2014Q1	2014Q2	2014Q3	2014Q4	2015Q1	2015Q2
NA_ITEM	Germany	2,3	1,4	1,2	1,5	1,1	1,6
Gross domestic product at market prices	Germany	2,3	1,4	1,2	1,5	1,1	1,6
Gross domestic product at market prices	Euro area (12 countries)	1,0	0,8	0,8	0,8	1,0	1,2

Source: Eurostat

Chain linked volumes, percentage change computed to same period in previous year

Seasonally adjusted and adjusted data by working days

Gross domestic product at market prices	Spain	0,6	1,2	1,6	2,0	2,7	3,1
Gross domestic product at market prices	France	0,7	-0,2	0,2	0,1	0,9	1,0
Gross domestic product at market prices	Italy	-0,2	-0,3	-0,5	-0,4	0,2	0,7
Gross domestic product at market prices	United Kingdom	2,7	3,0	3,0	3,4	2,9	2,6
Household and NPISH final consumption expenditure	Germany	1,2	0,5	0,5	1,9	1,9	2,1
Household and NPISH final consumption expenditure	Euro area (12 countries)	0,7	0,7	1,0	1,4	1,7	1,7
Household and NPISH final consumption expenditure	Spain	1,3	2,3	2,7	3,3	3,5	3,5
Household and NPISH final consumption expenditure	France	0,4	0,5	1,0	0,7	2,0	1,7
Household and NPISH final consumption expenditure	Italy	-0,1	0,4	0,5	0,6	0,2	0,6
Household and NPISH final consumption expenditure	United Kingdom	1,9	2,3	2,8	3,0	3,4	3,4
Final consumption expenditure of general government	Germany	1,1	1,9	1,7	2,0	2,3	2,0
Final consumption expenditure of general government	Euro area (12 countries)	0,5	0,6	0,6	0,7	1,1	1,1
Final consumption expenditure of general government	Spain	0,3	0,3	0,3	-0,5	0,2	1,0
Final consumption expenditure of general government	France	1,6	1,3	1,5	1,7	1,8	1,8
Final consumption expenditure of general government	Italy	-1,0	-1,8	-0,7	-0,3	0,0	0,2
Final consumption expenditure of general government	United Kingdom	0,3	2,3	1,8	1,9	2,3	2,3
Gross fixed capital formation	Germany	7,6	3,2	1,8	1,4	0,6	1,8
Gross fixed capital formation	Euro area (12 countries)	2,4	1,1	0,6	0,5	0,8	0,8
Gross fixed capital formation	Spain	0,8	3,9	3,9	5,1	6,1	6,1
Gross fixed capital formation	France	-0,1	-1,1	-1,6	-2,0	-1,3	-1,0
Gross fixed capital formation	Italy	-2,3	-3,2	-4,1	-3,2	0,0	0,3
Gross fixed capital formation	United Kingdom	9,3	9,8	8,9	6,5	5,0	5,0
Gross fixed capital formation	Germany	4,0	3,5	4,5	3,7	4,5	6,4
Exports of goods and services	Euro area (12 countries)	3,4	3,1	4,2	4,1	4,2	4,2
Exports of goods and services	Spain	6,4	1,0	4,5	4,7	5,0	6,0
Exports of goods and services	France	2,8	0,2	2,3	4,2	5,1	7,0
Exports of goods and services	Italy	1,4	2,6	1,6	3,9	4,2	4,0
Exports of goods and services	United Kingdom	1,3	-3,5	-0,8	5,1	3,8	3,8
Imports of goods and services	Germany	4,4	3,8	2,4	4,2	5,5	5,4
Imports of goods and services	Euro area (12 countries)	3,8	3,7	4,0	4,6	5,2	5,2
Imports of goods and services	Spain	9,4	4,9	8,6	7,7	7,0	7,2
Imports of goods and services	France	3,9	2,8	3,7	5,4	6,7	6,4
Imports of goods and services	Italy	0,4	2,8	1,4	2,1	4,3	5,5
Imports of goods and services	United Kingdom	5,3	0,8	0,3	3,3	4,6	4,6

This contribution has been elaborated in the framework of the activities of the Discussion Group on "Growth, Investment and Territory" (<http://economia.unina2.it/de/di/crescita-investimenti-e-territorio/>); this website has had almost 8,000 visitors from February 2014 to September 1, 2015). This discussion group which is made by many Italian academic economists and also economists in financial institutions, trade unions and public administration. The discussion group has organised various meetings and workshops with the support of the Italian Regional Science Association (www.arsci.it/) and the Italian Society for Industrial Economics and Policy (www.siepi.org/) and it has published two e-books (Cappellin et al., 2014 and 2015). The author wish to thank the co-authors of these publications, for having shared the theoretical approach and the main policy guidelines indicated in this paper.

In fact, when both the balance of payment and the balance of trade are in equilibrium, foreign investors may do *greenfield* investments or purchase national firms; however that would be compensated by the exports of capital to abroad by national actors, thus leaving also the balance of capital in equilibrium.

* The equation (15) indicates a different interpretation of the Thirlwall's law, which does not explain the actual growth rate of GDP, as this latter can in fact be determined by many other factors, but it may instead indicate the levels of GDP and imports, which are feasible according to the condition of the equilibrium in the balance of payment, in the case of a given growth of exports. In particular, the Thirlwall's law may not be used in order to

indicate the growth rate of GDP, which is determined by an exogenous growth of exports, but it can be interpreted in a normative perspective, as indicating the level of the propensity to import, to be achieved through specific structural policies, in order to allow an increase of the GDP growth rate, given an exogenous growth of exports. In particular, new recent evidence highlights some doubts on the widely shared belief that the GDP growth may depend on the growth of exports, especially in the case of large countries or of an area such as the European Union, as the growth of exports may be lower than the growth of GDP at the global level. In fact, the CFB World Trade Monitor June 2015 of the Netherlands Bureau for Economic Policy Analysis reports that in June 2015, the world trade fell down 0.5% in 2015Q2, following a 1.5% decline in 2015Q1, while the world industrial production up 0.1% in 2015Q2, following a 0.3% increase in 2015Q1. That may be interpreted as the unwinding of a decades-old rule that says trade grows at twice the rate of the global economy. A reason is that manufacturers have decided to shorten their global supply chains and bring production closer to home as part of a "reshoring" and even "reshoring" movement.

⁹³ This model builds on a previous model (Cappellin, 2014), which considered the role on the internal supply and of the sectoral unit costs by a change in the distribution of investment and the labour productivity, when the entire spectrum of production sectors in the economy is considered. This model, while reaching similar policy conclusions, did not explicitly consider the role of foreign demand, as the model illustrated in this paper.

⁹⁴ In fact, a permanent deficit of the balance of payment would indicate that a country continuously increases its foreign debt, by having an internal demand greater than the internal supply, and that is not sustainable since the foreign creditors may once decide to withdraw their loans or pretend to exchange them for real properties in the considered country. On the other hand, a permanent surplus of the balance of payment would lead to a continuous increase of official reserves of the Central Bank, which may be appropriate according to a "mercantilist" ideology or for increasing international political power, but it is not economically convenient since the country could either increase the public deficit or increase the private investment and that would lead to a greater GDP and well-being for the citizens.

NOTE:

from $\Delta X/\Delta I - \Delta M/\Delta I = k_1 - dk_1 + mck_1 - k_1s + k_1sc - K_1sme - mc - mdk_1 + mck_1 - m^2c^2sk + mks - m^2c^2sk + m^2c^2sk$

$\Delta X/\Delta I - \Delta M/\Delta I = k_1 - dk_1 - mc - (K_1s - K_1sc - mks + m^2c^2sk)$

$\Delta X/\Delta I - \Delta M/\Delta I = k_1(1-c) - mc - s(k_1(1-c) - m k_2 + mks)$

$\Delta X/\Delta I - \Delta M/\Delta I = k_1(1-c) - mc - s(k_1(1-c) - m k_2(1-c))$

therefore

$\delta (\Delta X/\Delta I - \Delta M/\Delta I) / \delta s = -(k_1(1-c) - m k_2(1-c)) > < 0$

NOTE:

Case A. In the case (s=0) the balance of payment (equation 22) would be negative if

$\Delta X/\Delta I_{s=0} - \Delta M/\Delta I_{s=0} = k_1 - m c(1 + k_2)/(1 - c + m) < 0$ or

$k_1(1 - c + m) < m c(1 + k_2)$ or

$k_1 < m c/(1 - c)$

In this case the value of the balance of payment does not depend on the k_2 since no investment is allocated to the domestic sector. Thus, the lower is (k_1) and the higher is (m) and (c) , the higher the probability of a negative balance of payment if the investment is shifted toward the exporting sector. In particular, if $k_1 = 0$ or is very low, an increase of the investment in the exporting sector (s=0) would not determine any increase of exports, and it would instead increase the internal demand and then also the import, due to the value of the income multiplier, thus leading to a deficit of the balance of payment, as indicated below.

$$\Delta X/\Delta I - \Delta M/\Delta I = -m c / (1 - c + m) < 0 \tag{24}$$

Case B. On the contrary, if k_1 is very high and we are close to s=0 clearly an increase of the investment in the exporting sector would greatly contribute to the exports. Moreover, if the value of the propensity to consume would be very low, the income multiplier would be low and the increase of GDP, consumption and imports would be smaller. The increase of the imports would be even lower if the propensity to import (m) is low. Thus, the final net impact of an increase of investment in the exporting sector would be a surplus of the balance of payment, if k_1 is very high or as indicated above when:

$k_1 > m c/(1 - c)$

Case C. In the opposite situation, when s=1, if k_2 is very high, the expression (23) applies. Then, the investment is allocated all to the domestic sector (s=1). That would increase the production (Y) and increase the internal demand and the import. However, an increase of investment in the domestic sector (s) and of the production of this sector (Y) would also determine a corresponding decrease of the consumption of the export good (C) and of the imports and that would have a positive effect on the balance of payment.

Then, considering the (23), the value of the balance of payment would be positive if

$$\Delta X/\Delta I_{s=1} - \Delta M/\Delta I_{s=1} = -m c(1 + m k_2)/(1 - c + m) + m k_2 > 0$$

$m k_2 > m c(1 + m k_2)/(1 - c + m)$

$(1 - c + m) m k_2 > m c + m^2 c k_2$

$$m k_2 - c m k_2 + m^2 c k_2 > m c + m^2 c k_2$$

$$m k_2(1 - c) > m c$$

$$k_2 > c/(1 - c) \tag{25}$$

The positive effect on the balance of payment of an increase in the investment in the domestic good is higher, when the propensity to consume (c) and the income multiplier are low, so that an increase of C_2 would not determine a too great increase of GDP and then of the imports. Therefore, if s=1 and all investment is used in the domestic sector, the condition for a positive balance of payment requires an high productivity of investment in the domestic sector (k_2) and a low propensity to consume (c).

Case D. On the contrary, if s=1 and if k_2 is small, an increase of investment in the domestic sector would only determine a small increase of the production of the domestic sector (Y) and that would determine a corresponding small decrease of the consumption of the export good (C) and a small decrease of the imports. This effect is higher if the marginal propensity to consume (c) and of the income multiplier are very high. Thus, the final net impact of the investment would be a deficit of the balance of payment.

In fact, when the balance of payment is negative from equation (23):

$$\Delta X/\Delta I_{s=1} - \Delta M/\Delta I_{s=1} = -m c(1 + m k_2)/(1 - c + m) + m k_2 < 0$$

From the analysis indicated in the case C we may obtain:

$k_2 < c/(1 - c)$

These four cases can be summarized with the following table:

	s = 0	s = 1
Surplus of Balance of Payment	Case B $k_2 > m c/(1 - c)$ k_1 high c low m low	Case C $k_2 > c/(1 - c)$ k_2 high c low
Deficit of Balance of Payment	Case A $k_1 < m c/(1 - c)$ k_1 low c high m high	Case D $k_2 < c/(1 - c)$ k_2 low c high

These four cases can also be represented in the figure 1.

⁹⁵ In particular, if the balance of payment is positive, when the GDP has reached the highest level, then the best macroeconomic policy would be to decrease the surplus of the balance of payment by increasing the value of the public expenditure (G), and that would lead to a further increase of GDP.

⁹⁶ The recent evolution seems to indicate that investment is just equal or even lower to depreciation. In this case, the GDP growth would be determined only by the gradual increase of productivity of the existing employment, due to learning by doing processes. Since it is natural that some firms close, the lack of adequate investment would hinder the creation of new firms, thus leading to a net decrease of employment and production. The final result would be a stagnation of GDP or a very slow growth, as it is in fact actually occurring in the Western world.

⁹⁷ Thus, there is the need to overcome the "barriers to entry" into the new productions and these latter may be represented, in a microeconomic model, as the condition that the demand schedule should be higher than the average cost. Otherwise, in a financial perspective, the investment in these new production should satisfy the condition that the expected internal rate of return (IRR), which equates the algebraic summation of the discounted flows of the expected future revenues and costs, taken into account their level of risk, is greater than the interest rate of the loan or the cost of capital to finance the investment. Moreover, in a macroeconomic perspective, the equilibrium between investment and the internal and foreign saving is insured by the equilibrium between the internal rate of return of the investment (IRR) and the interest rates (r) demanded by both internal and foreign savers and investors. However, it must be underlined that, when the current account balance is equilibrium, as indicated by equation (12) in the model above, all investment can be financed with internal saving.

⁹⁸ There are certainly various reasons which create obstacles to new investments in the various specific periods, sectors and regions. However the fact that at least a minority of firms is almost always doing investment implies that some firms have those innovation capabilities which allow to overcome these obstacles to investment. Thus, the key problem is to increase the innovation capabilities of the remaining firms.

⁹⁹ This model builds on a previous model (Cappellin, 2014). The two models are complementary and adopt a similar theoretical approach and they both underlines the role of industrial policies in promoting investment and growth. However, while the previous model did focus on the supply side in a closed economy, this model focuses on the demand side and it considers the constraint of the balance of payment equilibrium. The first model considers the barriers to entry in the individual sectors and the change in the sectoral structure of the economy. This model considers the role of investments and innovation both on the production of the export sectors and on the domestic sectors, which can substitute the imports and insure the equilibrium of the balance of payment. While the first model focuses on the role of the industrial policy on the sectoral supply, this model focuses on the impact of the industrial policy on the macroeconomic demand.

^{xxv} In particular the characteristics of the five new productions indicated above can be exemplified with the specific case of a project of creation of broadband networks in the various metropolitan areas and remote regions of a country or with the case of the improvement of commuting transport on rail and road within the various regions.

^{xxvi} Thus, the internal European market, which represents 500 million of consumers, represents an alternative to the new markets in distant countries, and the driver of the growth of the European firms may be represented by the demand of new products and services, which is related to the increasing sophisticated need of the citizens and the firms.

^{xxvii} In particular, the projects imply the right collaboration between the large firms which provide the collective services and many other actors, such as the users, as indicated above, consumers, the companies constructing the infrastructures and the producers of the required capital goods and technologies, many other firms which produce goods and services which are complementary either in production or in the use, the banks financing the large required investments and the institutions, which perform the role of regulators.

^{xxviii} In this perspective the lack of capability by the SMEs in undertaking major investments depends also from the fact that the individual firm does not participate to innovation networks with other firms of the same cluster or of the respective supply chain and of their regional and local innovation system, within which those interactive learning processes could develop leading to the development of creativity and innovation.

^{xxix} In fact, only a preliminary investment in technical, economic and financial design allows to contain the risks of a too long time of execution of the investment, to solve the problems of coordination and the possible conflicts with other private and public actors, to identify the innovative solutions most adequate for responding to the needs of the clients and to decrease the production costs and the risks of an unexpected increase of the costs and decrease of the revenues. That allows to increase the expected rate of return of the investment project and it decreases the premium for the risk. Moreover, research and design do not only help in order to identify innovative technological solution, but also those organizational, legal and financial problems, which hinder the investment in an almost inescapable way, while they may be solved with appropriate organizational and institutional innovation.

^{xxx} Therefore, this new actor should perform functions which are different from a construction company, which is not interested in the management of the final service, and also from the large corporations of service provision, which do not specialize in the design and construction of the investment in infrastructure.

^{xxxi} All these problems have demonstrated to be very important in the case of the regional Cohesion Funds and of the Juncker Plan (EU Commission 2014), as the experience has clearly indicated that the availability of financial funds was insufficient, when the well designed projects were missing and the capability to implement them was lacking.

^{xxxii} Clearly, the mainstream policies of “quantitative easing”, of “fiscal austerity” and of “structural reforms” have been inadequate to promote growth in these countries and regions, as they focused only on the supply side and not on the demand. They are instead responsible of the increase of regional disparities in the European Union. However, the new development strategy illustrated above and focusing on innovation and investment in private firms and indicating the key role of the internal demand for the development of new sectors, such as the six lead markets indicated above^{xxxiii} is also different from the traditional regional policies. These latter have either focused on the expansion of public current and investment expenditure in these regions, thus increasing their financial dependence from national governments, or have focused on an export led strategy and the development of a new industrial base, but have also often failed since the international export market both in Europe and in the developing countries is actually slowly increasing and it is very difficult to compete with the established industries in the most developed regions.

^{xxxiii} However, even a more selective fiscal policy seems not being capable to increase the growth. That can be clarified by the case of a fiscal subsidy to the firms, in order to promote the employment of young workers^{xxxiv}. Clearly, the impact of these policies in terms of a decrease of the total production costs in the exporting sectors would be most probably almost zero, as the firms would prefer to hold constant the export prices and increase their margins and the deposits in the banks or the dividends for their shareholders. Neither, fiscal subsidies on employment creation would lead to an employment increase in the domestic sectors, since production and employment in these sectors are determined by the internal demand, which is constant or decreasing. These fiscal policies would not have any impact on the internal aggregate demand, since the wage bill for the firms and the labour income would be the same or even decrease. They, may have a positive social or political effect by decreasing the high unemployment rate between the young people. They may determine a limited redistribution of employment and unemployment between the young workers and the actually employed workers and they would also decrease the wages for these latter, due to an increased competition. Especially, fiscal policies would not have any impact on the total employment level.

Moreover, any fiscal subsidy or decrease of taxes would have a considerable negative impact on the public deficit and that would require either an increase of the indirect and direct taxes or a decrease of the public expenditure. Both these indirect consequences would decrease the aggregate demand, thus compensating the positive effect of the subsidy or tax decrease. The conclusion is that the final effect of fiscal policy measures is certainly not expansionary. A better use for the actually very limited fiscal resources would be to use them in order to finance additional public or private investment and especially the investment in innovation, which is clearly a preliminary condition in order to increase the private investments by the firms and then to the creation of new productions and greater employment. In particular, there is the need to adopt a very selective approach and to concentrate the limited fiscal resources available on the financing of the most innovative sectors, such as the exporting sectors and also some new domestic sectors, similar to the six sectors indicated above.