

Economic Growth and Stability in the Euro-Med Region: Concentration or Diversification?

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Abstract

With the growth of competition due to globalization and continued process of EU enlargement, economic diversification is a topic of increasing interest in the Euro-Med region for promoting economic growth and stability. There are two competing hypotheses. One hypothesis argues that in a diversified economy risk is spread more evenly across a number of industries, and makes it more resilient to external events and developments, reducing instability. Another hypothesis argues that specialization is key to growth and production and export diversification.

The objective of this paper is to investigate the differences in export diversification patterns between European and Mediterranean sides, using panel data for 1995-2004 periods. The estimation results obtained indicated that export diversification in the Euro-Med region as a whole has had favorable impact upon their economic growth rates and has reduced the instability in their economic performance.

Key Words: Economic Diversification, Export Diversification, Economic Growth, Stability, Euro-Med Region

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1-Introduction

The last multilateral trade negotiations at WTO aimed at substantial improvements in market access, reductions of all forms of export subsidies and substantial reductions in trade-distorting domestic support. Assuming success for those negotiations, they will bring production of many goods of both developed and developing countries in a new paradigm of diversification for international competitiveness.

With increased competition due to the process of globalization, economic diversification continues to become a topic of increasing interest for promoting economic growth and maintaining stability. The interest in diversification becomes particularly intense for the Mediterranean region whereas EU frontiers are continually expanding and more worldwide regional integration is shaping, imposing competitive pressure on the Mediterranean economies.

A study has shown how the implementation of the Euro has affected the extensive margin of trade (the number of varieties traded) in European countries (Baldwin et. al., 2006). Another recent paper, focusing on the Euro-Med FTA, has investigated how preferential trade agreements affect the number of varieties traded among its members (Amurgo-Pacheco (2006).

The EU Member States in the Mediterranean region have substantial agricultural GDP shares and often depend on a few commodities for their export earnings from agriculture. As some southern European regions also have a relatively low export potential outside agriculture. The secular concentration of Mediterranean exports in primary products has been highlighted as a major drawback for the development prospects of this region. The somehow adverse and volatile terms of trade, slow productivity growth, and relatively low value added, compared to those of EU, is one of the issues that have been raised against this primary product dependence. In addition to reducing the dependence on fluctuating commodity prices, diversification into other sectors, especially those more intensive in technology, is prone to trigger knowledge spillovers from the exposure to expanding EU and other international markets, management and marketing practices, and production processes.

Against this backdrop and due to the lack of any relevant study for the Euro-Med region, this paper looks at product diversification and its impact on economic performance in that region. Particularly, it analyzes the

relationship between export diversification and economic growth and stability in the Euro-Med region. For that, this research examines the degree of export diversification and develops some measures of diversity for further analysis.

The remainder of the paper is organized as follows: Section two provides an overview of the ongoing debate on the effect of product and export diversification on economic growth and stability. Section 3 estimates a time series of one of the alternative measures of economic diversification and stability for the countries in the Euro-Med partnership. Section 4 outlines the method and the results of the analysis. Section 5 contains a summary of the results and some of the implications of the research undertaken.

2- Diversity, Stability and Economic Growth

2-1- Diversity and Diversification

It has been alleged that the key problem associated with examining and testing the link between diversity, growth and stability, has been in regard to definition of diversity in contrast to diversification (Wagner, 2000). The difference between diversity and diversification is said to be a static versus a dynamic concept (Siegel *et. al.*, 1993a, 1993b 1995b; Malizia *et. al.*, 1993; Wagner *et. al.*, 1998). Whereas diversity is static in nature and is measured at a specific point in time, diversification is a process that increases the state of diversity over time. However, diversity is defined in various ways:

- The variety of economic activity which reflects differences in economic structure (Malizia *et. al.*, 1993).
- The presence in an area of a great number of different types of industries (Attaran, 1987).
- The extent to which the economic activity of a region is distributed among a number of categories (Parr, 1965).
- Balanced employment across industry classes (Attaran, 1987).

Moreover, it has been argued that diversity is not meant to be the absence of specialization, but reflects the presence of multiple specializations and “industrial complexes with strong inter-industry linkages (Malizia *et.al.*, 1993).

Diversification, on the other hand, means:

- Establishing the flexibility and capacity to continually adapt products and processes of production to continuously evolving circumstances (Barghouti, 2004).
- A flexible form of development which plays a role in inducing sustainable growth by encouraging sustainable production systems in line with the available resources, technology and entrepreneurship (Barghouti, 2004).
- A change in business activities based on the flexible and differentiated response to changing opportunities created by new production technology or markets signals.
- Change in product (or enterprise) choice and input use decisions based on market forces and the principles of profit maximization (Pingali *et. al.*, 1995).

The nature of the dynamic and evolving global environment presents new challenges and opportunities to the developing countries. In this respect, diversification inevitably remains an integral part of the inescapable process of structural change in the global production network and a serious challenge to the developing world.

2-1-1- Export Diversification

In recent years Significant attention has been devoted to export diversification as a key ingredient of strategies aimed to improve growth performances. Export diversification has often been proposed in the literature and in the policy debate as a key development strategy for many to be economically integrated regions in the world (Piazza, 2004).

Export diversification, by definition, involves changing the composition of a country's export mix. It takes different forms, has different dimensions, and can be analyzed at different levels. Export diversification can be achieved either by adjusting shares of commodities in the existing export mix, or by adding new commodities to the export mix. There are both horizontal and vertical dimensions to export diversification. Horizontal diversification involves adjustments in the export mix in order to counter international price (or export quantity) instability or decline. Vertical diversification involves creating additional uses for existing and new commodities through value-added activities such as processing and marketing. Vertical diversification can expand market opportunities for raw

materials which enhance growth and lead to more stability since processed goods tend to have more stable prices than raw commodities (although a higher multiplier could lead to greater instability). These different dimensions of diversification are related to the market orientation.

2-2- Theoretical Argument

Economic diversification has been proposed to be an instrument through which two polar goals of stability and growth can be achieved simultaneously (Kort 1979 & 1991 and Siegel et al. 1993a, 1994, and 1995a). Recently, this proposition has been challenged both on the theoretical and empirical fronts (Akpadock, 1996).

On the theoretical front, there are two competing hypothesis. On one hand, the process of export diversification may seem at first, to contradict the concept of comparative advantage. Trade theory suggests that growth should be derived from economic specialization (non-diversification) of activities based on competitive advantage which in turn is based on relative factor endowments natural resource base). Specialization in activities in which a country has comparative advantage can lead to greater allocative efficiency. At the same time, specialization in a narrow group of exports can conceivably lead to deterioration in terms of trade and increased instability in export earnings, problems that has been labeled ‘natural resource curse’ (Sachs *et. al.*, 2001). Even when criticizing the results of the resource curse literature, some researchers still found that a high concentration of exports affects negatively the rate of growth (Lederman *et. al.*, 2002). The production and trade of a variety of commodities (a diverse export mix) can potentially stabilize a country's economic performance. Diversification toward manufacturing has also been a component of the success story of developing economies in other regions, notably South-East Asia.

On the other hand, economic development theory also suggests that stability is achieved through diversity. If communities diversify their economic base, they could survive any future structural changes in their national economies (Killian, *et. al.*, 1988). Nonetheless, there are scholars who have rejected this challenge and argued that the simultaneous pursuit of growth and stability is not contradictory when viewed in terms of the short- and the long-run (Wagner *et. al.*, 1998). In their view, short-run policies can

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be viewed as more growth oriented where policy makers' develop strategies that target growth industries. These strategies capitalize on nations' comparative advantage by specializing in a few select industries.

However, relying only on short-run plans is not the key to the long-run development of a dynamic economy. As those industries mature, a dampening pressure on growth levels may develop and if they are ill-performed, the economy may be worse off than before the policies are implemented. Diversification policies can be viewed as the long-run envelope of a country's short-run efforts in promoting growth. Therefore, within this framework, it is vitally important to remember that short-run policies are aimed at promoting growth and long-run policies are aimed at promoting stability with growth. As diversity and hence stability increases, so should the potential for growth. Thus, the apparent contradictory goals and policies can be pursued simultaneously and consistently.

2-2-1- Diversification and Growth

Based on the economic literature on diversity and diversification, the contribution of diversity in economic activity to economic growth and performance is multidimensional. The main contributions can be arranged and briefly presented in the following four main subheadings:

1) Income Effect

Diversification increases flexibility of the macroeconomic system. It generates flexible abilities among producers to quickly adjust to the opportunities created by the market and rational policies. Diversification together with multi-specialization can enhance greatly the export income flows, contributing to the rate of growth of national income.

2) Productivity Effect

Diversification can also invigorate sustainable growth independent of development parameters. Learning to adjust to emerging opportunities has significant spillover in terms of technological and managerial skill. In addition, diversified production promotes consumption diversity. All these attributes of diversification induce sustainable productivity growth.

3) Multiplier Effect

As a result of growing diversity in consumer demand, product diversification typically involves the movement away from traditional commodities (requiring minimal secondary processing) toward higher value commodities (requiring significant processing and handling). Additionally, the new production systems are often more intensive and generate demand for a greater quantity and variety of factor inputs. Because high-value products, compared to lower valued, standard products, are more strongly interlinked with other sectors of the economy in terms of providing their outputs and receiving inputs from these sectors, there is a stronger multiplier effect on the national income.

4) Knowhow Spillover Effect

There are considerable potential gains from diversification in terms of knowledge and technology spillovers. These spillovers promote both industry growth for national prosperity and the skills required for flexible adaptation to future product changes. It will also lead to improved terms of trade from increased competitiveness of the exported products (Ali *et. al.*, 2002).

2-2-2- Diversification and Stability

If the effect of diversification on economic growth has been challenged on both theoretical and empirical grounds, its impact on stability has been clearly specified at least theoretically. Economic stability is important to policy makers of both national economies and economies of more or less integrated regions of the world, because it promotes potential economic growth, stable incomes, and low unemployment levels (Akpaddock 1996; Malizia *et. al.*, 1993; Conroy 1974).

According to the existing theoretical literature, the impact of diversification on stability can be briefly highlighted as follows:

1) Shock Absorbing Effect

A diversified economy is less sensitive to the internal shocks which are ups and downs associated with any particular industry or sector because risk is spread more evenly across a number of industries. Moreover, as an

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economy becomes more diversified, it becomes less sensitive to fluctuations caused by outside factors (Nourse 1968; Richardson 1969).

2) Employment Generating Effect

Aside from income generation, diversification will, in most instances, increase general level of employment. This is because the presence of many industries would be expected to offer opportunities for employment in growing sectors to compensate for employment losses in other declining sectors. It is expected that the benefits of increased employment opportunities are not only substantial but are distributed across a broad spectrum of the economy. For example, as a result of diversification to export vegetable production in Guatemala, employment increased by 45 percent on participants' farms (von Braun, 1995).

3) Offsetting Adverse Effect

With diversification, even if some industries are suffering, other stronger industries will help the economy maintain healthy growth.

4) Risk Mitigating Effect

Diversification will often result in a more varied mix of activities, reducing economic dependency on a narrow range of outputs and thus mitigating risk of vulnerability to shocks from volatility and variability of commodity demands. Diversification is the most common rationale to reduce economic risk associated with uncertainty and variations of aggregate income.

In a case study, including five European countries, an index of regional vulnerability was calculated for the fruit and vegetable sectors. It was shown that a strong vulnerability combined with strong specialization makes fruit and vegetable producing regions fragile, while a weak vulnerability and diversification of production allow regional stability. Many of the regions studied were in fact shown to be protected by their diversified production (European Commission, 2006).

2-2-3- Export Diversification

Theoretically, there are a number of channels through which export diversification might positively affect output growth. It has been argued that

a diversified national trade portfolio can help achieve stability-oriented and growth-oriented policy goals. In fact, the early contributions to development literature (Prebisch, 1950; Singer, 1950) argued that putting too much reliance on specialization and primary commodity exports (non-diversification), based on free trade theory, results in deterioration in long run terms of trade and short-run export revenue volatility, with detrimental effects on planning public and private investments, import capacity, foreign exchange cash flow, inflation, and growth (Dawe 1996). These traditional inward-looking development policies emphasized import protection and industrial policy to induce diversification into non-traditional goods.

a) Horizontal Export Diversification

Horizontal export diversification into completely new sectors can have positive results for output growth which are stated as follows:

- By increasing the number of export sectors, it can reduce the dependence on a limited no of commodities that are subject to major price and volume fluctuations. Such swings in foreign exchange revenues may hamper economic plans, reduce import capacity and contribute to an undersupply of investment funds by risk-averse producers (Dawe, 1996, Bleaney *et. Al.*, 2001).
- It generates positive externalities on the rest of the economy as export oriented sectors gain from dynamic learning activities due to contracts to foreign purchasers and exposure to international competition (Herzer, 2004).
- It raises growth rates because traditional exports face limited and volatile demand, leading into high income instability (Piazza, 2004).
- It has spillovers effects on the economy as a result of having a more diversified production structure (Hausmann *et. al.*, 2006).

b) Vertical Export Diversification

Vertical export diversification out of primary into manufactured exports is also associated with growth in a number of ways:

- Manufacturing export sector usually demonstrates much stronger spillovers relative to primary export sectors.

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- It can have positive effects for the terms of trade for developing countries. Based on prebisch-Singer thesis, vertical export diversification into manufacturing may be beneficial if there is a general trend toward declining terms of trade for primary products (Athukurola, 2000).

Thus it is expected that both horizontal and vertical diversification to be positively correlated with economic growth. Yet, these arguments in favor of export diversification are based on neo-classical trade theory which is not strictly relevant to long-run economic growth. However, according to endogenous growth theory which emphasizes the role of increasing returns to scale and dynamic spillover effects, diversity can also affect the long-run economic growth.

Although the relationship between diversification, stability and growth may well be founded, recently this conventional wisdom has been challenged both on the theoretical and empirical fronts. The counter argument runs that production and export diversification results in more misallocation of capital investment towards less profitable and more risky businesses with adverse effects on efficiency, growth and stability. There may exist a potential trade-off between the growth and stability of export earnings. Because of these tradeoffs, diversification cannot be considered a panacea (Ridwan *et.al.*, 1991).

There have been remarkably few empirical investigations into the link between export diversification and growth with rather inconclusive results. For example, the encouraging results have been obtained in both outside and inside the OECD. One study has pointed how Sweden and Finland reached a more diversified economic structure by adding technology into their natural resource-based production. According to another study, the Chilean experience have been a testimony to the hypothesis that export diversification is linked to economic growth through externalities of learning activities related with exporting. Also, some cross-section empirical evidence found that reduction in growth prospects has been due to concentration in export revenues. Empirical evidences were also found in support of diversification-led growth hypothesis for the Latin American countries. However, in different studies, no evidence was found in support of the above hypothesis in Columbia and Chile (Amin Gutierrez de Pineres *et al.*, 2000).

In addition, among a large number of countries that adopted a free-market adjustment policy reforms in the 1980s, these policies delivered more export and higher growth for some, but the outcome has not been much promising for others however, including Middle East and North African countries (Gouda *et. al.*, 2000). The Latin American countries are another case in point (Bebczuk, *et.al.* 2006; WB, 2002). Thus, as it seems, increasing levels of export diversification cannot guarantee by itself higher levels of growth (Akpadock 1996).

Due to this inconclusiveness, the validity of some of the empirical results on the link between diversification and growth has been questioned by pointing to their methodological shortcoming (Wagner *et. al.*, 1998; Deller, 1998; Kort 1991; Siegel *et. al.* 1993a, 1994, and 1995a). It is also been argued that the empirical literature has discounted the role of diversity incorrectly due to the confusion over short- versus long-run hypotheses. Higher levels of diversity should be related to stability and levels of growth within this broader framework (Wagner *et. al.*, 1998).

This paper attempts to examine the diversification-led growth and stability hypothesis for the Euro-Med countries by estimating two equations, one examining the effect of export diversity on growth and another testing for the effect of export diversity on economic stability. A Panel Data method is applied and a time series data covering 1995-2004 periods is used for the estimation. The country level analysis focuses on horizontal diversification among existing commodities in the export product mix. Horizontal diversification is reflected by indices of concentration, which measure the distribution of export shares.

3- Export Diversity and Economic Instability Measures

There have been numerous studies at both regional and national levels that have attempted to develop measures of economic (or export) diversity in order to test statistically the hypothesized relationships between an economy's changing industrial structure (or exports) and economic stability and performance. To test these hypotheses, researchers have constructed various scalar measures of economic diversity using different economic theories. However, export diversification can be analyzed at many different levels (region, country, World economically integrated regions, etc). Various

measures, which correspond to different definitions or concepts of export diversification, can be used to evaluate the export mix.

However, one limitation is imposed in the selection of the existing diversity measures in the literature. Diversity measures should facilitate the objective of testing hypothesis in relation to growth and stability. The equi-proportional method has been used more frequently due to data requirements as well as their convenience for testing relevant hypothesis, linking diversity with growth and stability. However, these measures should not be viewed as the only variable in creating economic growth and stability.

We draw on the recent literature, in regard to the ways in which diversification can be measured. Two direct and indirect measures, namely a count of the number of products that a country exports and entropy index of diversification are used. In practice, these approaches are not as simple as it seems, because individual “products” identified in trade data (the 6-digit HS code) are likely to understate the ‘true’ level of export diversity due to aggregation effects. However, the country level analysis in this paper focuses on horizontal diversification among existing commodities in the export product mix.

Similarly, various measures of economic performance and instability have also been constructed. Variability in unemployment or income are the most popular measures of economic stability, while the level of unemployment and real per capita income growth are commonly used to account for economic performance. Here, an index of deviation from long – run trend of real GDP as a measure of economic instability is used in our empirical work.

The Entropy Index

Based on industrial organization theory, a more diversified sector (e.g., less concentrated) is assumed to be more competitive (Scherer, 1980). An economy with a greater number of sectors and/or a more even distribution of economic activity is associated with higher diversity (Malizia *et. al.*, 1993). Based on this definition, a measure of concentration ratio, the entropy index, is used as an index of economic diversity. This index comes from the industrial organization theory and unlike some other diversification indices; no reference economy is involved in its calculation.

Following Smith and Gibson (1988), the entropy index of export diversity can be defined as follows:

$$EI = \sum_{i=1}^N S_i \ln(1/S_i) = -\sum_{i=1}^N S_i \ln S_i \quad (1)$$

Where N is the number of sectors, S_i is share of export in i^{th} industry and \ln is natural logarithm. The entropy measure compares the existing export earnings distribution among industries in an economy to an equi-proportional distribution. It has been shown that, depending on the value of N , an economic (export) structure can be defined as being either diverse or specialized, both relative to other economies and over time (Grossberg, 1982; Jackson, 1984).

Here, the entropy measure attempts to capture the distribution of exports across a given set of export commodities. The principle assumption of this category is that ideal diversity implies equi-proportional levels of export earnings across all exported goods. Consequently, the greater the concentration of exports in a few products, the less diversified, or more specialized are exports. Higher entropy index values indicate greater relative export diversification, while lower values indicate relatively more specialization. This index is the most common measure used in empirical studies due, primarily, to its computation ease and limited demands for data (Kort 1981; Attaran 1987; Smith et. al., 1987, Deller *et. al.*, 1989; Malizia *et. al.*, 1993; Akpadock 1996). However, these equi-proportional diversity measures, such as entropy index, have been questioned on four theoretical grounds:

First, these measures do not account for any form of inter-industry linkages.

Second, the number of industry sectors is usually fixed and not allowed to vary between economies studied (Wagner et. al., 1998).

third, the selection of an equal distribution of activities across sectors as the reference point for diversity is not based on any a priori rationale, and is indeed, quite arbitrary (Conroy, 1972, 1974 and 1975; Brown *et. al.*, 1985).

Fourth, as noted by Brown and Pheasant (1985), the choice of an equal distribution of activities across sectors as a reference point in calculating the entropy measure is quite arbitrary, making this index sensitive to the level of

industry aggregation. However, since sectoral aggregation in this study is highly disaggregated export data under HS codes, it is not likely to be a considerable problem in our investigation.

Further, empirical concerns have also been raised over these diversity measures. They have shown that economies defined as highly specialized by the entropy approach, were, in fact, characterized by relative economic stability. It has been demonstrated that policy results are sensitive to specific entropy measure used. However it has been argued that part of the empirical shortfall might be due to factors other than diversity that influence stability and growth which are tended to be ignored in empirical estimation.

The Instability Index

When constructing a measure of instability, based on deviations from a systematic trend, it is implicitly assumed that the trend itself is predictable and not a source of instability. Trends are calculated using an ordinary least squares (OLS) linear time trend¹. The OLS linear trend regression is estimated as:

$$X_t = \alpha + \beta t + \varepsilon \quad (2)$$

Where X_t is the observation in year t , α is the constant, β is the coefficient of the time trend ($t, t=1, \dots, T$), and ε represents the error term.

4- The Model

Many studies have used elaborate econometric methods to establish and test the functional relationships among measures of economic diversity, instability and growth, while some have used simple correlation analysis. To pursue the objectives of the paper, an attempt is made to specify two log linear equations for export diversification and instability of real GDP overtime. In order to remain close to the theoretical and empirical study-

1- Although there are other approaches for estimating the trend line other than linear method used above, like trend filter and exponential functions, but limitation of space and scope of the analysis do not allow us to use various forms of estimation methods and compare the results. However, we acknowledge that using different methods may result to different estimations and ultimately different final conclusions.

framework, total market size (proxied by population), FDI flows, gross domestic fixed capital formation and the inflation rate are included into our empirical specification of the growth equation, along with export diversity index.

Based on theoretical arguments, it is expected that market size, foreign direct investment, domestic private investment and the degree of openness of the economy to have positive effect on economic growth, while inflation to have a negative effect.

Our instability equation is based more on theoretical argument (much less empirical work is observed, however) and includes variables for total market size and domestic investment. Since larger market sizes seems to be associated with more economic diversity, one may expect, based on theoretical argument that larger market size has positive influence on stability. On the other hand, since investment is the main source of macroeconomic instability, due to its volatile nature, we can expect this variable to have a negative effect on stability. The exchange rates and price indices are included into our empirical specification of the instability equation in order to control for relative price effects. These last three variables are also known in the literature to be the main sources of macroeconomic instability.

The estimated measure of economic instability or the measure of performance (growth rates) is explained in terms of the measure of economic diversity and other explanatory variables, described above. The regression models to be estimated in logarithmic form are as follows:

$$\ln G_t = \alpha_0 + \alpha \ln XD + \beta \ln I + \mu \ln FDI + \lambda \ln INF + \lambda \text{OPEN} \quad (3)$$

$$\ln \text{INST} = \beta_0 + \eta \ln XD + \sigma \ln \text{GDP}_p + \phi \ln INF + \Phi \ln CV + \xi \ln I \quad (4)$$

Where \ln denotes variables in natural logs. G_t is the real GDP growth, XD is export diversification index computed based on equation (1), I is real gross domestic fixed capital formation in base year of 1990, FDI is foreign direct investment, INF is the inflation rate, OPEN is the degree of openness computed by $\frac{EX + IM}{GDP}$ index, INST is the index of instability, GDP_p is GDP per capita estimated according to equation (3), CV is the coefficient of

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variation of the past three years of exchange rate (a measure of ER instability).

The reason per capita GDP is linked a priori to diversification on the belief that richer economies tend to be economically and institutionally more stable and such environment mitigates the business risks perceived by domestic producers, thus making instability less imperative. Nevertheless, as these economies are characterized by higher total factor productivity and a better business climate, entrepreneurs may find it more appealing to broaden their productive mix. It is shown that a higher level of per capita income tends to be associated with a more diverse production structure (Imbs *et al.*, 2003; Funke *et al.*, 2000; Hausmann *et al.*, 2006). Also, different measures of macroeconomic volatility, explaining overall macroeconomic instability, such as the inflation rate and the coefficient of variation of the exchange rate in the three previous years are included in the second regression.

The Data

To estimate the models, annual data was collected on bilateral trade (export) flows of 27 countries in Europe and 10 countries in the Mediterranean region (see appendix), for a period of 10 years (1995-2004) and for which all required data were available from PCTAS. Furthermore, the World Bank Data Base (Global Development Finance and World Development Indicators) has been used to provide the data on GDP, GDP per-capita, real exchange rates, inflation and population.

5- The Results

In this section, we use empirically a specification of the two models denoted by Eqs (1&2) to estimate the effects of export diversification on GDP growth and economic instability. At first, since European countries are expected to be more homogenous than those in the Mediterranean partnership, any attempt to estimate these equations, by assuming intercepts (a_0 & b_0) to be homogeneous for exporting countries, may seem to yield biased results by applying Ordinary Least Squares (OLS) method. Thus for the control of heterogeneity, one solution is to use Panel Data procedure in which allows intercepts of these equations to be specific to each exporting country.

The panel data procedure consists of three estimation sets: First, Between Estimates (BE) that captures differences between individuals, but ignores any information within them. Usually it is used to estimate long-run coefficients. Second, Fixed Effects (FE) estimates in which it assumes that the slope of the equation is the same for all exporting countries, but there are specific intercepts for each of them that it would be correlated or uncorrelated with explanatory variables. The third relies on Random Effects (RE) estimates or Variance Components (VC) method in which there exist intercepts, that is uncorrelated with explanatory variables. Since individual effects are included in the regressions, a decision must be made whether they should be treated effectively as fixed or random effects. In order to distinguish between the FE and RE method, we investigate thorough Hausman Test for the null hypothesis that the explanatory variables and individual effects are uncorrelated. The fixed effects estimates are consistent with both null and alternative hypotheses, whereas the random effects estimates are only compatible with the null hypothesis. Therefore, RE method is preferred if the null hypothesis holds, otherwise FE method can be applicable.

The estimation results arising from FE (Fixed Effects) and RE (Random Effects) procedures are shown in table 1. These results are more reliable than other methods. As the values of F-test shows, the null hypothesis of the same individual effects cannot be acceptable, implying that OLS results will be biased. More specifically, there exists heterogeneity for each exporting country. It means that the problem of heterogeneity should be controlled thorough concentrating on different individuals effects.

Compared by the power of model fitting, the results clarify the reasons that FE and RE methods have been concerned with individual intercepts which enable to explain heterogeneity problem. Thus, they are powerful in goodness of fit, rather than pooling data and mean methods. In addition, the Hausman statistic approves that FE results are more reliable than those of RE counterpart. an overall reading of the evidence supports the notion that export diversity promotes economic growth and stability in the region.

Table 1: The Effect of Diversity on Economic Growth: The Euro-Med Region

Dependent Variable: LNRGDP						
Method: Panel Data						
Fixed-effects (within) regression				Number of obs= 274		
Group variable (i): id				Number of groups = 31		
lnrgdp	Coef.	Std.Err.	t	P> t	[95% Conf. Interval]	
lndiv	.1341583	.0261663	5.13	0.000	.0826055	.1857111
lninf	-.0127785	.0049831	-2.56	0.011	-.0225962	-.0029607
lninv	.3062397	.0261396	11.72	0.000	.2547395	.3577399
lnfdi	.0194607	.0045175	4.31	0.000	.0105603	.0283611
lnopen	.2087803	.0695591	3.00	0.003	.0717702	.3457904
cons	1.538847	.5904674	2.61	0.010	.3755096	2.702184
F test that all u _i =0:			F(30, 245) =		1905.60	Prob > F = 0.0000
R-sq: within = 0.8735		between = 0.8575		overall = 0.8739		
Random effects u _i ~ Gaussian				Wald chi2(5) = 909.6		
corr(u _i , X) = 0 (assumed)				Prob > chi2 = 0.0000		
Lnrgdp	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
lndiv	.1398973	.0273695	5.11	0.000	.0862541	.1935404
lninf	-.0138098	.0052325	-2.64	0.008	-.0240654	-.0035543
lninv	.2826226	.024727	11.43	0.000	.2341586	.3310865
lnfdi	.0213503	.0047448	4.50	0.000	.0120507	.0306499
lnopp	.1820183	.0701477	2.59	0.009	.0445313	.3195053
cons	2.058727	.5628901	3.66	0.000	.9554828	3.161972
chi2(5)=15.01			Prob>chi2 = 0.3825		hausman fixed	
R-sq: within = 0.6707		between = 0.3922		overall = 0.3759		

Estimated results obtained by FE (within group) indicate that the all variables carry their expected sign and are statistically significant at the 95 percent confidence level.

For Eq. 2 (instability model), the random effects estimator is preferred on consistency grounds and thus pooling method and OLS is applied. The results are shown in table 2. Interestingly, all explanatory variables, as theoretically explained, carry their expected signs. The estimated results indicate that diversification of export activities as well as market size reduces the instability problem, whereas investment, inflation and exchange rate variability has added to the economic instability in this region.

6- Concluding Remarks

To examine the effect of export diversity on economic growth and stability in the Euro-Med region, this paper empirically tested two model specifications. Because of the presence of various individual effects and heterogeneity in exporting countries, the panel data method was applied for the estimating process for the growth model.

Overall, the estimation results obtained indicated that export diversification in the Euro-Med region as a whole has had favorable impact upon their economic growth rates and reduced the instability in their economic performance. However, when the models were estimated for two individual blocs separately (not shown here), the results were almost non-meaningful altogether. By summing all the obtained results, it emphasize that the diversification-led growth policy will be effective only when all Euro-Med partners have access to an integrated large exporting market, reemphasizing the importance of this partnership for the prosperity and economic growth of their affiliated countries.

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Table 2: The Effect of Diversity on Economic Stability: The Euro Med Region

Dependent Variable: LNINST						
Method: Pooled						
Fixed-effects (within) regression				Number of obs =		95
Group variable (i): id				Number of groups =		18

lninst		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]

lnrgdp		0.089503	.043668	2.05	0.042	-3.493295 3.672301
lndiv		0.330539	.236099	-1.40	0.081	-1.968697 1.307617
lninv		1.161998	1.06605	1.09	0.202	-.6351678 2.959165
lninf		.164284	.231354	2.71	0.037	-.2968039 0.625373
lncv		.135918	.060621	1.67	0.094	-.3661163 0.393299
cons		-31.19979	16.9781	-1.84	0.070	-65.03727 2.637695
F test that all u _i =0:			F(17, 73) = 0.94		Prob > F = 0.5372	
R-sq:		within = 0.387		between = 0.283		overall = 0.164
Method: OLS			Number of obs = 95			

lninst		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]

lnrgdp		-.281980	.1416984	-1.99	0.052	-.595058 .0310972
lndiv		-.3645712	.1512743	-2.41	0.082	-.7419365 -1.471079
lninv		.1422143	.0779247	1.83	0.071	-.0125967 .2970253
lninf		.1534659	.0707216	2.18	0.045	-.1072187 .4141505
lncv		.028331	.0150598	1.88	0.063	-.0015707 .0582327
cons		-6.007153	2.227527	-2.70	0.008	-10.43252 -1.58178
F(4,90)=1.88			Prob>F=0.1203			
R-squared=0.772			Adj R-squared=0.362			

Consequently, the crucial implication of the current study is an important lesson that both European and Mediterranean nations are able to benefit from large exporting market by diversifying their economic and trade activities, even though they are heterogeneous in their economic and social structures. In principle, to tie their relations more strongly, they should reach advantages of trade and the economies of scale through diversification.

Since diversification showed to have positive impact on the growth prospects of the Euro-Med region, what seems to be the policy options available to support the process of economic integration of this partnership? Recognizing that integration of countries in the Mediterranean basin into the European common market will involve efforts by all Euro-Med members

and would require meaningful market access, support for the diversification of their production and exports base, and trade-related technical assistance.

The Euro-Med countries should commit themselves to the objective of duty-free, quota-free market access for products originating from their economies for progressive improvements in market access. This will make the pattern of Euro-Med export more diversified, helping the stability and growth of this important region in the world. A significant attention should be devoted to export diversification as a key ingredient and development strategy of this economically integrated region in the world. It is hoped that any move towards an association agreement with Europe will be an indication of the will by Mediterranean countries to continue the export growth and diversification process of their economies.

For the Euro-Med export expansion to be sustainable, export diversification, product innovation, and quality upgrade, is required to form a more income elastic basket of export products. This requires appropriate industrial and competition policies complemented with government supported R&D programs, strategic alliances, and joint ventures, to benefit the Mediterranean partners from the more accessible European markets.

It should be recalled that due to its economic significance (the whole Euro-Med area includes some 40 States and 600-800 million consumers, i.e. one of the world's most important trade entities. The EU is the main trading partner of the MED countries, absorbing around 50% of their exports) economies of scale are an important ingredient of this region's economic structure. Thus, the Euro-Med regional integration will be the key to economic growth and development. The Mediterranean region needs to catch up economically and regional integration is a tool to overcome national trade barriers and to boost competitiveness.

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Appendix

The Euro-Med union countries

old members of Euro Union	New members of Euro Union	Members of Mediterranean Region
Austria	Cyprus	morocco
Ireland	Czech Rep.	Egypt
Denmark	Estonia	Algeria
Netherlands	Hungary	Libya
Finland	Latvia	Tunisia
Portugal	Lithuania	Syria
France	Malta	Turkey
Germany	Poland	Lebanon
Greece	Slovakia	Jordan
Spain	Slovenia	Palestine
Sweden	-	-
UK	-	-
Italy	-	-
Belgium	-	-
Luxemburg	-	-