SPECIALIZATION AND GROWTH PERSPECTIVES IN THE SOUTH MEDITERRANEAN AREA

Preliminary draft

MASSIMO TAMBERI[1]

ABSTRACT

This paper empirically analyses both overall specialization and revealed comparative advantages of the South Mediterranean countries.

There are two sections. In the first section the relation between overall specialization and per-capita income has been developed, through a semi-parametric estimation of three different indexes of overall specialization, all derived from the distribution of sectoral revealed comparative advantages. The performed GAM estimation (43 countries sample) demonstrates that overall specialization decreases with the rise of per-capita income (country specific effects and economy size effects are also considered).

In the second section South Mediterranean countries are explicitly considered. It is showed that almost all of these countries have a very high level of overall specialization, in the sense that revealed comparative advantages (RCA) are highly concentrated in traditional products. Moreover RCA are linked almost exclusively to low wage levels. In fact, low level of productivity negatively influences unit costs, relatively high in most of the non-traditional sectors (but the Asian sub-group partially differs from the African one).

[1] Dipartimento di Economia – Università Politecnica delle Marche
e-mail: tamberi@dea.unian.it

1 - INTRODUCTION

The links between international integration and economic growth and development have always stimulated scholars' attention, in the past and recently.
Different approaches and different research lines exist on this subject.
Possibly, the effects of trade openness (a concept with many dimensions) is one of the most investigated points; from an empirical point of view, findings are not completely clear, because the relationship between the two variables (openness and growth) comes out to be statistically not very robust (Temple, 1999).
The most direct effect of openness is, obviously, a process of specialization of the involved areas.
This paper wishes to give a contribution exactly in this direction; in particular, the relationship between trade specialization and growth and development is treated, with an emphasis on the position of the south Mediterranean countries (MEDs).
These latter have been selected on a geographical criterion: non E.U. south countries with a coast on the Mediterranean sea; from east to west, they go from Turkey to Morocco[2].
There are two main sections, the first directed to highlight the general link between overall specialization and the level of development, the second on the specificities of the various Mediterranean countries.
The first section extends and generalizes results of previous works, and confirms the existence of an inverse relation between overall specialisation and the level of development; the analysis is carried out through a semi-parametric estimation in which the MEDs are included in a wider sample. Then, I will try to disentangle their specific position.
Since it will be shown that a measure of overall specialisation is directly derivable from the whole distribution of sectoral comparative advantages, it is easy to pass on to a sectoral analysis.
The deepening of this section shows the relevant sectors and some weak aspects of the MEDs.

2 - RELATIONSHIPS BETWEEN INTERNATIONAL INTEGRATION, TRADE AND GROWTH

There is a long and complex analysis on the links between international integration and economic growth that it is not possible to synthesize with efficacy here; because of this reason, there are only a few references on this point .

[2] Libya is excluded, because of lack of data. There really a few data for Lebanon.

The first thing to be stressed is that, at least among economists, the idea that international integration, in its various forms (particularly FDI and trade), has beneficial effects on economic growth is largely prevailing.

In reality the empirical research has not provided irrefutable proofs in this direction, in consequence of measurement problems and econometric difficulties (Temple, 1999).

A general framework, to face this subject, can be derived from the results of the recent stream of growth models (but also from preceding, and even old enough, contribution to the study of "modern economic growth"), that underline the role of technological progress and human capital accumulation in the growth processes.

In a world with a strong economic polarization, a mechanism of creation and imitation of technology is a relevant aspect of reality: economic growth of advanced areas depends on endogenous processes, while a fundamental channel for developing areas has to do with international transfers of technology and human capital (and this explains the role for imitative processes). In terms of theoretical models we can speak of endogenous growth models for the first and catching-up models for the second.

International integration, both in economic and in general terms, constitutes the necessary condition for technology and human capital transfers; in general these latter pass through different channels:

- FDI,
- Exports
- Migrations

Knowledge transfer processes are not an inevitable mechanism and, as a proof of this, there is strong persistence of highly differentiated development levels around the world. Even if, in recent years, an inversion of the secular trend of inequality expansion seems in action (Sala-i-Martin, 2003), differences are still enormous and many countries and areas in the world do not have positive signs of development. Generally there is a tendency, nowadays, to attribute this heterogeneity in development experiences to institutional variables of some kind; this also happens in the case of the Middle East and North Africa (Kuran, 2004; Yousef, 2004),

Specifically, it is well known that simple catching-up processes are not sufficient to guarantee that a country will arrive up to the "frontier" (Sachs, 2000). But we should consider that many of the factors helping the capacity of imitation, in particular those linked to human capital (and social, if we precisely knew the meaning of it), are also factors able to gradually drive the economy toward an endogenous growth.

As said above, if integration processes are a fundamental channel for technology transfer, they also change the relationship among different areas through another way, because they cause more or less

intense processes of productive specialisation and, as a consequence, they influence the economic performance again.
Since the specific links between economic growth and international specialization are a central theme to this paper, it is convenient to provide some relevant points.
Generally there has to be a distinction between static and dynamic effects.
In the first case, trade integration lets countries to exploit comparative advantages, and, in this way, to benefit from static gains in efficiency; nevertheless, these influence economic growth only temporarily, with a "step" effect (if short run growth has no effect on long run growth).
Differently, when dynamic scale economies are at work, for example due to learning by doing effects, dynamic gains can be realized, with permanent effects on economic growth.
Nevertheless, the picture has negative sides also. In fact, in models with dynamic scale economies, there is the possibility of negative effects of specialisation on the relative rate of growth of the economy (Lucas, 1988); it can happen if comparative advantages address specialization toward sectors with low potentialities of learning by doing; an example is when a developed area specialises in "modern" goods, as a consequence of its comparative advantages, and they are associated with greater dynamic scale economies, thereby causing a high rate of growth.
Meanwhile, the less developed area specialises in "traditional" goods, as a consequences of its comparative advantages, and this causes a lower rate of economic growth because of the less intense dynamic scale economies.
Finally, and strongly simplifying, it is possible to say that growth possibilities for a follower are linked to the existence and to the intensity of spillover effects, both sectoral and regional, as well illustrated in some growth models (Grossman, Helpman, 1991).
International trade, in the presence of static and dynamic scale economies, can foster but also limit, through specialisation, the catching-up of the follower countries; factors influencing polarization or diffusion of economic activity may greatly differ in time and space, so that the general conclusion of theoretical models should be then attentively "calibrated" in the specific context of analysis.

3 - TWO DIFFERENT MEANINGS OF INTERNATIONAL SPECIALIZATION

The term "specialization", even if currently used, has a certain degree of ambiguity in its meaning. For this reason I think that it is to be cleared what I mean by "specialisation", since the whole paper is built on this concept.
If one looks at the literature, it will be evident that "specialization" means at least two different concepts, not necessarily interrelated, both in static and in dynamic sense.

The first meaning refers to the particular efficiency in producing a specific good in a specific area; for example people says that "country X is specialised in good Y". This is precisely the concept of comparative advantage and in the previous phrase the expression "is specialised" can be substituted with "has a comparative advantage". This is a very common meaning of the word.

But there is also another meaning . It refers to the level of overall specialization and in particular to the degree of productive or trade differentiation, that is to the bulk of different goods produced or traded by a specific area; it is analogous to the concept of statistical concentration: for example people say that "country X is highly specialised", in the sense that its production (or trade) is highly concentrated from a sectoral point of view.

In the literature these two kinds of meanings are sometimes defined "Ricardian specialization" in the first case, "Smithian specialisation" in the second.

A link between the two concepts can be made if with the term "overall specialization" we mean the bulk of different goods that are efficiently traded from a specific area. In this way "overall specialisation" measures if an area shows comparative advantages in a wide or restricted range of goods.

In this work I will use the concepts of comparative advantage (*CA*) and of overall specialisation (*OS*) in the sense I have just illustrated.

Even if it is possible to build this conceptual and empirical linkage between *CA* and *OS*, it does not mean that changes in one of them necessarily imply changes in the other (or that changes go in the same direction).

To convince oneself on this point, it is sufficient to realize that a country can change its *CA,* loosing it in one sector and gaining it in another one, consequently without any change in the degree of *OS* (more details in De Benedictis, Gallegati, Tamberi, 2004).

Other problems arise when we pass from definition to measurement.

It is well known that there is not possible to measure *CA* in a way that directly derives from theory, and this difficulty derives from the impossibility to measure autarchic prices.

As a consequence economists are used calculating indexes of revealed *CA*, as the largely utilized Balassa Index[3] (*BI*, from Balassa, 1956).

[3] BI = (xi/x) / (Xi/X) where small letters refer to the country, capital letters to the world, *i* is a sectoral index and its absence means that we are referring to the whole export (*x*) aggregate Its interpretation can follow three different lines:
1) to provide a demarcation line among countries showing a *CA* in a specific sector and countries that do not have i
2) to quantify the degree of specific *CA* of a country with respect to other countries
3) to provide a ranking of sectors (in a country) according to the index

The *BI* is a measure of sectoral export share of a country relative to the world. It is an asymmetric index, since in principle $0 \leq BI \leq \infty$ (1 is the demarcation value between comparative disadvantages and advantages).

The *BI* is not without problems and it is subjected to various limitations (De Benedictis, Tamberi, 2004); if the ordinal more than the cardinal values are considered these limits are in part avoided.

Considering the whole sectoral *BI* distribution of a country it is possible to provide an index of *OS*; along these lines, three different *OS* indexes will be employed in the following:

- first, it is possible to utilize a positional index of the distribution. Since *BI*, as said before, is an asymmetric index, the median (*OSme*) more than the mean seems an appropriate index. It is an inverse index of *OS*: a high *OSme* says that there are many sectors with comparative advantages and this means that the country has a low *OS* (it efficiently trades many goods)
- a second index may be called "relative Gini" index (*OSrg*); in terms of the Lorenz curve, it is calculated ranking sectors according to their growing BI and measuring national shares (*BI* numerator) on the y axis and world shares (*BI* denominator) on the x axis. With data ordered according to their growing BI:

  $OSrg = \Sigma(p_i - q_i)/\Sigma p_i$

  where q_i and p_i are, respectively, cumulated shares of the numerator and denominator of the *BI*.

  It ranges from 0, when a country has the same export shares distribution than the world, to 1, the case of maximum concentration (that is, maximum *OS*).
- finally, it is possible to utilize a Theil relative index (*OSth*), that is an entropic index where the numerator and denominator of *BI* are proportionally confronted:

  $OSth = \Sigma[(x_i/x)\ ln[(x_i/x)/(X_i/X))]$

  It ranges from 0 (minimum *OS*) to ∞ (maximum *OS*).

These indexes are all indexes of relative statistical dispersion, and they have the advantage to allow a simple passage from the CA measure to the OS measure, since the second is built on the basis of the distribution of the first. If other traditional indexes of (absolute) statistical dispersion were used, like Gini or Herfindhal, this direct passage would be lost and, moreover, the distribution benchmark is the equidistributional *loci*, whose interpretation is not, in this context, fully clear.

In the relative indexes both country and world data are relevant for the final result; this means that changes in the world distribution automatically reflect in the *OS* measures, even if the national distribution has not changed. This is an advantage. Consider the case of an unchanged national distribution. A Gini index obviously shows an unchanged situation, even if, in the meanwhile the world structure has changed in a significant manner, due to, for example, changes in technology or

demand structure. Instead, relative indexes, like those proposed in this paper, would be sensible to changes of that kind in the world structure, and it seems reasonable if the analysis of specialization is used to understand the position of a country in the world economy. Consequences in terms of economic growth, firm profitability and other economic variables depend a lot on the relative position of a country with respect to technological and demand dynamics at the world level.

4 - OVERALL SPECIALISATION AND THE LEVEL OF DEVELOPMENT

4.1 - Data

Specialisation, both in the sense of *CA* and in that of *OS*, is here used here to help an evaluation of the growth perspectives of the MEDs.

For this scope, in this section I will give indications on the general relation between *OS* measures and the level of development (measured by per capita income, *YPC*) and on the specific position of the MEDs in this general picture.

The first part is largely an extension of a previous work (De Benedictis, Gallegati, Tamberi, 2004). There are not many empirical works on this point; Imbs and Wacziarg (2003) is perhaps the most relevant.

In this paper export manufacturing data are used from UN datasets (ECLAC, 2001), and income, both per capita and total, in PPP, 1995 international $, from WDI 2004:

- period: 1985-2001[4]
- sectoral aggregation: 4 digit SITC rev 2 (539 manufacturing sectors)
- number of countries: 43, all countries for which GDP PPP 1998 > 100 billion dollars (in WDR 2001), plus the MEDs not included in the previous group.

In other works production, value added or employment data are preferred. Each choice has its advantages and disadvantages; in this case trade data are preferred because of their completeness and sectoral disaggregation.

The three *OS* indexes have a strong correlation to one another, both as regards values and ranks, as showed in the following table 1 (where panel data are used)

[4] In the present version *OSrg* has to be updated, since it goes from 1985 to 1998.

Table 1 - Correlations among OS measures

Values		
	OSrg	*OSth*
OSme	-0,95	-0,83
OSrg		0,92
Ranks		
	SCcg	*SCth*
OSme	-0,95	-0,93
OSrg		0,99

Notwithstanding the high level of the correlation among the various indexes, the following analysis will be contemporarily developed on all of them.

4.2 - Method

In the literature, both from a theoretical and an empirical point of view, there are not clear indications on the shape (and even on the direction) of the relationship between *OS* and *YPC*; for this reason I will use non-parametric econometric methods to get it; in fact, the advantage of such methods is that they *locally* estimate the relation, without a priori assuming a general shape.
Among the possible methods, the choice has gone to LOESS estimation, since it has the advantage of utilizing a variable bandwidth, defined as a share of the whole observation number; the variable bandwidth, called *span*, is, in practice, an inverse function of data density. This seems appropriate, since the sample used is characterized by areas of different data density; using LOESS estimation the degrees of freedom is maintained constant in the different local estimations.
With a LOESS estimation the error minimization procedure is as follows (*c*: country; *t*= time):

$$\min_{\alpha,\beta_1,\ldots,\beta_p} = \sum_{ct=1}^{CT} [SC - \alpha - \beta_1 (YPC_{ct} - YPC) - \ldots - \beta_2 (YPC_{ct} - YPC)^p]^2 \, w(YPC_{ct} - YPC; h_{ct})$$

It is a least-squares problem of a locally weighted polynomial of degree *p* (usually set equal to 1 or 2); h_{ct} is the bandwidth (or smoothing parameter), function of *c* and *t*, that is variable according to data density; *w* is the adopted *kernel* function for the smoothing procedure.
Non-parametric estimations have a remarkable flexibility, but also have some limitations.
As an example, the local estimation may be biased because of the problem of omitted variables.
In the specific case of this work, it is possible that *OS* is also influenced by variables different from *YPC*; single countries may have specific time paths in some periods, or other variables could be relevant (for more details, also empirical, see De Benedictis, Gallegati, Tamberi, 2004).
To take into account these kind of problems I initially opted for a semi-parametric estimation using a GAM (*Generalized Additive Model*; Hastie, Tibshirani, 1990) with parametric fixed effects for all

countries and a non-parametric (LOESS) function between *OS* and *YPC*. As such the estimated function is

$$OS_{ct} = \alpha_c + f_j\,(\,YPC_{ct,j}) + \varepsilon_{ct}$$

where α_c è is the parametric component for the country-specific effects and f_j the LOESS function linking *OS* to *YPC*; ε_{ct} is the error term.

In the non-parametric component I use a *normal kernel* function, different spans (see below), a degree of the polynomial equal to 1, for local linear estimations.

The country-specific dummies should capture the effects of variables characterizing the various countries in a structural way.

In the following estimations, the *OS* term is alternatively measured by the three indexes discussed above: *OSme*, *OSrg*, *OSth*.

In general it is not usual to present many tests for non-parametric estimations, even in GAM estimations: the interest is focused on the shape of the relation more than on the specific values of the local estimates. As a consequence diagrammatic methods are preferred in the interpretation of the results.

Nevertheless, Hastie and Tibshirani (1990) show that it is possible to do F tests on the non-parametric component, under the same conditions of GLM estimations (large samples or normal distributed errors).

4.3 - Results

Going in this direction, I estimated equations with different spans, equal to 0.25-0.5-0.75; the results give a joined significance of the parameters of the non-parametric component with all *spans* and *OS* indexes. The best results in terms of F test are obtained with a span of 0.75; all results are summarized below in table 2.

Table 2 - Tests for the semiparametric regressions $OS_{CT} = f(YPC_{CT})$

		F	Pr(F)
	OSme	15.88	0.00
Span = 0.75	*OSth*	26.08	0.00
	*SCrg**	31.8	0.00
	OSme	9.61	0.00
Span = 0.5	*OSth*	21.20	0.00
	*OSrg**	14.94	0.00
	OSme	8.89	0.00
Span = 0.25	*OSth*	14.57	0.00
	*OSrg**	6.64	0.00

* While estimates of *OSme* and *OSth* refer to 1985-2001, *OSrg* refers to1985-1998

The sample, more than 700 observations, is sufficiently large to guarantee the reliability of the F test[5].

Looking at the graphical analysis, the results of the estimation for the three *OS* indexes in the case of span=0.75 are illustrated in the following figures, where, taken into account the country effects, the marginal relation between *OS* and *YPC*, estimated through the LOESS, is represented.

[5] An analysis of residuals has also been carried out; q-q plots evidence a departure from the normality hypothesis in all cases; this is confirmed by the results of a Jarque-Bera test. Nevertheless it does not appear as a serious problem for the general linkage that emerges between the variables.

Fig 1 - OSme and per capita income 1985-2001

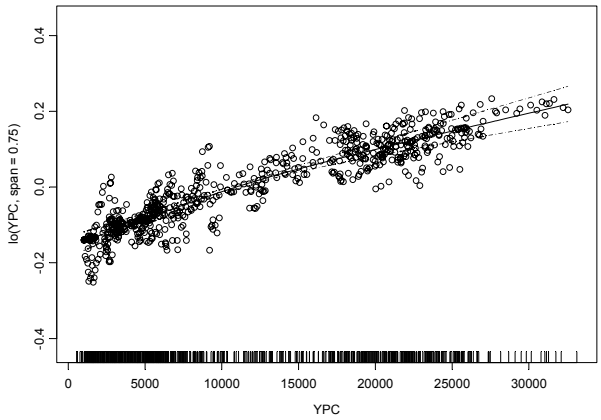


Fig. 2 - OSrg and per capita income 1985-1998

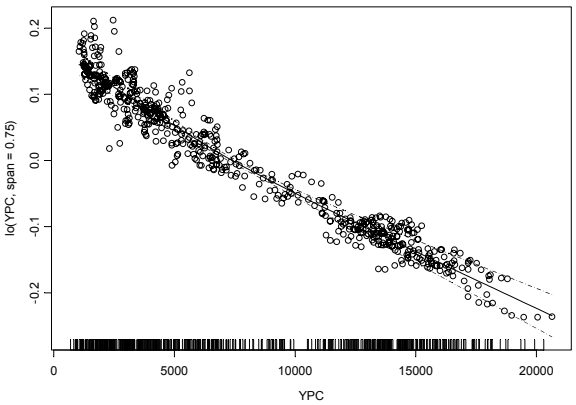
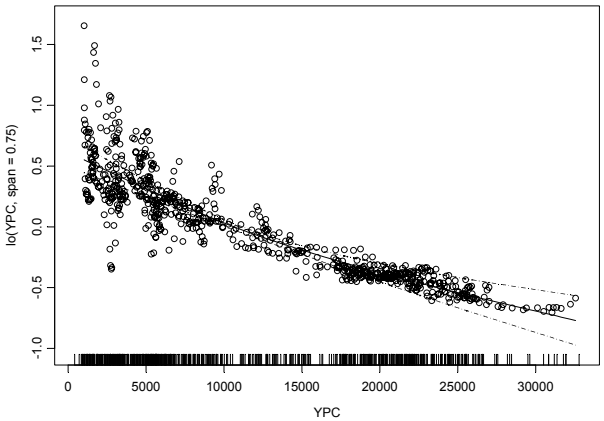


Fig 3 - OSth and per capita income 1985-2001



In all those cases, with *OSme*, *OSrg*, *OSth* alternatively used as dependent variable, I have quite similar results: the relation between the level of development and *OS* clearly appears as an inverse one, in the sense that the degree of *OS* decreases when the level of development increases.
A further minor observation refers to the fact that the evidenced relation between *OS* and *YPC* seems characterized by some degree of non-linearity, even if light and mainly present in the first part of it (low-medium levels of *YPC*), especially in the case of *OSme* and *OSth.*
As a further step, I also try to enrich the relation considering other possible influences on *OS*. In particular the size of the economy seems a good candidate as an explanation of the level of *OS*, as suggested in a recent paper (Hummels, Kleanow, 2000).
For this reason *GDP* has been added as a new independent variable:

$$SC_{ct} = \alpha_c + f_j\,(\,YPC_{ct,j}) + g_j\,(\,Y_{ct,j}) + \varepsilon_{ct}$$

where $g_j(Y_{ct,j})$ is a LOESS function linking *Y* (that is *GDP*) to the *OS* measures. As before *normal kernel* and linear local estimations are used.
Obviously, also the relation between *OS* and *Y* is an inverse one, since small economies are more specialised than big ones, as expected. Besides, the kind of linkage between *YPC* and *OS* remains broadly unchanged: more developed countries have a higher diversification of their exports (measured by the three *OS* measures). Non-parametric F tests always indicate a good joined significance of parameters, both in the case of *YPC* and *Y*[6].
A graphical representation of the results, only for the median and for a span equal to 0.75, are presented below, as an example.

[6] But normality of residuals is still rejected.

Fig 4 - OSme and per capita income 1985-2001

(SCme=f, YPC, Y)

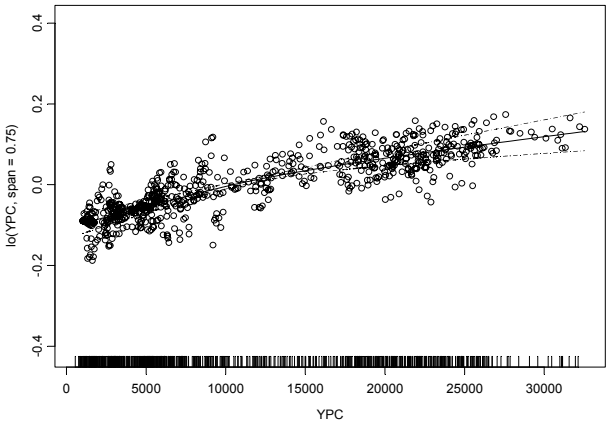
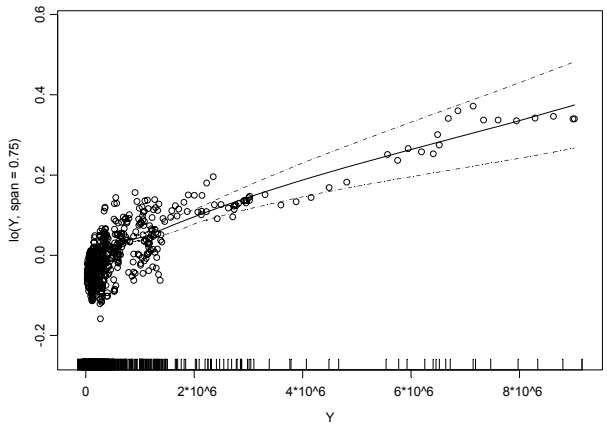


Fig 5 - OSme and total income 1985-2001

(SCme=f, YPC, Y)



One can easily appreciate that the slope of the relation between *OSme* and *YPC* is still positive; when *OSrg* and *OSth* are used instead of *OSme*, results are also broadly similar to the previous and they hold with all the *spans*.

As a conclusion on this point, it is possible to say that, besides the specific results of the various estimations, where the *OS* indexes or the *spans* are changed, or *Y* is added as an independent variable, we have a constant general picture of an inverse relation between *OS* and *YPC*: countries with high per capita income show a low level of overall specialization, measured through trade data; that is to say that, not surprisingly according to the author, low income (and small) countries have high efficiency levels only in a restricted number of goods (controlling for specific effects) and, as a

consequence, they have a high level of specialization (high *OSrg*, high *OSth* and low *OSme*, that is an inverse index of *OS*).

Along the process of economic growth countries develop a richer matrix of products in which they are able to obtain a comparative advantage, and so they progressively reduce their level of *OS*[7].

Even with this clear outcome, it should be stressed that the dispersion of the original data is mostly captured by the country-effects.

5 - POSITION OF THE MEDITERRANEAN COUNTRIES

It is time to come back to the specific subject of this paper, trying to disentangle the position of the MEDs inside the general picture which emerged in the previous analysis.

In the previous figures the marginal relationship between *OS* and *YPC* is showed.

Now, going to the single country level, I will show their effective position of them, passing to average data of the variables.

Generally speaking, MEDs are low-developed and low-sized economies. As demonstrated in the previous econometric analysis, high levels of *OS*, as in the case of the MEDs[8], may derive from a low level of *YPC* and a limited economy size, since big economies are in a better position to profit of the presence of economies of scale. Nevertheless, in an integrated world economy the internal bound can be by-passed, as is the case of the so-called super-trader countries (where export and import sum largely exceeds the level of GDP).

Then, in table 3, countries are decreasingly ranked according to their decreasing specific α_c, and the value of this specific country coefficient of one the previous estimate is reported (*OSme=f(YPC,Y), span=0.75*).

[7] It is to be stressed that in all the observed cases the relation between *YPC* and *OS* is monotonic, while for a different results see the work of Imbs and Wacziarg (2003).

[8] Similar considerations, on high level of *OS*, even if referred to a more restricted geographical context, can be found in Makdisi, Fattah and Limam, 2003.

Table 3 - Country-specific parameters *(OSme=f(YPC,Y))*

	α_c (country effect)
FRANCE	0.771
ITALY	0.736
UK	0.725
SPAIN	0.686
NETHERLAND	0.683
AUSTRIA	0.677
BELGIUM	0.559
SWEDEN	0.489
DENMARK	0.482
BRAZIL	0.478
POLAND	0.476
SWITZERLAND	0.413
USA	0.398
AUSTRALIA	0.372
KOREA	0.361
ARGENTINA	0.344
MEXICO	0.314
COLOMBIA	0.314
JAPAN	0.311
THAILAND	0.307
CHINA	0.294
INDIA	0.274
PORTUGAL	0.262
NORWAY	0.261
CANADA	0.250
MALAYSIA	0.244
TURKEY	**0.240**
FINLAND	0.238
INDONESIA	0.233
EGYPT	**0.225**
SOUTH AFRICA	0.213
SYRIA	**0.213**
GREECE	0.202
VENEZUELA	0.188
ISRAEL	**0.181**
PHILIPPINES	0.172
CHILE	0.170
TUNISIA	**0.148**
MOROCCO	**0.148**
PAKISTAN	0.136
BANGLADESH	0.132
ALGERIA	**0.099**

The values of the α_C show exactly if a country has characteristics allowing a wider capability in efficiently trading different goods, not explained by its size and level of development. A high value indicates a particular capability, a low value its absence. This capability can derive from many different sources, and it is out of the scope of this paper to investigate in this direction.
From the table we can see that these fixed coefficients are always positive; the MEDs have values always among the lower ones, and the Algerian case is exactly the lowest value among the 43 countries. This kind of result holds with all the estimations.
It is worth noticing that in the more developed countries of the Northern Mediterranean coast (Spain, France, and Italy) the specific component α_C appears very strong.

As a conclusion, the indications emerged from these sections clearly show that MEDs are very specialized economies, and not only as a consequence of both their level of development and the low size of their economies.

6 - COMPARATIVE ADVANTAGES OF THE MEDITERRANEAN COUNTRIES: CLUSTER OF SECTORS

All the indications of the preceding analysis have a quantitative content, in the sense that they leave out considerations about the sectoral specificities.
In recent years some empirical works (Bensidoun, Gaulier, Unal-Kesenci, 2001; Dalum, Laursen, Verspagen, 1999; Laursen, 1998) seem to indicate that the kind of specialisation a country exhibits is relevant for its growth process.
Even the recent theoretical literature, where the dynamic processes of leaning are underlined, seems to give similar indications, as already remarked at the beginning of this work (see the Lucas piece, 1988).
In this section specific considerations about sectors will be explicitly carried into the analysis.
Let us start from some indications stemming from the Trade and Development Report 2002 (UNCTAD 2002, table 3.2, p. 57), where the 20 most dynamic sectors (1980-1998) of world trade are showed, together with the shares of the main exporter economies in those same sectors.
A rapid look at the table makes evident the fact that in those sectors only advanced economies and emerging Asian countries are present. Only one of the MEDs is present in the list (Turkey, with a share of 6% in sector 846 – knitted undergarments).
Since countries are reported in the table according to their share in world exports, big countries are more present than small ones, but these latter are not absent (see the Irish or Korean cases, and others).

More important, even if in the very first positions, in the group of the 20 most dynamic products, we find above all "technological" products, in the remaining many "traditional" products appear, so that a country like Italy is often indicated as one of the main exporters.
Even if the sectors in which the MEDS have higher comparative advantages (*CA*) are among the "traditionals" (as it will be showed below), those sectors do not appear in the UNCTAD list.
Then an important further conclusion can be reached: not only MEDs have a concentrated export structure, moreover they are concentrated in not-dynamic products.
Since in the previous analysis I used *OS* indexes directly derived form a measure of *CA*, the *BI*, it is possible to pass to a specific sector analysis and to show the cluster of sectors determining the *OS* levels.
At this stage of the analysis, also because of lack of other kind of data (like input-output matrixes), I have limited the analysis to a "visual" rough recognition of data.
The general result is that the whole group of countries could be divided into two sub-groups, the Asian and the African, where the first have a better characterization and dynamics than the second.
Even so, the main specialisation is linked, as already told, to the traditional sectors, the textile (but a major role is played by the carpet export alone) and the clothing sectors. More specific considerations will evidence similarities and differences:

- *Asiatic sub-group*:

  this group is characterized by a more advanced structure of CA. This generalisation is valid for three of the countries of the group, while the fourth, namely the Syrian Republic, is more similar to the African group.

  Israel is the country with the strongest orientation toward products with a high technological intensity; besides some jewellery sectors (diamonds), it shows clusters in chemical sectors, in some electrical mechanics, in electro-medical products, in aircraft industries and other mechanical sectors.

  Lebanon is not too far from this model, since it has CA again in jewellery products, in some chemical products and in ships and mechanics.

  Different is the case of Turkey, clearly more oriented toward textile-clothing sectors (even with new materials as Pile garments). In these sectors this country has very diffused *CA*, and this constitutes a difference with the African sub-group, where CA are restricted to a much more restricted range of products. Finally in Turkey also some metallurgic sectors are relevant (sectors from SITC code 6712 to 6741), and, less importantly, mechanics.

  As anticipated, the Syrian case is different. Here especially, sectors linked to the leather

industries have a relevant role, together with some production in clothing (from 8310 to 8484).

- *African sub-group*:

  This group is generally characterized by *CA* almost exclusively concentrated in textiles and clothing.

  It is worth noting that Egypt has progressively increased the number of clothing products which shows *CA* (sectors from 8422 to 9463), confirming what previously observed (decrease in the *OS* degree).

  Also Morocco and Tunisia are characterized by the relevance of various clothing sectors in their export structure, but the latter shows also growing and diffusing CA in some footwear sectors (especially parts of footwears).

  Finally, Algeria has a very concentrated structure: in practice only one sector (9310) constitutes most part of the whole export, but it is difficult "to read" this result, since that sector is a generic residual one.

These results can be appreciated observing that the MEDs have an exceptionally high share of traditional sectors, not only if compared to rich countries but also to the other (not African) LDC: this share is generally around 30-40% in the MENA group, while it is between 10% and 20% in most other countries (as an example, consider that in India the share of the traditional sectors in manufacturing is 20%, 12% in South Korea, 17% in Mexico). Partial exception to this rule among the MENA is Turkey, with 26% (and possibly Israel, but data are lacking in this case).

Even if we have observed that most of the analyzed countries have a specialization in traditional products, we cannot say that they have similar structure.

This conclusion is observable in table 4, where are shoed the results of the following dissimilarity index

$$diss = \sum_i \left| (X_{iA} / X_A) - (X_{iB} / X_B) \right|$$

where X is exports, i is the sector (its absence indicates total exports), A and B two different countries. This *diss* index goes from a minimum of 0 (no structural differences) to a maximum of 2 (complete dissimilarity).

Table 4

a) 1985 dissimilarity index among countries

	Lebanon	Israel	Syria	Egypt	Tunisia	Algeria	Morocco
Turkey	1,66	1,58	1,39	1,41	1,28	1,81	1,26
Lebanon		1,48	1,43	1,58	1,72	1,68	1,81
Israel			1,51	1,70	1,61	1,76	1,69
Syria				1,49	1,59	1,65	1,62
Egypt					1,77	1,55	1,74
Tunisia						1,85	0,97
Algeria							1,88

b) 2001 dissimilarity index among countries

	Lebanon	Israel	Syria	Egypt	Tunisia	Algeria	Morocco
Turkey	1,63	1,65	1,13	1,01	1,17	1,86	1,22
Lebanon		1,52	1,70	1,45	1,80	1,78	1,79
Israel			1,71	1,63	1,75	1,83	1,71
Syria				1,11	1,34	1,86	1,28
Egypt					1,32	1,63	1,27
Tunisia						1,91	0,65
Algeria							1,89

c) 2001-1985 difference (sign) in the dissimilarity among countries

	Lebanon	Israel	Syria	Egypt	Tunisia	Algeria	Morocco
Turkey	-	+	-	-	-	+	-
Lebanon		+	+	-	+	+	-
Israel			+	-	+	+	+
Syria				-	-	+	-
Egypt					-	+	-
Tunisia						+	-
Algeria							+

As a term of comparison, consider that *diss* is around 0.8 between Italy and France, around 0.5 between France and Germany, and similar values are typical among European countries (and among them and USA).

Instead, MEDs have really different structures (except the case of Morocco and Tunisia). These differences do not seem generally decreasing, even if the average is slightly lower in 2001 (1.52, against 1.59).

Taking into account the high level of *OS* of MEDs, and also in the light of the following analysis (low level and quality of technology, low level of industrialization), I interpret this high level of dissimilarity as if MEDs were still linked to their handicraft sectors, with some difficulties in evolving toward a more modern structure.

7 - THE ORIGIN OF COMPARATIVE ADVANTAGES IN MEDITERRANEAN COUNTRIES

7.1 A structural view

At this stage of the analysis I would try to understand the origin of the diffuse comparative disadvantages of the MEDs.

A detailed analysis on this point can be proposed along the lines of the TDR 2003 (UNCTAD, 2003).

The general picture that comes out from the report, in the sections of interest for the present work, is based on an analysis of a significant group of LDC, in particular with reference to the degree of industrialization and the manufacturing structure.

The report stresses the theoretical necessity and the empirical evidence of a strict link between the industrialization process and the first phases of development; this link remains valid also in the modern economy, even if should be recognized that late starter countries act in a very different context, compared to the first starters at their beginning, as a consequence of the catching-up processes[9].

Taking into consideration the followers that are effectively catching-up, chiefly Asian, a strong circular nexus among the level of accumulation, growth of manufactures, and expansion on international markets seems to exist. This process is sustained by the growth of productivity (due to physical and human capital accumulation) and by low labor costs.

Generally speaking, countries with the best performance show productivity improvements, both absolute and relative, diffused in almost all sectors. Productivity growth, associated to low labor costs, is an important component of "success" in international markets, realized through growing "international competitiveness" of many LDC, whose export structure is becoming more similar to that of high income countries.

To see the position of MEDs in this picture, I have updated the TDR tables, also adding data for the lacking MEDs, using the same datasets: see tables A1, A2 and A3 in the appendix.

In the TDR tables both aggregate indexes and sectoral data are showed. These latter are limited to a selection of sectors, three "traditional" (food, clothing and textiles) and two "modern (electrical machinery and transport equipment). These five sectors are between 40% and 50% of manufacturing value added in most of the analyzed countries.

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[9] Productive processes, also in similar sectors, are much more capital intensive today, as a consequence of the modified technological context. This has the effect to reduce the effects on employment in the industrial sectors of the process of development. Moreover, the process of tertiarization also changes the general context. International integration may counter-balance these effects.

7.2 - Unit labor costs

I do think that the most striking and remarkable characteristic of MEDs is represented by the level of unit labor costs showed in table A1 (ideally wage rate divided by labor productivity, at sectoral level, USA=100; in practice wages divided by value added).

On this point very negative insights are evidenced. The only sectors in which MEDs show a positive performance is limited to the traditional sectors, and not in all cases (at this disaggregation level). The only country with a good position is Turkey.

Take into account that this parameter depends on the wage level (numerator) and on labor productivity (denominator); as a consequence, since all this countries obviously have wages much lower than USA, the only plausible interpretation of the finding of a high relative unit cost has to do with low levels of productivity. This should depend on a low quantity, quality and spread of the reproducible factors of productions (on this point see Makdisi et al., 2003; Artadi et al., 2003), in particular those attaining to technology and human capital.

A clear picture emerge when MEDs are compared to the other countries; the negative impression is in fact clearly confirmed, especially when this comparison is made with the Asian area: in this last case, in fact, unit labor costs appear to be very low in almost all countries and sectors.

7.3 - Levels of industrialization

A second relevant differences is showed in table A2: MEDs have very low levels of industrialization (manufacturing value added on GDP), around 15%-20%, not differently from other African countries (even if some of them have very lower levels); this degree of industrialization is generally stable and not decreasing, as happening in other African areas, increasing only in the Tunisian and Turkish cases.

It is still very significant the comparison to the Asian countries, with values up to 30%, a measure comparable to the past experience of many industrialized countries, while the industrialization process appears much weaker in other areas, with an anticipated de-industrialization in the Latin American area.

The whole MENA area (as defined in WDI 2004) has a level of 13.9 in 2001, while the world average is 18.8, the group of Low and Middle Income group has 19.8, and East Asia & Pacific 31.7 (all data from WB-WDI 2004)

As a confirmation, the share of manufactures in trade is generally very low (with a few exceptions, notably the case of Israel); still compare Meds data with the Asian area.

7.4 Labor productivity dynamics

Finally, in the case of the evolution of average labor productivity (table A3), data are lacking and a general judgment is more difficult. It seems that MEDS had sensible increases in the considered period, positively differentiating from other African countries. These increases are generalized to most of sectors in some cases (Turkey), more limited in other cases. Comparing the performance of MEDs to the Latin America area confirms the positive judgement. Nevertheless, this productivity improvement are not comparable to the Asian experience, which is much more intense and diffuse to all sectors and countries.

If compared with the data on the USA (last row), the above gains are especially limited, in relative sense, to the traditional sectors, even if not exclusively (indicating no convergence at the sectoral level).

7.5 - Openess

This general situation suggests the presence of problems for the international competitiveness of the sectors of the MEDs, even if improvements are not absent.

In the following table 5, it is possible to appreciate that the average level of openness of this area during the analyzed period is relatively weak. This general conclusion does not consider specific positions: for example Morocco and Tunisia seems in a better position than the remaining countries. Nevertheless, especially when the comparison is made with East Asian countries (here considered in the whole), it is possible to conclude in the proposed sense.

Table 5 - Indexes of Openess

AVERAGE OPENESS 1985-2001*

	FDI	TRADE
Algeria	0.4	62
Morocco	1.7	92
Tunisia	1.9	158
Turkey	0.5	62
Israel	1.3	-
Egypt, Arab Rep.	1.8	65
Syrian Arab Republic	0.8	86
Low & middle incombe	1.7	84
East Asia & Pacific	2.7	82
World	1.5	90

*WB-WDI 2004: FDI as %of GDP; Trade: goods export plus import as % of goods GDP

If this comparison was made with the single Asian countries reported in the previous discussed tables, the strong difference between the two areas would be appreciated even more, especially if not too big economies (as China) are considered[10].

The whole picture that emerges from this section says us that the position of MEDs appears weak enough, with only few positive aspects: generally they are countries with relatively high unit labor costs (obviously due to inefficient production techniques more than high wages), with a low and not-increasing industrialization (with partial exceptions), with a limited capacity in catching up also at a sectoral level and, finally, they are less internationally open.

These findings have a confirmation, in the sense of similar or complementary indications, in several recent papers (Abed, Davoodi, 2003; Artadi, Sala-I-Martin, 2003; Makdisi, Fattah, Limam, 2003).

8 - CONCLUSIONS

At this point we have some clear points, but we have not a framework providing a linkage between them, and I try to give some intuitions in this direction.

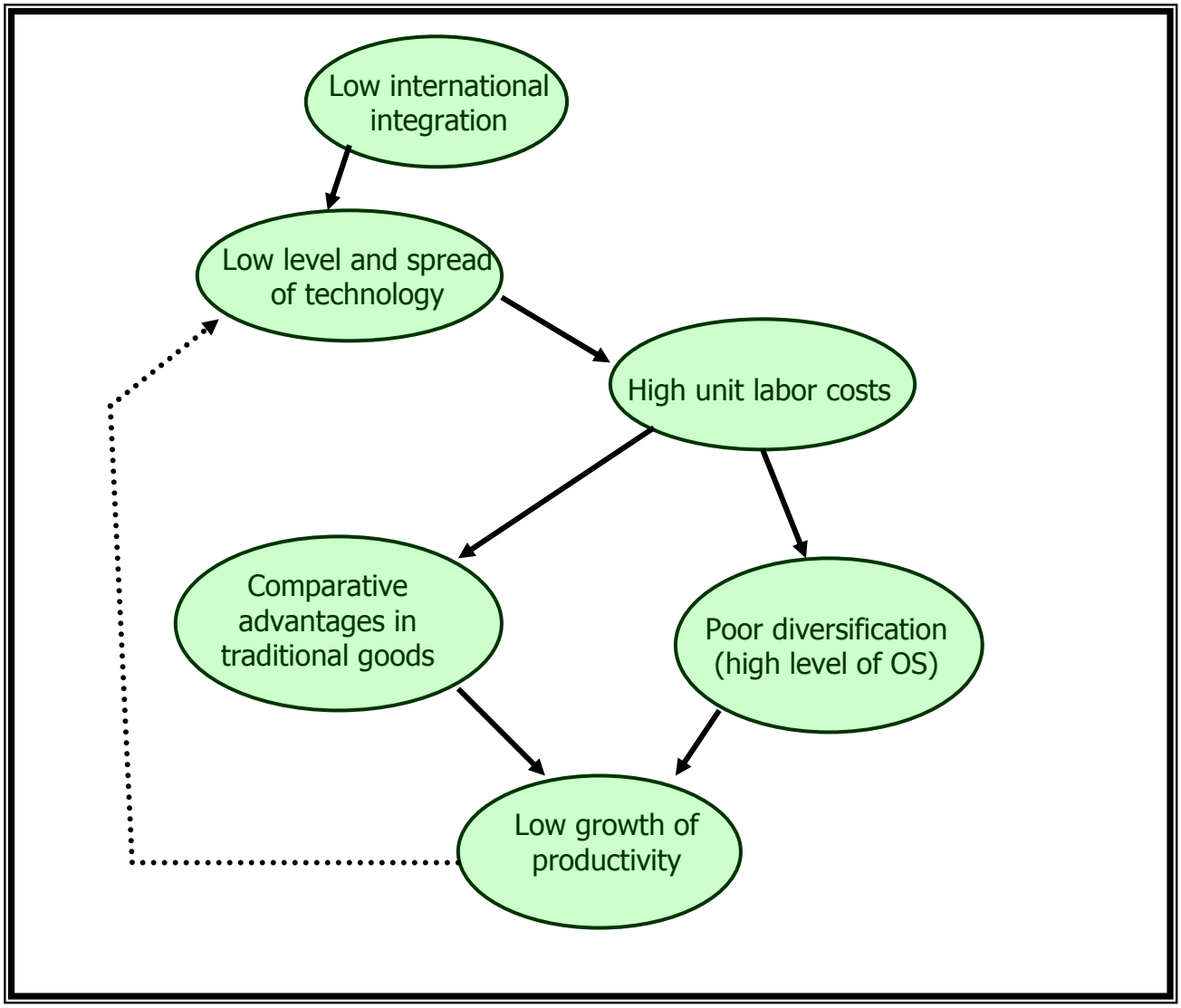
I would like to remark that the interpretation I am going to propose is not the only possible, and, moreover, it is not self-containing, in the sense that other variables, non considered in the previous analysis, could be at work in some point of the chain of causal relationships.

Nevertheless, it seems to me that a clear picture can emerge from the puzzle of facts, that can be summarized as follow: low level of openness, high unit labor costs, low level of industrialization and high concentration in traditional products.

The succession of these findings can be also graphically represented:

[10] It is obvious that the openess indexes used in the analysis can be biased by different size of the economies considered.

Fig. 6 – From openness to specialisation and growth



The outlined explanation draws the picture of a vicious circle, of the kind already recalled in the first pages of this paper: starting from a low level of openness, the area is bounded to a "low growth trap", in the sense that its comparative advantages (and disadvantages) determine a specialization in goods with low growth of productivity (possibly due to low dynamic scale economies), so that a positive feedback reinforce the slow diffusion of factors, like technology and human capital, that could be able, in principle, to drive the economy into a high growth path.

Even if the proposed framework was, at least in part, correct, nevertheless we could ask if other variables are at work, inside or outside it.

In particular I consider that institutional variables and the geo-political situation of the whole area may have a relevant role in many of the linkages among the analyzed variables.

As a first point, they could be a cause of the low level of openness, so constituting the initial point of the tree of linkages depicted in fig 6. But it is also possible that institutional variables are directly responsible for the low growth of productivity, independently from openness.

In short, the economic situation of this area, analyzed through the lens of international integration and competitiveness, appears a critical one. These countries have some positive signs: they are among the most developed of the wider area (Africa and Middle-East), they are in the position to profit of the so called “demographic window” (due to a favourable age composition of the population), they are geographically near the more developed area of E.U.
Nevertheless, there are some negative aspects, discussed in this work, that could prevent them to fully profit of the occasion they are facing. A serious political effort would be necessary to overcome those limits, but I cannot say how high are the possibilities that this can be realized.

APPENDIX

Table A1
UNIT LABOUR COSTS IN 26 DEVELOPING ECONOMIES
SELECTED SECTORS, 1980 AND 2000
(Ratios to the United States level)

	Food products		Textiles		Clothing		Electrical mach.		Transport equipm.	
Economy	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**
Algeria	**1,43 d**	**2,16 d**	**1,03**	**3,87 d**	**1,71**	**..**	**1,25**	**..**	**1,17**	**..**
Egypt	**1,45**	**1,45 f**	**1,27**	**1,21 f**	**0,99**	**0,38 g**	**1,00**	**1,10 g**	**1,51**	**0,71 g**
Israel	**1,47 f**	**2,95 f**	**1,02**	**1,51 f**	**0,96**	**1,94 f**	**1,40**	**1,84 f**	**1,50**	**2,54 f**
Morocco	**2,08**	**1,61 e**	**1,19**	**1,38 e**	**1,25**	**1,05 e**	**1,42**	**1,49 e**	**1,34**	**0,92 e**
Syria	**1,03 d**	**1,41 d**	**0,69**	**0,34 l**	**..**	**..**	**0,76 i**	**..**	**1,16 i**	**..**
Tunisia	**1,41 l**	**1,62**	**1,36**	**0,95**	**1,23**	**1,42**	**1,00**	**1,27**	**0,95**	**1,34**
Turkey	**1,12**	**1,09**	**0,70**	**0,69**	**0,62**	**0,43**	**0,72**	**0,97**	**0,98**	**0,65**
Côte d'Ivoire	0,92	1,50 d	0,85	1,06 d	0,73	1,02 d	0,78	1,34 d	0,36	1,69 d
Ghana	1,00	0,82 b	0,80	0,96 b	0,45	0,60 b	1,08	0,39 b	0,84	1,63 b
Kenya	1,16	1,31 e	1,00	2,20 e	0,94	0,96 e	1,47	0,74 e	1,10	3,34 e
Nigeria	0,99	0,29 b	0,85	0,80 b	0,52	0,11 b	0,56	0,56 b	0,09	0,04 b
Argentina	0,87 a	1,95 b	0,48 a	1,28 b	0,48 a	0,64 b	0,70 a	2,11 b	0,79 a	1,78 b
Bolivia	0,86	0,61	0,93	0,76	0,82	0,65	0,51	1,00	0,47	1,34
Brazil	0,53 c	0,74 b	0,42 c	0,65 b	0,39 c	0,47 b	0,52 c	0,81 b	0,60 c	0,53 b
Chile	0,63	0,80	0,65	0,89	0,55	0,51	0,88	0,90	0,46	0,74
Colombia	0,60	0,62	0,47	0,66	0,58	0,47	0,48	1,01	0,53	0,97
Ecuador	1,36	0,88 e	0,91	0,30 e	0,82	0,34 e	0,96	1,20 e	0,86	0,55 e
Mexico	1,00	0,90	0,85	0,88	0,69 h	0,64	0,73	1,06	0,49	0,43
Peru	0,43	1,02 b	0,43	0,62 b	0,66	0,46 b	0,37	0,95 b	0,25	0,50 b
Uruguay	1,65	1,64 e	0,84	0,74 e	0,76	0,69 e	1,03	1,52 e	0,72	1,22 e
Venezuela	1,34	0,93 d	1,14	0,72 d	1,03	0,49 d	0,98	0,68 d	0,86	0,17 d
China	0,68	..	0,26	..	0,08	..	0,59	..	0,42	..
India	1,74	1,29	1,25	1,57	0,96	0,47	1,01	0,98	1,24	1,43
Indonesia	0,97	0,71	0,61	0,42	0,95	0,45	0,49	0,62	0,40	0,26
Korea	0,81	0,73	0,74	0,63	0,71	0,62	0,82	0,56	0,78	0,71
Malaysia	0,60	1,08	0,75	0,59	0,82	0,84	0,71	1,01	0,67	0,69
Pakistan	..	..	..	..	..	..	..	..	..	..
Philippines	0,63	0,65 d	0,60	0,67 d	0,80	0,59 d	0,60	0,80 d	0,47	0,40 d
Taiwan	0,94	1,93 b	1,09	1,45 b	0,44	0,80 b	0,97	1,81 b	0,78	1,17 b
Thailand	0,46 i	0,92 j	0,46 i	0,87 j	0,67 i	1,07 j	0,35 k	0,65 j	0,48 k	0,41 j

Sources: UNCTAD TDR 2003; UNIDO, Industrial Statistics Database 2003
Note: Unit labour costs calculated as wages (in current dollars) divided by value added (in current dollars)
a 1984; e 1999; i 1979
For Syrian Arab Republic:
Food products is a combination of food products, beverages and tobacco (isic 311 313 314)
Textiles is a combination of textiles, clothing, leather products and footwear, except rubber or plastic (isic 321 322 323 324)
For Algeria:
year 1997 textiles sector: textiles is a combination of textiles and clothing (isi 321 322)

Table A2

SELECTED TRADE AND PRODUCTION INDICATORS FOR 26 DEVELOPING ECONOMIES, 1960–2000

	Manufacturing as a share of GDP value added				Exports of manufactures as a share of exports of goods and services	
Economy	**1970–1979**	**1980–1989**	**1990–2000**		**1980–1989**	**1990–2000**
Algeria	**13,0**	**12,9**	**10,8**		**1,4**	**2,8**
Egypt	**15,7**	**14,6**	**17,8**		**7,8**	**10,0**
Israel	**..**	**..**	**..**		**49,2**	**63,0**
Morocco	**16,7**	**18,0**	**17,6**		**26,4**	**33,7**
Syria	**..**	**..**	**19,7**		**18,2a**	**14,5b**
Tunisia	**9,9**	**14,4**	**17,8**		**31,6**	**51,0**
Turkey	**13,4**	**18,7**	**18,3**		**45,2**	**44,9**
Côte d'Ivoire	9,4	16,0	18,8		8,3	11,9
Ghana	11,1	8,0	9,2		..	7,0
Kenya	12,0	11,8	11,2		7,1	15,8
Nigeria	4,8	8,2	4,9		..	1,1
Argentina	35,3	29,3	20,3		25,9	26,4
Bolivia	..	..	15,8		2,8	15,3
Brazil	30,0	32,6	23,7		44,2	46,8
Chile	24,2	19,7	18,0		6,6	10,6
Colombia	23,0	22,0	17,0		15,4	23,9
Ecuador	17,8	19,4	20,9		1,6	5,4
Mexico	22,7	23,2	20,6		29,3	62,3
Peru	21,4	26,8	15,3		11,9	13,2
Uruguay	23,8	26,5	21,0		32,7	28,9
Venezuela	16,1	19,5	17,4		5,4	11,0
China	37,3	35,8	34,0		67,5	78,0
India	15,3	16,4	16,4		16,2	55,4
Indonesia	10,4	15,1	22,8		29,6	45,1
Malaysia	16,8	20,3	27,3		27,7	63,0
Pakistan	15,9	16,0	16,6		55,3	73,4
Philippines	25,7	25,0	23,2		18,1	47,7
Republic of Korea	25,0	29,8	29,5		81,6	77,5
Taiwan	28,4	34,4	28,9		81,8	81,9
Thailand	19,0	23,5	28,8		30,6	56,7

Sources: UNCTAD TDR 2003; World Bank; World Development Indicators, 2002.
Notes: **a**: lacking data relative to 1988 **b**: lacking data relative to 1991 1993 1994

Table A3

LABOUR PRODUCTIVITY IN 26 DEVELOPING ECONOMIES AND SELECTED INDUSTRIAL SECTORS

1980-2000

(Index numbers, 1990 = 100)

	Total manufacturing ISIC 300		Food products ISIC 311		Textiles ISIC 321		Clothing ISIC 322		Electrical mach. ISIC 383		Transport equip. ISIC 384	
Economy	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**	**1980**	**2000**
Algeria	**101,96**	**84,88 a**	**216,69**	**194,03 b**	**78,25**	**26,50 b**	**..**	**..**	**..**	**..**	**..**	**..**
Egypt	**55,6**	**90,7 b**	**73,5**	**81,6 e**	**80,1**	**86,4 e**	**93,1**	**181,3 e**	**90,9**	**162,3 e**	**76**	**262,8 e**
Israel	**121,32**	**91,36 a**	**116,96**	**83,83 a**	**118,89**	**87,76 a**	**158,72**	**96,99 a**	**95,53**	**96,15 a**	**120,67**	**87,47 a**
Morocco	**85,8**	**117,0 d**	**110,8**	**131,5 d**	**79**	**99,2 d**	**57,6**	**116,4 d**	**70,3**	**85,9 d**	**57,8**	**85,3 d**
Syria	**28,13**	**213,40 e**	**51,27**	**244,39e**	**64,14**	**235,84 e**	**..**	**..**	**..**	**..**	**..**	**..**
Tunisia	**53,72**	**98,8**	**79,73**	**187,6**	**41,55**	**176,9**	**63,63**	**118,4**	**42,88**	**82,9**	**68,22**	**102**
Turkey	**61,3**	**121,3**	**65,4**	**134,4**	**75,3**	**114,2**	**59,5**	**148,5**	**62,8**	**135,6**	**54,5**	**135,4**
Côte d'Ivoire	..	..	..	..	..	..	..	..	..	..	..	..
Ecuador	79,8	117,3 d	86,5	97,8 d	99,4	101,3 d	157,2	93,1 d	119,9	61,5 d	69,1	109,8 d
Ghana	..	..	..	..	..	..	..	..	..	..	..	..
Kenya	83,7	89,4 e	94	98,8 e	104,2	74,0 e	111, 7	105,8 e	25,1	90,9 e	105,6	69,8 e
Nigeria	..	..	..	..	..	..	..	..	..	..	..	..
Argentina	..	85,1 a	..	88,1 a	..	55,7 a	..	94,8 a	..	64,2 a	..	103,9 a
Bolivia	77	90,8 b	85,8	122,8	115,5	98	149,3	109,7	150,6	81	192	84,6
Brazil	..	114,0 c	..	108,9 c	..	76,9 c	..	78,3 c	..	102,0 c	..	180,6 c
Chile	80,2	144,6	97,7	149,6	79,8	121,7	98,8	184,8	49,5	104,4	98,3	174,6
China	..	242,1 d	..	311, 5 d	..	181,7 d	..	224,4 d	..	285,1 d	..	.. d
Colombia	75,2	101,3	67,8	105,5	63	51,3	91,8	105,6	74,9	78,4	52,9	62,2
Mexico	..	108	67,8	101,3	111, 7	82,3	..	85,2	113,6	107,4	111, 6	158,1
Peru	107,3	82,0 a	117,5	57,5 a	120,9	76,1 a	119,6	124,5 a	101,3	66,2	173	68,1
Uruguay	88	127,5 d	70,6	111, 7 d	76,3	115,3 d	98,2	66,6 d	69,6	81,1 d	66,3	48,2 d
Venezuela	83,6	114,1 e	92,7	183,0 e	99	45,9 e	142,1	90,3 b	105,9	98,2 b	137,3	260,8 b
India	55,2	152,4	34,6	174	69,9	107,4	43,3	107,5	64,2	173,1	60,8	123,2
Indonesia	54	124,2 d	39,9	113,2	45,8	158,1	39	147,6	56,3	155,7	47,8	187,2
Malaysia	67,1	171,1	90,6	162,7	60,2	208,6	62,8	151,2	66,6	219,3	40,9	116,8
Pakistan	63,4	120,8 a	89,5	118,8 a	41,2	106,1 a	61	133,8 a	49,7	218,9	64	200,2
Philippines	74,1	150,0 b	75	149,5	88,7	140,2 b	77,1	145,3 b	59,9	96,4 b	63,5	152,5 b
Korea	50,7	231,8	57,2	205,8	61	233,1	58,6	196,5	38,7	330	41,8	187,6
Taiwan	61,9	127,1 a	57,3	110,6 a	51,3	127,4 a	70,1	92,2 a	56,4	148,6 a	54,1	118,0 a
Thailand	..	..	..	..	..	..	..	..	..	..	..	..
Memo item:												
United States	80,6	114,7 c	79,5	113,2	84,1	118	82,7	144,1	78,5	220,4	80,3	149,9

Sources: UNCTAD TDR 2003; UNIDO, Industrial Statistics Database 2003; World Bank; World Development Indicators, 2003.

Notes: Labor productivity: value added (in local currency) divided employment. Nominal value added deflated with GDP deflator.

a: 1996 **b**: 1997 **c**: 1995 **d**: 1999 **e**: 1998

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