The Dixon-Thirlwall model and Italian regional growth:

a critical evaluation and suggested extension

Draft

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Abstract: This paper proposes an extension of the Dixon-Thirlwall (1975) model of regional export-led growth that allows testing of whether regional growth is "consumption-led" or "export-led" and to test the importance of regional specialization in high-technology goods in determining the differential rates of growth of exports. This last test is applied to the Italian regions. To test the Kaldorian theory of a "consumption-led" or "export-led" growth, we separate the role of domestic demand and foreign demand in affecting regional exports. To test the importance of regional specialization in high-technology goods we introduce, a proxy for regional specialisation in high-technologic goods (share of high-technological goods in total exports). Regions specialised in fast-growing technologies should experience above average rates of growth, because differences in the strength of demand for regions' products lead to differences in their rates of income growth, as exports demand is a vital, primary component of aggregate demand.

Key words: Export-led and Consumption-led growth, International competitiveness; Regional economics.

JEL classification: R10, O4, O11, C33

1. Introduction

As Kaldor (1981) pointed out, growth in productivity, growth in output and market share interact in a cumulative manner. Productivity depends on the division of labour, namely on specialisation, which in turn depends on the size of the market, namely on demand. As the market expands, productivity increases, but the increase in productivity resulting from a larger market in turn enlarges the market for other goods, and this causes productivity in other industries to rise.[2] Kaldor's basic idea was that growth is demand-led, in particular, export-led because exports are the main autonomous component of aggregate demand. Due to the existence of increasing returns to scale, any initial advantage in terms of exports competitiveness tends to have a cumulative effect because the region which is able to increase its manufactured exports faster than others, also tends to have a faster rate of growth of productivity in its exports industries, which enhances its competitive advantage still further. Kaldor 's idea of export-led growth and cumulative causation was formalized by Dixon and Thirlwall in 1975.

Clearly, the importance of exports for GDP growth varies among different regions: in fact, there are regions relatively less open than others in which the engine of growth is domestic consumption rather than exports. Hence, the first aim of this paper is to propose an extension of the Dixon-Thirlwall model (1975) that allows testing whether regional growth is "consumption-led" or "export-led". When regional growth is "governed" by domestic consumption rather than external demand, we can expect a smaller

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[2] That is to say that labour productivity is not exogenous, as in the Solovian model, but it depends on demand, as stressed by Smith (1776) more than two hundred years ago. The idea of cumulative causation as a process by which relatively fast-growing regions tend to acquire a cumulative competitive advantage over relatively slow-growing regions[2] was first developed by Veblen (1915), although it was Myrdal (1957) who applied it to the explanation of the different performance of countries and regions in terms of growth and development. On the basis of Myrdal's thought, Kaldor (1970) developed the idea of the existence of a cumulative growth mechanism due to the existence of dynamic increasing returns in manufacturing industries.

impact of GDP growth on labour productivity growth (see section 3). The Dixon-Thirlwall model, moreover, partly misses the importance of supply specialization for regional growth: regions specialised in fast-growing technologies should experience above average rates of growth. Therefore, the second aim of the paper is to introduce an important supply side element in the Dixon-Thirlwall model (1975) to test the importance of regional specialization in high-technology goods in determining the differential rates of growth of exports.

These general extensions are proposed in order to better understand Italian regional growth and exports performance.[3] The paper is organized as follows. The next section briefly introduces the Dixon-Thirlwall regional export-led growth model and outlines its shortcomings. The third section describes the role of exports and consumption in Italian regions and tries to test whether an export-led growth model can be used to describe the growth process of the Centre-Northern and Southern regions of Italy. The fourth section aims at emphasizing the role of specialization for the explanation of the loss of competitiveness of Italian exports. Section 5 modifies the exports equation proposed by Dixon and Thirlwall to test whether regional growth is "consumption-led" or "export-led" and to verify the role of regional specialization in high-technology goods in determining the differential rates of growth of exports. Section 6 concludes the paper.

2. Theoretical framework: the Dixon-Thirlwall model

Kaldor's idea of export-led growth was formalized by Dixon and Thirlwall in 1975. This well-known model of cumulative growth is composed of four structural equations that we will briefly describe:

$$g_{it} = \gamma x_{it} \tag{1}$$

$$x_{it} = \eta(p_{it} - p_{ft}) + \varepsilon \, z_{ft} \tag{2}$$

$$p_{it} = w_{it} - r_{it} + \tau_{it} \tag{3}$$

$$r_{it} = r_{a,i} + \lambda_i g_{it} \tag{4}$$

The first equation incorporates the hypothesis of a regional export-led growth: the rate of growth of regional output (g_{it}) is function of the rate of growth of regional exports (x_{it}). In the second equation the rate of growth of regional exports is function of relative price change (where p_{it} is the rate of growth of domestic prices, p_{ft} is the rate of growth of foreign prices, and η is the price elasticity[4] of exports

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demand), and world demand (where ε is the income elasticity of exports and z_{ft} is the rate of growth of world income).[5] The third equation captures the assumption of non-competitive markets: the rate of growth of regional prices depends on the rate of growth of domestic wages (w_{it}), on labour productivity (r_{it}) and the rate of change of the mark-up (τ_{it}). Finally, in the fourth equation the rate of growth of labour productivity (r_{it}) depends on the rate of growth of an exogenous productivity growth ($r_{a,i}$) and on output growth (g_{it}): λ_i is the so called Verdoorn coefficient, a measure of the degree to which the rate of growth of productivity is induced by the rate of growth of output.[6]

There is a virtuous circle of increases in output and productivity, which leads to an expanding share of exports markets, because of the improving price competitiveness. Hence, the faster the rate of growth of manufacturing exports, the faster the rate of manufacturing output, the greater the scope for exploiting increasing returns, and thus the faster the growth of manufacturing productivity, output and exports. That is to say, the regions that are growing relatively faster tend to attain a cumulative competitive advantage over relatively slow-growing regions.[7] Hence, it is the Verdoorn coefficient (the regression coefficient between labour productivity growth and the rate of growth of output, usually for the industrial sector) that "*makes the model circular and cumulative, and which gives rise to the possibility that once a region obtains a growth advantage, it will keep it*".[8]

The equilibrium solution[9] of the model is the following: [10]

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[5] In general, a higher ε means that, *ceteris paribus*, a region will benefit more than others from the growth of world income. Clearly, when the regional exports equation does not include a specialisation variable, influences other than price competitiveness are summed up in the income elasticity of exports.

[6] In the literature, the high degree of association between rapid output growth and productivity growth across national industrial sectors is known as Verdoorn's Law. This law, in its simplest form, can be interpreted to reflect the prevalence, especially in manufacturing industries, of both static and dynamic economies of scale or increasing returns in the widest sense. Kaldor, in the spirit of A.Young (1928), conceives of returns to scale as a macroeconomic phenomenon related to the interaction between the elasticity of demand for and the supply of manufactured goods. Static returns relate to well-known technical economies of scale associated with mass production. Dynamic returns are multifarious, including the phenomena of learning by doing, and arise from the overall expansion of an interrelated set of industries. See McCombie and Thirlwall (1994).

[7] Kaldor (1981), p. 597.

[8] Dixon and Thirlwall (1975), p. 205. Note that the Verdoorn effect is a source of regional growth-rate differences only to the extent that the Verdoorn coefficient varies between regions or initial differences exist with respect to the others parameters of their model. In the latter case, the Verdoorn coefficient serves to exaggerate the effect of these differences. As Dixon and Thirlwall wrote, "*the dependence of productivity growth on the growth rate per se is not sufficient to cause differences in regional growth rates*".

[9] As pointed out by Roberts (2001), in this model the equilibrium growth rate is exogenous because, if the exogenous variables that are included in the equilibrium equation (the rate of growth of the exogenous component of labour productivity, the rate of growth of regional wages, the rate of growth of the mark-up and the rate of growth of real product) were constant, namely equal to zero, the equilibrium growth rate would be equal to zero as well. That is not to say, however, that adequate economic policies could not influence g_{it}^* or the equilibrium rate of growth of labour productivity. Besides, in this model technological progress is endogenous because of the presence of dynamic economies of scale.

[10] In fact, substituting equations (2.2) to (2.4) in (2.1), we obtain:

$$g_{it} = \gamma[\eta(p_{it} - p_{ft}) + \varepsilon\ (z_{ft})] \tag{4.1}$$

$$g_{it} = \gamma[\eta(w_{it} - r_{it} + \tau_{it} - p_{ft}) + \varepsilon\ (z_{ft})] \tag{4.2}$$

$$g_{it} = \gamma\{\eta(w_{it} - [r_{a,i} + \lambda_i(g_{it})] + \tau_{it} - p_{ft}) + \varepsilon\ (z_{ft})\} \tag{4.3}$$

$$g_{it} + \gamma\eta\lambda_i g_{it} = \gamma[\eta(w_{it} - r_{a,i} + \tau_{it} - p_{ft}) + \varepsilon(z_{ft})] \tag{4.4}$$

$$g_{it}^* = \gamma \frac{\left[\eta\left(w_{it} - r_{a,it} + \tau - p_{ft}\right) + \varepsilon z_{ft}\right]}{1 + \gamma\eta\lambda_i}$$

(5)

Remembering that $\eta < 0$, the equilibrium growth rate of region i varies positively with the rate of growth of the exogenous component of labour productivity ($r_{a,i}$), with world income growth (z_{ft}), and the rate of growth of foreign prices (p_{ft}), and negatively with the rate of growth of domestic wages and an increase of the *mark-up*. The Verdoorn coefficient, as already stressed, serves to exaggerate growth rate differences among regions arising from differences in other parameters and variables (in fact, the higher λ_i, the smaller the denominator since $\eta < 0$).[11]

Fig. 1. Per capita income distribution in Italian regions in 1980 and 2002
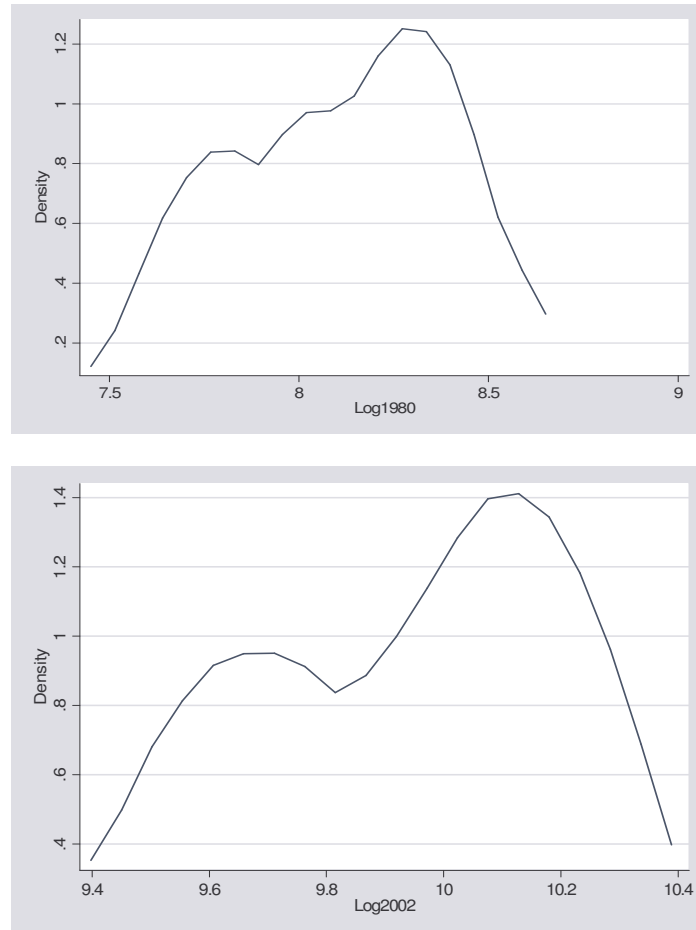
$$g_{it}(1 + \gamma\eta\lambda_i) = \gamma[\eta(w_{it} - r_{a,i} + \tau_{it} - p_{ft}) + \varepsilon(z_{ft})]$$

(4.5).

[11] It follows that if $\lambda_i = 0$ there is no exaggeration of differences.

However, as pointed out by Dixon and Thirlwall, the most plausible result of the model is that of "*sustained equilibrium differences in growth rates between regions*" in line with what can be observed in Italy over the last thirty years. In fact, the persistence of high regional differences in per capita income in Italy over the last twenty-two years (1980-2002) is confirmed by the accentuated bimodality of the per capita income distribution function of Italian regions (Fig. 1):[12] intermediate regions (in terms of per capita GDP) reached the richest ones, whereas the poorest regions converged to the intermediate positions but with a lower speed.[13]

In particular, as far as concern the reasons underlying the bimodality shown in Fig. 1, over the period considered the convergence of labour productivity has been offset by an increase in the regional unemployment rates,[14] or, in other words, not compensated for by an increase in labour demand. In this case, the role of exports, or government spending (as components of demand), in allowing labour demand to grow is evident.

2.1 The shortcomings of the model

The Dixon-Thirlwall regional growth model has been extended and applied in several works (see for instance: León-Ledesma, 2002; Meliciani, 2002; Roberts, 2001; Palley, 1996, 1997; Boyer and Petit, 1991) and it has been criticized for different reasons that can be summarized as follows.

Firstly, there has been a lively debate, particularly between McGregor and Swales on the one side and McCombie and Thirlwall on the other, regarding the fact that this model seems to consider exclusively the role of "price competitiveness"[15] whereas a growing empirical literature is trying to explain the exchange of manufactured goods among industrial countries as mainly induced by differences in consumers' preferences for variety. Namely, in the model there is no explicit reference to the importance of non-price factors for competitiveness.[16] Secondly, the model implicitly assumes that wages are exogenous and, even if this is reasonable in a regional context, it is not so reasonable in the context of

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[12] The analysis of regional per capita income distribution has been conducted estimating a non-parametric function (Kernel density) which, differently from the standard neoclassical growth one, allows us to consider the dynamic, during the considered periods, of each region. We estimated the Kernel density for 1980, 1990, 1995 and 2002. The results for 1990 and 1995 are available on request. Following Deaton (1997, p. 170) we used the translog transformation of per capita regional income because it is characterized by a more symmetric distribution and it is more close to the normal distribution than in the case of the variable expressed in levels.

[13] It must be emphasized, however, that, as shown by the fact that the "tails" of the distribution in 2002 are closer than in 1980, the dispersion in per capita income (the so called σ convergence) among Italian regions decreases but, as it is well known in the literature (Barro and Sala-i-Martin, 1995), the existence of σ convergence does not imply β convergence, namely an inverse relationship between the speed of convergence and the relative level of initial per capita income.

[14] See Ciriaci (2001).

[15] This problem has been debated by Thirlwall and McCombie, on the one side, and McGregor and Swales, on the other. See McCombie and Thirlwall (1994).

[16] However, part of the literature tried to overcome this limit introducing variables that could take into account "non-price" competitiveness (León-Ledesma, 2002; Meliciani, 2002), following the idea that the role of innovation and the diffusion of technologies seems to be of crucial importance for the growth performance of countries and regions (Fagerberg, 1988; Amable, 1992).

an industrialized country.[17] Thirdly, the Dixon-Thirlwall model is "ahistoric" because its equilibrium solution is unique and it can be reached independently from the path chosen and, as a consequence, it is not compatible with the deeply historic vision of the cumulative causation theory of Kaldor and with his critiques of equilibrium theories (Kaldor, 1972). [18] Another limit of the model is that it does not consider the structure of the economy. Only recently, some authors (Amable and Verspagen 1995; Fiorillo 1997) have investigated the effect of industrial composition in the export-led growth model. Finally, there is another problem: the model does not incorporate an explicit balance-of-payments equilibrium condition or constraint, which means that the equilibrium growth rate specified may be inconsistent with the long-run requirement of payments balance. However, in a regional context, growth cannot be considered properly constrained by a balance-of-payment equilibrium as no currency value has to be defended. Nevertheless, in a more general way, it is constrained by effective demand as, traditionally, countries concerned with regional disparities (such as Italy) allow depressed regions to run "balance of payments" deficits by directed autonomous expenditure and income transfers of various kinds, which support consumption and investment in these regions (Thirlwall, 1980).

Moreover, it must be stressed that the Dixon-Thirlwall model is used to describe both the differential growth process among regions and among countries: we criticise the definition of "regional economy", a vague entity that is often considered only as a geographical component of a country and the idea that regions are "*nothing more than aggregations of individuals and institutions in the same way as national economies*". Further, the model does not take into account either the presence of different kinds of interregional spillovers[19] or the "*relative absence of linkages or inter-industry interdependence*"[20] (Hirschman, 1957). In fact, the regional propensity to consume goods produced inside the region depends on its industrial mix: the same increase of demand, either domestic or external, induces an effect that varies among regions according to the degree to which the demanded product is produced importing intermediate goods from other regions.[21]

Besides, the literature did not emphasize enough that the fundamental mechanism that makes the growth circular passes through a reduction of domestic prices induced by variations in labour

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[17] However, also in this case the model can be extended in order to introduce a "*a wage and profit bargaining function that determines the distribution of income*", as in Palley (1996, 1997) and in Boyer and Petit (1991). Another example is given in Roberts (2001) in which the growth rate of nominal wages is endogenous and the rate of inflation is specified as a weighted average of the rate of growth of final consumption goods' domestic and foreign prices. In order to do this the author considered the literature on NAIRU (*non accelerating inflation rate of unemployment*), where the "rational" workers accept the decisions of the enterprises regarding their real wages only if they consider them adequate. In particular, the author assumes that the weights are exogenous and coincide with the respective "*shares of home produced goods and of imports in the consumption expenditure of workers*". (Roberts, 2001) p. 46.

[18] Setterfield (1997) tried to overcome this incoherence extending the model to make the cumulative growth process endogenous stressing the role that the "*irreversible historical time*" plays in the determination of the growth path of a region. In fact, if we assume that the equilibrium solution has a unit root, namely $-\gamma\eta\lambda = 1$, then the equilibrium growth will depend on initial conditions: the initial point will determine the rest of the growth sequence.See León-Ledesma (2002), p. 6.

[19] McCombie and Thirlwall (1994) observed that this approach is "*essentially partial equilibrium in the sense that each region is considered in isolation from all others, and interregional relationships are not considered explicit*" (p. 458).

[20] Hirschman (1958) citato da Toner (1999), p. 96.

[21] See H. Armstrong and J. Taylor (2000), p. 2.

productivity: the increase of exports is linked to an improvement in price competitiveness. If prices are less elastic than the model presupposes, the impact of an increase in productivity would be lower.

3. Export-led and Consumption-led growth: theory and empirical evidence for Italy

The importance of exports for GDP growth varies among different regions: in fact, there are regions relatively less open than others in which the engine of growth is domestic consumption rather than exports. In his seminal paper "*Conflicts in National Economic Objectives*" published in 1971, Kaldor explained the reasons why a export-led growth should be preferred to consumption-led growth.

Firstly, consumption-led growth produces a structure of final demand in which consumption would take up a high proportion, and investment a relatively low proportion, of total output and that this factor alone (on account of the effects of capital investment on the rate of technological progress) would induce a relatively low rate of growth of productivity and a low 'underlying' growth rate. However, this first reason cannot be considered valid in an industrialized country as Italy anymore, meanwhile it was legitimate when Kaldor was writing, thirty five years ago. In fact, since 1971 in Italy, as in other industrialized countries, the capital accumulation process has been huge and what seems to really matter for productivity growth is not the share of investment in output but the ability of combining different types of capital with the technology and human capital available and, as we will stress later on, with an industrial structure that could allow the benefits of accumulation to stay inside the region. In other words, given the same capital-output ratio, the effects of capital accumulation on output growth and labour productivity may largely differ among regions. On the supply side, in fact, the rate of productivity growth of a country (region) depends on factors that differ across countries (regions), such as, for instance, "social capability" (Abramovitz, 1986) and "technological congruence" (Fagerberg, 1994).

The second reason why a export-led growth should be preferred is less controversial. In the presence of a consumption-led growth, in fact, the growth of capacity in the various industries is governed by the structure of demand of domestic consumers and not (at least not mainly) by the growth of world demand for different products. Since investment has not been induced by exports, the growth of exports itself mainly depends on the growth of capacity of the various industries that reflects the growth of domestic consumption. In a period of domestic stagnation, if consumption declines and exports can not "compensate" this fall, regional growth declines as well.

Moreover, if consumption activate less regional manufactured value added than exports, because regional consumptions are directed to both regional and foreign product whereas exports are demand for regional products, as a result, the growth of manufacturing sector will be smaller and smaller the impact (through the Verdoorn coefficient) on productivity growth.

Above all, consumption-led growth is not sustainable because "*is likely to create a situation of inherent precariousness in the balance of payments, with the growth of imports always tending to exceed*

the growth of exports" (Kaldor, 1971), as confirmed by the empirical evidence for Southern regions. In fact, the economy of Mezzogiorno depends on the flow of resources coming from the rest of the 'world' (Centre-North Italy and abroad). In 2005, net imports, that constitutes the real compensation of monetary transfers to Mezzogiorno, represented 16,2% of its gross domestic product. This high ratio indicates a gap between regional supply and the monetary demand[22] expressed by the residents which, consequently, must be satisfied by real and monetary transfers.[23]

The idea is that if a region is a "net importer" of value added, namely if the difference between the amount of resources produced within the region and the amount of regional expenditure is negative, it will encounter a constraint on its "autonomous" growth and this will lead to a lower than potential growth rate and to growing unemployment.[24] In the Italian case, some unpublished data regarding the percentages of value added in manufacture activated by the different components of final aggregate demand in the Centre-North Italy and in the Mezzogiorno in 1995 and 2001 (Table 1) allow some interesting considerations.[25] These data allow us to verify whether the growth of the two main Italian macro-areas can be considered mainly governed by external demand or by domestic consumption.

Table 1. Percentage of manufactured value added activated by different components of final demand

	1995		2001	
	Centre-North	Mezzogiorno	Centre-North	Mezzogiorno
	(%)		(%)	
Households final consumption expenditure	19,9	24,1	19,3	24,5
Investments	8,1	5,7	8,1	6,8
Exports[1]	46,0	20,3	48,3	23,7

[1] Includes the flow of goods directed abroad (outside Italy) only; the sum of the values reported by column is different from 100 due to the contribution of government expenditure.
Source: IRPET

Firstly, Table 1 suggests that an export-led growth model can be used to describe the income growth process of Centre-Northern regions only, whereas a consumption-led growth model seems more appropriate to describe the economy of Southern regions. In 2001, in Centre-North Italy 48,3% of manufactured value added was activated by a unit variation of final demand for exports, whereas in South

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[22] This *deficit* induces a low percentage of regional demand satisfied by domestic production. On the demand side, hence, the multipliers tend to have relatively smaller values respect to the ones that, *ceteris paribus*, characterize economies with a "less empty" industrial structure. If we consider the case of the Italian economy, for instance, we observed that the percentage of demand that the *Mezzogiorno* is able to satisfy with its domestic production is only 65,4% of the total, whereas the Centre-Northern regions are able to satisfy 80,1% of their demand with their domestic output. Cfr. R. Paniccià e S. Prezioso (2001).

[23] As McCombie and Thirlwall (1994) emphasize "regional problems of slow growth and unemployment are shown to be essentially balance-of-payments problems, even though regions within countries do not keep balance-of-payments accounts" (Introduction, p. XXX).

[24] The *Mezzogiorno* is a net importer of value added mainly because of the lack of local *specialized suppliers* enterprises producing intermediate and instrumental goods. The purchase of innovative machineries outside the area implies less accumulation and transfer of knowledge at a local level. Also for this reason, the technological up-to-date process is less efficient and timely in Southern Italy than in the rest of the country.

[25] We thank the IRPET (Istituto per la Programmazione Economica della Toscana) and, in particular R. Paniccià who estimated the percentages reported in Table 1. The data were available only for 1995 and 2001, but given the strong structural nature of the relations they describe they can be considered valid for longer periods.

Italy this percentage was only 23,7%. On the other hand, the percentage of manufactured value added activated by a unit variation of households' final consumption expenditure is higher in the Mezzogiorno, but part of this consumption is satisfied, as we have seen, by net imports. Finally, another consideration is the low but significant variations observed over the period 1995-2001: as shown by Table 1, the percentage of manufactured value added activated by final demand for exports rose in Southern Italy by more than in Centre-North Italy, suggesting an increasing openness of the Mezzogiorno's economy.

4. Specialization, exports performance and competitiveness in Italy

On the supply side, a favourable specialisation pattern affects regions' ability to benefit from *learning by doing* and promotes innovation and technological change. On the demand side, a favourable specialisation pattern, *ceteris paribus*, affects exports and output growth by affecting the income elasticities of demand for exports.

More generally, differences in income elasticities of demand for exports (and imports) reflect the structure of production,[26] namely the characteristics of the goods produced, such as their technical sophistication and quality.[27] Differences in income elasticity are determined by the capacity of a region to differentiate its products, that is to say, on the innovative capacity of a region that gives to the economy a privileged position in foreign markets.[28]

Hence, the success of an industrialized region in world market is mainly due to product innovation, namely, developing products for which world demand will rapidly grow. In fact, it is unlikely that merely reducing the prices of existing products by the use of devaluation or by squeezing costs and real wages will be a successful long-term strategy. In other words, in the context of long-run growth, outward shift of a product's demand curve are more important than *movements* on the demand curve. Even if there are changes in the real exchange rate and improvements of price competitiveness, these have a little impact on exports growth because of the importance of non-price competitiveness and the fact that price elasticities of demand for imports and exports are low (McCombie and Thirlwall, 1994).

Furthermore, as pointed out by Brech and Stout (1981), as the price elasticities of homogeneous products are likely to be significantly higher than for goods characterized by significant product differentiation, a devaluation, by encouraging the production of more homogeneous goods (such as traditional goods), may actually switch production away from the more sophisticated products for which the world income elasticity of demand is high. Thus, paradoxically, a "stop and go" devaluation policy such as the one used often by Italy from the '70s until the exchange rate become fixed in 1999, have armed the prospects for future exports growth and it encouraged a *lock-in* situation.

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[26] The idea that non-price factors are captured in the income elasticity of demand for exports has generated a lively debate, particularly between McGregor and Swales on the one side and McCombie and Thirlwall on the other. *See* J.S.L. McCombie and A.P. Thirlwall (1994).
[27] Thirlwall (1991), p. 28.
[28] *See* Kaldor (1981).

Regarding the competitiveness of Southern and Centre-North Italian regions, over the whole period 1991-2004, both the Mezzogiorno and Centre-North market shares decreased, even if a constant decrease can be observed from 1995 on only. The major explanation for these declining shares partly lies in the failure of our industry to engage effectively in non-price competition, a quite nebulous concept that encompasses, by definition, all those factors other than price that affect consumer choice; that is, with respect to factors (such as specialization, quality, reliability, speed of delivery, the extent and efficacy of the distribution network and the availability of exports credit among others) which determine *shifts* in the demand curve for products as opposed to *movements* along the demand curve associated with price.

Moreover, the decrease observed for Centre-North regions is stronger than the one observed for the Mezzogiorno. As a marginal explanation of the relatively lower loss in market share of Southern regions, several works (see, for instance, SVIMEZ, 2005) pointed out that the specialization of Mezzogiorno is orientated towards more dynamic sectors than Centre-North Italy, hence that it is more correlated with the tendencies of world demand.

Table 2. Italian Exports distribution, Pavitt classification *(% on current values)*

Sectors	Mezzogiorno			Centre-North			World		
	1997	2003	2004	1997	2003	2004	1997	2003	2004
Traditional (Supplier dominated)[1]	26,5	24,1	20,9	31,6	28,6	27,2	18,3	16,5	15,7
Scale intensive[2]	54,8	55,0	57,9	33,5	35,1	36,2	41,4	41,7	42,6
Specialized suppliers[3]	7,8	8,8	8,3	25,1	25,1	25,9	14,9	13,8	13,9
Science-based[4]	10,9	12,1	12,8	9,7	11,3	10,7	25,4	28,0	27,9
Total	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0

[1] Textiles, footwear, food and beverages, paper and printing, wood
[2] Basic metals, motor-vehicles, trailers and semitrailers.
[3] Machinery and equipment; office, accounting and computing machinery; medical, precision and optical instruments.
[4] Chemicals, pharmaceuticals, electronics

Source: our results on ISTAT data.

In fact, as shown in Table 2, the main strength of Southern Italian exports is represented by sectors with scale economies, dominated by big external enterprises**.** Clearly, there are comparative advantages in traditional sectors as well, characterized by a more accentuated presence of small local enterprises; however, in this case, the intensity of specialization is lower than in Centre-North Italy. The specialization of the Mezzogiorno is relatively weak in science-based sectors, even if the disadvantage is lower than the one of Centre-North regions – and, above all, in the specialized suppliers sector. Centre-Northern regions, instead, are concentrating their advantages in the scale intensive and specialized-suppliers sectors. To conclude, the comparative advantages of Southern regions are concentrated in two groups of sectors, one dominated by big "external" enterprises (motor vehicle, refined petroleum

products), the second characterized by a stronger presence of local enterprises, in few cases organized in districts, producing consumption goods (textiles, footwear) and agriculture and food products.[29]

The higher correlation of Mezzogiorno's supply with world demand is confirmed by the trend of the high-tech exports share over the period 1991-2001 (Table 3): during this period, this share increased, whereas the share of high tech exports in Centre-North Italy remained unchanged.[30] Nevertheless, if we consider the high-tech exports as a share of Italian total high-tech exports, we observe that they are more concentrated in Northern regions and, in particular, in Northern-West Italy (Enea, 2004).

Table 3. High-tech exports shares on total manufactured exports over the period 1991-2001

Regions	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Piemonte	11,74	11,71	11,40	10,98	10,86	10,01	9,18	8,81	8,41	7,93	8,91
Valle d'Aosta	12,60	10,99	25,13	23,08	24,95	26,90	13,05	20,97	21,83	21,50	20,19
Lombardia	11,52	12,62	14,82	12,23	13,24	13,06	12,20	14,61	14,57	18,91	20,74
Trentino-Alto Adige	11,27	11,97	12,35	11,92	11,62	11,82	11,68	11,18	11,94	13,61	14,64
Veneto	3,92	4,94	4,04	4,13	3,76	4,50	5,26	5,63	5,85	5,37	6,26
Friuli-Venezia Giulia	3,03	3,36	3,14	3,04	2,90	3,05	3,02	3,05	3,71	5,55	5,00
Liguria	4,41	5,64	4,40	6,50	5,36	6,49	6,95	10,41	10,88	12,40	9,87
Emilia-Romagna	4,27	4,26	4,17	4,31	4,53	4,79	5,14	5,45	5,67	5,53	6,04
Tuscany	1,44	1,38	1,69	1,55	1,59	1,56	1,82	1,92	2,13	2,25	2,87
Umbria	3,31	3,47	5,24	4,71	4,98	5,28	5,45	6,19	6,20	6,71	8,32
Marche	1,87	2,66	2,61	2,69	1,56	2,60	2,66	2,16	2,30	2,86	3,37
Lazio	40,02	42,18	41,67	42,49	41,16	39,51	39,54	45,23	38,96	34,92	34,13
Abruzzo	25,09	23,43	11,43	12,71	14,79	14,54	15,40	17,02	18,59	20,31	19,49
Molise	1,94	5,97	5,37	4,76	9,32	9,12	6,19	8,22	5,96	14,39	13,36
Campania	5,05	3,89	2,52	1,30	1,85	2,36	2,14	2,18	2,50	1,58	1,40
Puglia	5,37	5,69	5,62	6,99	6,49	6,24	6,85	10,03	12,26	12,18	11,12
Basilicata	9,52	9,40	4,47	6,15	8,39	4,33	5,91	0,87	0,41	1,06	1,00
Calabria	10,96	13,92	15,98	19,37	17,48	19,26	20,10	16,91	21,66	11,41	15,95
Siciliy	4,39	6,01	8,03	8,95	9,90	10,71	8,86	11,56	15,37	14,49	12,26
Sardinia	3,54	3,44	2,81	4,59	2,85	1,04	5,57	10,33	2,55	0,79	1,58
Centre-North	9,23	9,72	9,80	9,41	9,07	9,12	9,06	9,44	9,58	10,39	10,79
Mezzogiorno	9,69	10,90	7,41	8,45	9,61	9,40	9,31	11,48	11,98	13,63	12,85
Italy	9,29	9,85	9,59	9,33	9,12	9,15	9,08	9,64	9,81	10,73	11,00

Source: Enea

Furthermore, as predicted by technology-gap theorists[31] lock-in situations may occur: a region with a comparative advantage in traditional industries, such as the case of many of the Italian regions, may be permanently worse off compared to a region with a comparative advantage in R&D activities.[32] In the light of these considerations, in the next section we propose a model that can be use in order to better understand how regional exports can help and sustain a virtuous circle of growth.

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[29] The first group is characterized, however, by a dimension of enterprises more adequate to operate in international markets, even if it is more exposed to foreign control. On the other side, the second one is more deeply rooted in the local socio-economic system, but it encounters more difficulties due to the small dimension of its enterprises.

[30] Clearly, it must be added that if we consider the absolute values, it is easier to observe a sharp increase in the share of Mezzogiorno than of Centre-North Italy, because in the first case we are speaking about an exports value, in 1985, of 7 thousand millions of euro while in the second of 64 thousand millions of euro.

[31] *See*, for instance, Dosi, Pavitt and Soete (1991).

[32] Furthermore, a small domestic market, such as the one confronted by the regional supply of most part of Italy's Southern regions, is a considerable disadvantage for a region under such circumstances.

To sum up, the literature agrees on the idea that the Italian economic situation may be explained by a series of connected factors: the small weight of high-tech manufactured sectors; the concentration of the scarce R&D expenditure in low and medium-tech sectors; the concentration of R&D investments in a few big enterprises; the low propensity of the Italian enterprises to invest in R&D. In fact, the Italian manufacturing enterprises' R&D expenditure is extremely low. In 2003, it represented the 2,5% of value added, just above the 2,3% of Spain, but was below the 6,6% of Great Britain, the 7,0% of France and the 8,4% of German manufacturing enterprises. Further, over the period 1999-2003 this disadvantage increased: during this period, in fact, Italy's share remained almost unchanged whereas Great Britain's, for instance, increased of 2,5 points and Germany's by one point.

5. The Dixon-Thirlwall model: a suggested extension

The descriptive analysis of the previous section pointed out the limited role of exports as a determinant of regional value added in Southern regions' manufacturing sector and the importance of "non-price" competitiveness and innovative capacity for Italian export growth.

The Dixon-Thirlwall model described in section 2 can be extended in order to take into consideration these two stylized facts. In particular, if goods produced in a region and sold in the rest of the country are considered as a component of regional exports, we can consider separately the role of domestic and external demand and test whether the growth of regional exports has been mainly governed by the structure of demand of domestic consumers or by the growth of world demand. This can be done adding the rate of growth of the income of the rest of the country of which region i belongs to as a proxy of national demand (z_n) as an independent variable in the exports equation, as follows:

$$x_{it} = \eta(p_{it} - p_{ft}) + \varepsilon_w(z_w)_t + \varepsilon_n(z_n)_t \qquad (2.1)$$

hence, the growth of exports in region i is positively correlated to relative prices (a weighted[33] average of foreign and 'rest of the country' prices), world demand and the demand emanating from the rest of the country.

Furthermore, to explicitly introduce the important supply element of specialization as a determinant of export growth, we added in the same regional export equation another independent variable, the specialization in high-tech goods (s_i, the rate of change of the share of high-tech exports in total exports) as a proxy of the dynamic efficiency of regional supply. We decided to include regional specialisation as a explanatory variable in order to take directly into account this influence.[34] Namely, this variable captures the effect of the product composition of exports, normally captured by the income elasticity of demand for exports (ε). We already pointed out that part of the literature already tried to

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[33] The weights reflect the importance of both foreign countries and the rest of the country of which region i belongs to in the region's total international trade.
[34] *See* Kaldor (1981).

overcome the limit of the lack of an explicit reference to non-price factors in the Dixon-Thirlwall model (see, for instance, León-Ledesma, 2002). Anyway, these works focus on the effect of innovation and embodied technical progress on exports performance, whereas what we are going to capture with the specialization variable in high-tech goods can be considered the outcome of the innovative capacity of a region. Hence, it follows that:

$$x_{it} = \eta(p_{it} - p_{ft}) + \varepsilon_w(z_w)_t + \varepsilon_n(z_n)_t + \theta(s_i)_t \qquad (2.2)$$

Once these two variables are added, the equilibrium solution of the Dixon-Thirlwall model (at time t) becomes:

$$g_i^* = \gamma \frac{\left[\eta\left(w_i - r_{ai} + \tau - p_f\right) + \varepsilon_w z_f + \varepsilon_n z_n + \theta s_i\right]}{1 + \gamma\eta\lambda_i} \qquad (6)$$

This equation is telling us that the rate of output growth of region i is positively correlated[35] with the rate of growth of the exogenous component of labour productivity ($r_{a,i}$), the rate of growth of world income (z_{ft}), the rate of growth of national income (z_n), the change in the level of specialization in high-tech goods (s_i), the rate of growth of world prices (p_{ft}) and the Verdoorn coefficient (λ_i),[36] and negatively with the rate of growth of wages and the *mark-up*. Depending on the values of z_{ft}, z_n, the world income elasticity (ε_w) and the national income elasticity (ε_n) of export demand, regional income growth will be mainly led by exports (if $\varepsilon_w > \varepsilon_n$) or by the structure of domestic demand, namely by domestic consumption (if $\varepsilon_w < \varepsilon_n$).

5.1. Regional export growth equation for Italy

In this section we present the results obtained by estimating the exports equation of the Dixon-Thirlwall model for the Italian regions over the period 1991-2001 augmented to consider the role of specialization in high income elasticity goods. In fact, due to the lack of data on Italian interregional exports, we did not include the rate of growth of domestic consumption as an explanatory variable. Anyway, the data presented in section 3.1 already confirmed the different role that exports and consumption hold in the Centre-Northern and Southern regions.

As a proxy for specialization in goods characterized by an high income elasticity of demand we use the share of high-tech exports on total regional manufacturing exports because, over the last two decades, the demand for this kind of goods has been very dynamic. What we are interested in is to verify

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[35] It must be kept in mind that $\eta < 0$.
[36] *See* note 17.

the different importance of the explicative variables in the two main Italian macro-areas. The estimated equation is the following:[37]

$$y_{it} = b_1 x_t + b_2 w_{it-1} + b_3 p_{t-1} + b_4 c_{t-1} + b_5 ht_{it} + e_{it}$$

where y_{it} is the rate of growth of regional manufactured exports (excluded oil exports) at time t (*source*: ISTAT); x_t is the rate of growth of imports of the *advanced countries* at time t (calculated in euro values; *source*: IMF); w_{it-1} is the rate of growth of unit labour cost in total industry excluding construction in region i at time t-1 (*source*: ISTAT)[38] introduced as a proxy for regional prices of manufactured goods;[39] p_{t-1} is the rate of growth of the average unit values of manufactured exports of the *advanced countries* at time t-1 (*source*: IMF)[40] as a proxy of foreign prices; c_{t-1} is the rate of growth of the nominal effective exchange rate at time t-1 (*source*: IMF)[41]; ht_{it} is the rate of growth of high-tech share on total manufacturing exports[42] in region i at time t (*source*: ENEA and ISTAT). Hence, p_{t-1} and c_{t-1} are invariant among panels.

The equation has been estimated for two separate panels,[43] the first for Centre-Northern regions, the second for the Southern regions over the period 1991-2001[44] for two main reasons. Firstly, the assumption of a common β for all the Italian regions is quite far-fetched. Secondly, we are interested in verifying the existence of a different set of coefficients between Centre-Northern regions and the Mezzogiorno.

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[37] The theoretical model is the following:

$$y_{it} = x'_{it} \beta + \varepsilon_{it}$$

where $i = 1,..., M$ is the number of panels (in our case, M = 12 for Centre-Northern regions and M = 8 for Southern regions) and t $= 1,...,T$ is the number of observations for the panel i (1991-2001).

[38] In the literature the hypothesis of a one period lag in relative prices is almost standard and coherent with the empirical evidence (Krugman, 1989; Landesmann e Snell, 1989); to consider a one period lag is equivalent to presuppose that the effect of a variation in relative prices on exports demand is not immediate. Anyway, the dynamic properties of the Dixon-Thirlwall model of *export-led growth* "*are invariant to the exact lag specification assumed*" (Roberts, 2001, p.13).

[39] The Italian National Statistic Institute (ISTAT) does not publish the regional exports unit values. In order to choose a proxy for regional exports prices, firstly we used the deflator of *total industry excluded construction* value added, but this data was distorted by the inclusion of energy. In a second moment we preferred the deflator of manufacturing value added that, even if it limited this problem, it did not solve it completely because it allowed eliminating the variations of energetic goods only but not the variations of oil products' prices. Finally, we decided to use regional unit labour costs (ULCs). We are conscious that this proxy has a shortcoming as well, namely it does not take into account the prices of the other inputs.

[40] *See* note 43.

[41] *See* note 43. We preferred the nominal effective exchange rate instead of the real effective exchange rate (that can be considered a competitiveness index) because we were interested in the estimate of an "exchange rate" effect and in order to distinguish it from a "price" effect (real exchange rate = nominal exchange rate*relative prices). The nominal effective exchange rate is defined as the weighted-average exchange rate value of a country's currency, where the weights reflect the importance of other countries in the home country's total international trade.

[42] We did not use patents data because they are concentrated in the biggest cities such as Rome and Milan, hence they are not a good proxy for regional specialization in high-tech good. Besides, we did not use data on regional R&D activities because of the lack of time series for the period considered. Further, at a regional level, data on *high-tech* value added is not available.

[43] We preferred a *panel* rather than a *time-series* approach to exploit all the information available in the dataset and to limit the problems due to high variability of export performance in some of the smallest Italian regions. Besides, given the short period under investigation, the reference model and in line with the literature, we preferred estimating the equation with all the variables expressed in rates of growth even if we are aware that this implies missing the cointegration relations among the variables expressed in levels.

[44] When we estimate the equation the data on *high-tech* exports were available only for this period.

We have treated changes in relative prices, change in world income and specialisation as exogenous variables. The hypothesis of exogeneity of relative prices can be justified in a context where producers expand capacity as a consequence of increases in demand and prices are sticky. The exogeneity of specialisation can be justified stressing that its changes over time are slow. Furthermore, this paper takes specialisation as given because its interest is in investigating what is the impact of a given regional specialisation pattern and level of technology on regional exports and output growth.

To start we verified the stationarity of the series for all the Italian regions over the period under investigation with the Dickey-Fuller test on unit roots, then we estimate a fixed effects model but, as the equation is estimated in first differences, the Breusch and Pagan test suggested us the lack of idiosyncratic fixed effects, namely that regional effects were not statistically significant.[45] Moreover, as some variables are invariant among panels a random effects model can not be estimated. Hence, we estimated a constant coefficients model (known as "pooled regression model") and we run an ordinary least squares regression model.[46] Anyway, a LR[47] test suggested the presence of heteroskedasticity both in the case of Centre-Northern and Southern regions, hence[48] we estimated the equation with an iterated FGLS (*feasible generalized least square*) estimator and we obtain maximum likelihood estimates. We report the estimates obtained with a OLS or Prais-Winsten with PCSEs (panel corrected standard errors) estimator as well.[49]

In the case of Centre-Northern regions (Table 4), all the variables enter the equation with the expected sign and, in line with the existent theoretical and empirical literature, both the trend of the nominal effective exchange rate and, above all, the rate of growth of demand emanating from advanced countries are particularly significant. However, the rate of growth of both regional prices and foreign prices are not significant confirming that the exchange rate effect prevails on the price effect. In other words, this confirms the strategy of Italian enterprises: their price competitiveness increased thanks to devaluations. Besides, the rate of growth of the high-tech exports is significant even if the coefficient is quite low, confirming the minor role of these goods for regional export growth.

With regard to Southern Italy (Table 5), even if all the variables have the right sign, the results obtained are less significant: only the rate of growth of advanced countries demand and the rate of growth of nominal effective exchange rate are significantly different from zero. Again, the rate of growth of both

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[45] The results are not reported, but they are available on request.

[46] There are several types of panel data analytic models: constant coefficients models, fixed effects models, and random coefficients models. The first kind of models has constant coefficients referring to both intercepts and slopes. In general, given the presence of homogenous variables across the regions that vary only according to time, only a within estimator could be used.

[47] This test is based on the comparison of two alternative models, with or without heteroskedastic residuals. See Greene (2003), p. 230.

[48] In the case of Centre-Northern regions the result of the LR test (aiming at verifying whether the $J = 11$ restrictions imposed were satisfied) is: LR chi2(11) = 77.05 and the Prob > chi2 = 0.0000. In the case of Southern regions we impose J=7 restrictions and the result of the LR test is LR chi2(7)= 63.73 Prob>chi2 =0.0000. In both case the LR test suggested us to refuse the hypotesis of omoskedasticity as the values of the statistics were higher than their critical values.

[49] In fact, the latter allows to obtain consistent standard errors when the residual are heteroskedastic. In this case, when we consider only the presence of heteroschedasticity and not the presence of correlation, what we obtain is not a proper PCSEs estimate because the "*standard errors are from the asymptotic covariance estimates of OLS without allowing for contemporaneous correlation*". Both the estimators (FGLE and PCSE) are consistent "*as long as the conditional mean* ($X'_{it}\beta$) *is correctly specified*". If the covariance structure assumed is correct, however, the FGLS is efficient as well. *See* STATA (2003), p. 153-156.

regional prices and foreign prices are not significant: southern enterprises made the most of devaluations entering the international markets to balance the domestic consumption decrease. In fact, the "occasional" dynamic of exports in Southern regions is confirmed by the fact that the regression explains a very small part of the variance. Their strong competitiveness deficit is partly confirmed by the not significant role of high-tech exports for export growth. If we compare the first FGLS regression with heteroskedastic residuals, the OLS regression with PCSEs and the results obtained with the White estimator,[50] in the first case the standard errors are lower and the estimates are slightly more significant. In any case, the coefficients do not vary significantly in the different models.[51]

Table 4. Results of the panel estimate of the export equation over the period 1991-2001 in Centre-Northern regions (120 obs).

Independent variables	Fixed effects regression	iterated FGLS regression	Linear regression, het. PCSEs[1]	Linear regression with robust standard errors
x_t	0.007547 (2.03)*	0.7772 (18.60)*	0.8788 (12.36)*	0.8788 (10.86)*
c_{t-1}	-0.3961041(-1.96)*	-0.483 (-5.81)*	-0.409 (-2.84)*	-0.409 (-3.69)*
ht_t	.0985803 (1.54)**	0.0783 (2.29)*	0.1215 (1.57)**	0.1215 (1.73)**
F test	3.11	-	-	52.19
F test that all u_i=0	0.28	-	-	-
Wald chi^2 (3)		559.22	220.51	-
R^2	0.0866	-	0,65	0,65

* Significant at 95%; **Significant at 90%. In brakets the t-values (coeff/std. err.)

[1] It has not been possible to estimate the model with an iterated FGLS estimator with heteroskedastic residuals correlated among panels (as we have done in the case of Southern regions) because the time dimension is lower than the cross-section dimension (T<M). See Beck and Katz, (1995). As far as concern the results of the linear regression with heteroskedastic and PCSEs correlated among panels, they are not reported but they are available on request. Anyway, the estimates are similar to the ones obatained without considering the presence of correlation among panels.

Table 5. Results of the panel estimate of the export equation over the period 1991-2001 in Southern regions (80 obs.).

Independent variables	Fixed effects regression	iterated FGLS regression	iterated FGLS regression, heteroscedastic residuals correlated among panels	Linear regression with robust standard errors
x_t	0.0101472 (1.27)**	0.8032 (6.24)*	0.7005 (3.59)*	0.5924 (3.24)*
c_{t-1}	-1.287519 (-3.48)*	-0.447 (-2.09)*	-0.538 (-1.66)**	-1.0375 (-4.49)*
constant	.0394005 (0.63)	0.0313 (1.63)**	0.0467 (1.61)**	0.0537 (2.05)*
F test	6.33	-	-	15.27
F test that all u_i=0	1.14	-	-	-
Wald chi^2 (3)	-	44.41	16.12	-
R^2	0.14	-	-	0,073

* Significant at 95%; **Significant at 90%. In brakets the t-values (coeff/std. err.)

Given these results, and in the light of the "export-led" growth model from which the equation has been extrapolated, we may conclude that the Dixon-Thirlwall model is not able to describe the

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[50] In this case we use some tests (Breusch-Pagan/Cook-Weisberg and White) to verify the assumption of omoskedasticity as well and both the tests used suggested the presence of heteroskedasticity. The results of the tests are not reported but are available on request.
[51] The FGLS estimates are similar both in the case of heteroskedasticity than in the case of heteroskedasticity and panel correlation.

exports performance of Southern regions and the contribution of high income elasticity goods to exports growth is unimportant. In fact, even if the share of high-tech exports on total exports increases relatively more in Souhern regions, in 2003 they still represent only the 11% of the high-tech exports of Centre-Northern regions.

6. Conclusions

Throughout this paper, we have presented an extended version of the canonical Kaldorian export-led growth model. We focus on an extension of the model that allows testing whether a region's output growth is led by domestic consumption or by exports. Moreover, we emphasized that this has important effects for regional productivity growth and regional competitiveness itself. Due to the lack of data on interregional exports for Italian regions we could not estimate the contribution of domestic consumption to regional export growth. However, some unpublished data (*see* Table 1) confirm the hypothesis that a consumption-led model is more adequate to describe the regional growth model of Southern Italy rather than an export-led. In this area the growth of exports depends on the growth of capacity of the various industries that reflects the growth of domestic consumption rather than external demand. In a period of domestic consumption stagnation, Southern enterprises felt as a necessity to find out new markets and increased their international openness with all the difficulties due to their competitiveness deficit.

Further, we extended the model in order to introduce an important supply element, namely the influence of a specialization in high-tech goods on export growth. The estimates of the augmented export equation confirmed the competitiveness deficit of Southern regions. Concerning Centre-Northern regions, even if the contribution of high-tech export growth is significant, the small coefficient associated confirms the minor role of these goods for regional export growth. In general, the contribution of high-tech goods to exports growth and, in turn, of the rate of growth of exports for output growth is relatively less important.

In the light of the results obtained, we may conclude that the Dixon-Thirlwall model is not able to describe the exports performance of Southern regions. On the other side, the Dixon-Thirlwall model is more adequate to describe the growth performance of Centre-Northern regions.

Paradoxically, the combination between the small dimensions of Italian enterprises, their low propensity to R&D expenditure, their traditional specialization and the devaluation policies often used by Italian authorities since the second oil shock to 1999 have encouraged a lock-in situation, and harmed the prospects for future exports growth. In fact, as pointed out by Brech and Stout (1981), as the price elasticities of homogeneous products are likely to be significantly higher than for goods characterized by significant product differentiation, a devaluation, by encouraging the production of more homogeneous goods (such as traditional goods), may actually switch production away from the more sophisticated

products for which the world income elasticity of demand is high.[52] Moreover, now that devaluation can not be used anymore to defend price competitiveness and to mitigate the effect of a lower level of labour productivity with respect to the other OECD countries, the Italian structural problems arise.

To conclude, the theoretical and empirical analysis conducted in this paper, in line with one of the main Kaldorian messages, aims at stressing that increasing the rate of growth of a region/country is mainly a matter of make it more competitive modifying, if necessary, its industrial structure to favour the production of high income elasticity products.

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[52] We are aware that this argument should be adequate to the Italian industrial system that is characterized by the presence of "distretti", geographical agglomerations of enterprises strongly integrated among each other able to produce differentiated traditional goods.

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