7 FISCAL SUSTAINABILITY IN THE MEDITERRANEAN REGION – A COMPARISON BETWEEN THE EU AND NON-EU MEMBER STATES

Aleksander ARISTOVNIK*

Abstract

The paper's main purpose is to assess the short-, medium- and long-term sustainability of fiscal policy in the great majority of the EU and non-EU member states in the Mediterranean Region. By using mainstream (primary fiscal gap) theory (proposed by Buiter (1983) and Blanchard (1990)), the difference between the required primary fiscal balance to GDP ratio and the actual primary fiscal balance to GDP ratio is calculated for selected Mediterranean countries. Based on simple mainstream theory measures of fiscal sustainability, the results indicate that fiscal sustainability seems to be a problem in many Mediterranean countries, particularly in Greece, Italy and France (in the EU Mediterranean region) as well as in Croatia, Egypt, Lebanon and Turkey (in the non-EU Mediterranean region). However, since the paper is dealing with an ex ante analysis on the grounds of ex post algebra of sustainability some caution should be exercised.

Keywords: the Mediterranean region, public finance, fiscal sustainability, forecasting

JEL Classification: H60, H68

1. Introduction

Fiscal sustainability has recently drawn greater attention in the enlarged EU. Indeed, the EU fiscal framework, fiscal discipline has been an important support for the implementation of the Economic and Monetary Union (EMU). In this respect, the existence of sound fiscal policies in the EU Member States in Mediterranean region is seen as a necessary objective for individual countries to pursue. It is not possible to exclude adverse responses from the financial markets when fiscal behaviour is deemed to be unsustainable. Moreover, the Treaties governing the EU also require sustainable public finances. Countries are urged to comply with the budgetary requirements of EMU, by avoiding excessive deficits, keeping debt levels below the 60 percent of GDP reference value, and respecting the requirements of the Stability and Growth Pact (SGP).

* Aleksander Aristovnik, Ph.D., is Assistant Professor of International and Public Sector Economics at the University of Ljubljana (Faculty of Administration and Faculty of Economics), e-mail: aleksander.aristovnik@fu.uni-lj.si

Additionally, stable public finance is an explicit criterion for some prospect EU Mediterranean economies' eligibility for the Economic and Monetary Union (EMU).
On the other hand, the non-EU Member States in Mediterranean region have many features in common with other emerging market economies, such as a high exposure to real economy and financial shocks and susceptibility to financing constraints, but also exhibit a number of specific fiscal issues and challenges. Although the non-EU Mediterranean economies appear largely heterogeneous, including on fiscal issues, some challenges are common to most of the countries in this region. These include relatively high public debt, dependence on some form or another of donor support or concessional financing, high defense expenditure and weak tax bases. In addition, in most countries there is room to improve public finance management in order to achieve better fiscal outcomes. Notwithstanding progress in many countries, fiscal vulnerabilities appear as key risks to maintaining macroeconomic and financial stability in the region.
In economic theory fiscal policy is a crucial factor in determining a country's overall economic performance via its effects on allocation, stabilisation and distribution, and constitutes a key component of macroeconomic policies alongside monetary and exchange rate policy. The most common way of assessing a given economy's fiscal position is to analyze its fiscal sustainability, namely a 'sustainable' level of the fiscal imbalance that is consistent with solvency, i.e. one satisfies the criterion that the total public debt to GDP ratio should not increase. While the original literature on fiscal sustainability mostly focused on industrial countries (see Blanchard, 1990) these days there area few contributions, like this one, that focus on fiscal sustainability in selected Mediterranean countries (for some early attempts, see Ballabriga and Martinez-Mongay, 2003, Aristovnik and Berčič, 2007, Berenger and Llorca, 2007, and Sturm and Gurtner, 2007 etc.). Work closely related to ours includes Pasinetti (2000) and builds upon some previous similar attempts for new EU Member States (see Fanizza and Mourmouras, 1994) in the following important direction, i.e. an assessment of short-term, medium-term and long-term general government fiscal sustainability for sixteen countries from Mediterranean region based primarily on 2006 data and/or average data for the 2003-2006 period.
The paper is organized as follows. The next section introduces the concept of fiscal sustainability and discusses its key definitions and the main sustainability indicators proposed by the theoretical and empirical literature. The empirical framework and results of the estimations of selected indicators under a variety of assumptions are presented in Section 3. The final section provides concluding remarks and some policy implications.

2. Theoretical Background And Empirical Methodology

To decide whether a country needs to reduce its debt requires assessing if a country suffers from a solvency problem. The intertemporal solvency criterion does however impose some limits on the behavior of the *non-interest* fiscal balance (i.e. the primary fiscal balance). Such a solvency constraint implies that the discounted value of primary fiscal balances should be at least equal to the initial government debt; if a government is initially running primary fiscal deficits and has a stock of foreign debt it needs to run primary fiscal surpluses over time to remain solvent. More specifically, as long as the discounted value of government debt is non-zero in the infinite limit, the public sector is

solvent. This only means that the government cannot increase its debt faster than the real interest rate on this debt.

However, the theoretical criteria for government solvency are quite loose. Indeed, the IMF (2002) and Croce and Juan-Ramón (2003) suggest that solvency is only a necessary condition for sustainability because solvency could be achieved with very large and costly future adjustments. Therefore, a non-increasing government debt to GDP ratio is seen as a practical sufficient condition for sustainability, i.e. a government is likely to remain solvent as long as the ratio is not growing. So, we can define a policy stance as sustainable if a borrower is expected to be able to continue servicing its debt without an unrealistically large future correction to the balance of income and expenditure (IMF, 2002). Moreover, this criterion is related to the so-called *fiscal primary gap*, which is the difference between the actual fiscal primary balance and the primary balance required to stabilize the debt to GDP ratio. Simple accounting identity helps shed light on the fiscal sustainability issue. According to Hemming and Miranda (1991) and Roux (1993) the (short-term) budget constraint is represented as:

$$\Delta D_t / Y_t = (r_t - g_t) D_{t-1} / Y_t + B_t / Y_t + R_t / Y_t \quad (1)$$

where D_t, Y_t, B_t, R_t stand for total public debt, nominal GDP, nominal primary (negative) balance of the public sector (i.e. the gap between *non-interest* expenditure and total revenue) and a residual factor applicable to the public sector, respectively. In addition, r_t represents the real interest rate applicable to the public sector and g_t the real economic growth rate. Note that the first part of the right-hand area in equation (1) refers to the interest component of government expenditure ($(r_t - g_t)/ D_{t-1}/Y_t$)). Indeed, when $r_t > g_t$ this indicates upward pressure on the debt/GDP ratio, while $r_t < g_t$ indicates downward pressure. On the other hand, the remaining part of the right-hand area indicates the *non-interest* flows of government. If it is negative, the government is running a primary surplus, implying downward pressure on the debt/GDP ratio. If it is positive, the government is running a primary deficit, putting upward pressure on the debt/GDP ratio. Depending on the magnitude and signs of both right-hand parts there will be a net positive or negative effect on the debt/GDP ratio.

When assessing the fiscal sustainability issue, the main priority is to indicate whether a continuation of the present policy stance (as expressed in the present relationship between expenditure and revenue levels) would cause the debt/GDP ratio to explode, implode or remain stabile. Here, Bispham (1987) developed a set of equations that satisfies this need. If interest is paid and the primary deficit ($b=B_t/Y_t$) is a constant ratio of GDP, the overall public deficit ratio is not constant. Hence, interest payments can cause the overall public deficit to change. What happened to the debt/GDP ratio depends on the relationship between the interest rate, *r*, and the economic growth rate, *g,* which can be presented as (if $g > r$):

$$D_t / Y_t = -b \left(\frac{1+g}{g-r} \right) \quad (2)$$

or as (if $r > g$):

$$D_t / Y_t = -b \left(\frac{1+g}{r-g} \right) \left(\frac{1+r}{1+g} \right)^t + b \left(\frac{1+g}{r-g} \right) + \left(\frac{1+r}{1+g} \right)^t D_0 / Y_0 \quad (3)$$

When $r > g$ the change in the debt/GDP ratio depends on the size and sign of the initial debt/GDP ratio and the primary balance. If there is initial public debt and primary deficit,

the debt/GDP ratio explodes as $t \rightarrow \infty$ (fiscal policy is unsustainable). On the other hand, if government runs a primary surplus and has no initial debt (or have even initial net claims) then the government has an explosive net worth position. Although this situation is unlikely to appear in reality the fiscal policy will also be unsustainable. However, if we want to estimate the (un)sustainability position when the first and third right-hand terms operate in opposite directions, we have to determine if:

$$\left| - \; b \left(\frac{1 + g}{r - g} \right) \right| > \left| D_0 / Y_0 \right| \tag{4}$$

Thus, according to the presented equations, to establish (short-run) sustainability a government should run a primary surplus sufficient enough to cover the excess caused by the real interest rate over real growth rate, i.e. a sustainable primary surplus (Mourmouras, 1994), which can be presented as (Gonzalez-Paramo *et al*., 1992):

$$- B_t / Y_t = (r_t - g_t) D_{t-1} / Y_t \tag{5}$$

Unsustainability is indicated as a position where the real interest rate, r_t, exceeds the real economic growth, g_t, and where the primary balance, B_t, is persistently either in deficit or in a surplus not large enough to cover the excess of the real interest rate over the real growth rate. In addition, Buiter (1985) suggested an alternative indicator of sustainability which depends on the difference between the actual primary surplus and the surplus that stabilizes the net government wealth (as a ratio to GDP). However, this indicator is hard to apply since a government's net worth is very difficult to measure.

On the other hand, in order to measure medium-term and long-term tax gaps (Blanchard, 1993) and the sustainable conventional public balance alternative indicators have been introduced. For example, a sustainable budget deficit ($-GOVB_t$) is derived from equation (5) and equals the growth rate multiplied by the debt ratio:

$$- GOVB_t / Y_t = (r_t - g_t) D_{t-1} / Y_t - rD_{t-1} / Y_t = - gD_{t-1} / Y_t \tag{6}$$

Moreover, because equation (6) ignores the relationship between the real interest rate and the real economic growth rate the conventional deficit is too crude a measure to use when analyzing the sustainability of fiscal policy. Therefore, the medium-term tax gap ($t^*_n - t$) can be taken as an alternative, where the real interest rate, real economic growth rate and projected path of no-interest expenditure are taken as given. In this respect, the required tax rate necessary to stabilize the debt/GDP ratio is as follows (Blanchard, 1993):

$$t_t^* = \sum (\exp + trf) / n + (r - g) D_0 / Y_0 \tag{7}$$

where *exp*, *trf* and *n* stand for government expenditure, transfers (both as a ratio to GDP), and the numbers of years over which *govexp* and *trf* are incurred, respectively. However, equation (7) holds if the values of *n* and *(r – g)* are not large. The long-run tax gap is similar to the medium-term tax gap. However, it is specified for a period of 30-40 years and allows for factors that change expenditure (e.g. demographics) (see Wickens, 1992).

Indeed, equations (2)-(7) provide a set of satisfied test indicators to determine the potential unsustainability of public finance given that the current (primary) public balance is maintained and that the interest rate and economic growth rate are on a stable (medium-run) path. Nevertheless, we should keep in mind that fiscal policy is only

sustainable is the assumptions made about the variables hold. Therefore, caution must be exercised when setting the assumptions of the model.

3. The empirical framework

3.1. Assumptions and Data

First, we estimate public finance sustainability for sixteen Mediterranean economies, i.e. Cyprus, France, Greece, Italy, Malta, Spain and Slovenia (the EU Member States) and Albania, Croatia, Egypt, Israel, Lebanon, Morocco, Syrian AR, Tunisia and Turkey (the non-EU Member States).[1] However, in order to calculate a sustainable level of their fiscal balances some assumptions must be made. Indeed, this exercise is, by its nature, quite sensitive to the various assumptions made about what is the steady state of the economies under consideration. Arbitrarily, the steady state for Mediterranean countries is considered to reflect the following historical values of the key variables:

- the equilibrium level of public debt (D/Y) is assumed to be for 2006 (for the short-term period and long-term period) or the average of the 2003-2006 period (for the medium-term period) (IMF data); alternatively, it is assumed for all sampled economies that governments are comfortable tolerating a debt ratio of 60 percent (D/Y^*);
- the nominal (i) or real interest rate (r) is the effective interest rates on public debt in 2006 (short-term) or the average in the 2003-2006 period (medium- and long-term) (IMF data);
- nominal (g_n) and real growth projections (g) are the average over the 2007-2012 period projection (IMF data) for the medium- and long-term period.

The empirical results are summarized in the next sub-section. First, the short- and medium-term sustainability of public finance is checked by applying the methodology suggested by Fanizza and Mourmouras (1994). The results for the selected Mediterranean countries, including the scenario dynamics of the public debt to GDP ratio in the five- and ten-years period, are reported in Tables 1 and 2. Second, the methodology of Wickens (1992) and Blanchard (1993) is applied to calculate long-term public balance sustainability levels for the Mediterranean countries. Empirical results are reported in Table 3.

3.2. Empirical results

In this subsection we apply equations (4)-(6) in order to assess fiscal sustainability in the selected EU and non-EU Member States in the Mediterranean region. First, we concentrate on the short-term sustainability of sixteen Mediterranean countries. In Table 1, the first three columns (1-3) show the relevant magnitudes (public debt/GDP ratio, nominal rate of growth, and nominal interest rate) for calculation of a sustainable level of the primary public balance. Thus, columns 4 and 5 show the computation of equation (2) as applied to each Mediterranean country. Each figure represents the maximum fiscal deficit each country can sustain. More precisely, it indicates the maximum hypothetical ratio

[1] *Due to data deficiencies Algeria, Libyan AJ, Palestine and Montenegro (new state, established June 3, 2006) were not included in the sample.*

between the fiscal deficit and GDP that each Mediterranean country can afford, while keeping a non-increasing public debt/GDP ratio. Columns 7 and 8 show the gap between the corresponding calculated (columns 4 and 5) and actual primary fiscal balance (column 6). Since each year's deficit increases the outstanding public debt, the higher is the (positive) gap between the actual fiscal deficit and the hypothetical fiscal deficit the higher the speed at which the public debt decreases.

Table 1 shows the results of fiscal sustainability based on equation (2). In 2006, the actual (short-term) sustainable fiscal levels seem to be higher than calculated one, if we consider actual public debt in the great majority of Mediterranean countries. On the other hand, if we take into consideration the targeted public debt (i.e. 60 percent of GDP), then the calculated (permitted) average primary fiscal deficit is almost the same as the actual one and the gap between the actual and calculated deficit amounts to 0.1 percentage points on average. However, this average covers the substantial differences between the countries. Thus, the short-term fiscal policy stances of Italy (within the EU Member States), and Lebanon and Syrian AR (the non-EU Member States) seem to be extremely unsustainable. On the other hand, by far the most favourable position is that of Spain (the EU Member States), and Morocco and Israel (the non-EU Member States). Indeed, Spain has the highest positive primary balance in the region, i.e. 3.5 percent of GDP (in 2006). In the other Mediterranean region (the non-EU countries), only Israel, Morocco and Turkey seem to have a sustainable short-term primary fiscal deficit. In general, the EU Member States seem to have more favourable short-term fiscal position (probably due to the requirements of the Stability and Growth Pact (SGP)) than the non-EU Member States in the Mediterranean region.

However, the preceding employment of (short-term) fiscal sustainability indicator may give a distorted picture of the amount of adjustments that would reasonably be required for different reasons. Indeed, the calculated (primary) fiscal balances (as a GDP ratio) can be distorted by, for example, speeding up privatization receipts (if the privatized assets would have yielded a positive future net cash flow to the government) or by cutting back government capital formation (if the present discounted value of the future net cash flow to the government would be positive). In addition, Buiter (1985) pointed out two further weaknesses of the one-period primary gap indicator. The first emphasizes that the actual current primary fiscal balance could be affected by cyclical increases or reductions in public sector revenues and/or expenditures. The second states the current nominal interest rate and growth of nominal GDP may be unrepresentative of their respective long-term expected average values. Hence, the need for medium- and long-term perspectives emerges, which are adopted in the rest of this paper.

Thus, we gauged the medium-term fiscal sustainability of the same sixteen Mediterranean countries. Given the set assumptions presented in the previous subsection the primary public balance seems to be medium-term sustainable for most of the EU Member States in the Mediterranean region (the exceptions are Italy and France). Indeed, their actual primary balances as a percentage share of GDP (2003-2006 averages) are relatively favourable, fluctuating between -0.7 (Italy) and 2.8 (Spain). The less favourable (calculated) primary fiscal balance, namely in Italy, can chiefly be explained by the fact that this economy has been projected to have the lowest average growth rates of real GDP (1.5 percent p.a. on average) and one of the highest levels of real effective interest rates among all EU Member States in the Mediterranean region (2.0 percent). On the contrary, Spain is confronted with the lowest real effective interest rates (1.0 percent). Similar to the

EU Member States, few of the non-EU Member States countries show unsustainable medium-term fiscal policy stance (i.e. Turkey, Lebanon and Croatia). While Croatia has an excessive primary fiscal deficit primarily due to relatively moderate real GDP growth averages (4.5 percent on average), the highest real effective interest rate is the main reason for the unsustainable medium-term fiscal position in Turkey [3] (9.9 percent on average) and Lebanon[4] (6.3).

In addition to the above analysis, special attention is paid to the evolution of the debt to GDP ratio for periods of five and ten years. If we assume that a relatively high real GDP growth rate and the existing real interest rate (averages over the projection period 2007-12) is maintained, then only the non-EU Member States of the region as a whole face an increase of the average public debt to GDP ratio. Indeed, the average public debt to GDP ratio is planned to increase from 75.4 percent of GDP to 83.4 percent of GDP after five years and to 94.1 percent of GDP after ten years in the selected countries of the Mediterranean region. However, Albania, Egypt, Morocco, Syrian AR and Tunisia are planning to have a lower public debt to GDP ratio after a 10-year period in the considered region under the set assumptions. On the other hand, keeping the primary balance ratios at their current levels, Croatia, Israel, Lebanon and in particular Turkey would face a rapid debt ratio increase over a projection period of ten years. In the EU Member States, the average public debt to GDP ratio is planned to decline from 66.4 percent of GDP to 62.3 and 58.8 percent of GDP after 5 and 10 years, respectively. There are only two countries where public debt is planned to rise under the set assumptions, i.e. France and Italy.[5] Indeed, in these circumstances most of EU Member States expect to lower the public debt to GDP ratio significantly in the next decade, in particular Spain.

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[1] The crisis in Turkey (2000-2001) led to a sharp increase in net public debt (from 58% of GDP in 2000 to 91% of GDP in 2001) as a result of a devaluation of the Turkish lira, the restructuring of the banking sector (i.e. previous contingent liabilities became public and recession following the crisis (see Sturm and Gurtner, 2007).

[1] Lebanon stands out in the Mediterranean region as the country with the lowest fiscal revenue in the region (around 22 percent of GDP in 2006), pointing to difficulties in generating sufficient revenue to cover public expenditure, which is one of the reasons for the country's high deficits over the last years and the accumulation of public debt.

1 The results confirm the findings of Frederiksen (2005).

Table 1

Short-term fiscal sustainability in the Mediterranean countries

Country	Public Debt (D/Y) (2006) (1)	Growth rate of nom. GDP (g_n) (2006) (2)	Nom. interest rate (i) (2006) (3)	Calculated (short-term) primary public balance ((i-g_n)/(1+g_n))*(D/Y)		Actual primary public balance (-b) (2006) (6)	Diff. (Actual-Calculated) (actual public debt assumption) (7)	Diff. (Actual-Calculated) (targeted public debt assumption) (8)
				Actual public debt assumpt. (4)	Targeted public debt assumpt. (60 % of GDP) (5)			
EU (average)	67.1	3.2	4.5	1.2	0.8	0.9	-0.3	0.1
Cyprus	69.2*	3.9	5.1	0.8	0.7	1.1	0.3	0.4
France	64.2	2.0	4.1	1.3	1.2	0.0	-1.3	-1.2
Greece	98.0*	3.7	4.0	0.3	0.2	-0.3	-0.6	-0.5
Italy	106.6*	0.1	4.5	4.7	2.6	0.4	-4.3	-2.2
Malta	64.0	3.3	5.3	1.2	1.2	1.1	-0.1	-0.1
Spain	39.8	3.9	4.0	0.0	0.1	3.5	3.5	3.4
Slovenia	28.2	5.2	4.4	-0.2	-0.5	0.3	0.5	0.8
Non-EU (average)	71.9	5.1	6.8	2.1	1.0	0.5	-1.5	-0.5
Albania	55.9	5.0	5.0	0.0	-0.2	-0.4	-0.4	-0.2
Croatia	42.5	4.6	5.4	0.3	0.5	-0.6	-0.9	-1.1
Egypt	72.6	7.1	8.0	0.6	0.5	-2.3	-2.9	-2.8
Israel	86.8	5.2	5.4	0.2	0.1	3.0	2.8	2.9
Lebanon	178.1	0.1	7.6	13.3	4.5	1.7	-11.6	-2.8
Morocco	58.2	8.0	5.6	-1.3	-1.3	1.6	2.9	2.9
Syrian AR	35.9	4.4	3.3	-0.4	-0.6	-4.7	-4.3	-4.1
Tunisia	54.0	5.4	5.1	-0.2	-0.2	-0.3	-0.1	-0.1
Turkey	63.1	6.0	15.9	5.9	5.6	6.6	0.7	1.0

*Note: * Data refers to the year 2005.*
Sources: IMF (2008), author's calculations.

Table 2

Medium-term fiscal sustainability in the Mediterranean countries

Country	Public Debt (D/Y) (2003-06 averages)	Growth rate of real GDP (g) (2007-12 averages)	Real effective interest rate (r) (2003-06 averages)	Calculated (medium-term) primary public balance ((r-g)/(1+g))*(D/Y)		Actual primary public balance (b) (2003-06 averages)	Diff. (Actual-Calculat.) (actual public debt assumpt.)	Public debt (D/Y) after 5 years	Public debt (D/Y) after 10 years
				Actual public debt assumpt.	Targeted public debt assumpt. (60 % of GDP)				
EU (average)	66.4	3.0	1.8	-0.6	-0.7	0.3	0.9	62.3	58.8
Cyprus	68.4	4.0	1.9	-1.4	-1.2	-0.3	1.1	63.1	58.3
France	64.5	2.2	2.4	0.2	0.1	-0.4	-0.6	67.2	70.0
Greece	84.7	3.2	1.1	-1.7	-1.2	-0.2	1.5	77.2	70.5
Italy	105.5	1.5	2.0	0.6	0.3	-0.7	-1.3	112.0	118.8
Malta	68.9	2.7	2.6	-0.1	-0.1	0.5	0.6	65.9	63.0
Spain	44.5	3.5	1.0	-1.1	-1.4	2.8	3.9	25.9	9.5
Slovenia	28.4	4.1	1.9	-0.6	-1.3	0.2	0.8	24.6	21.3
Non-EU (average)	75.4	5.2	2.7	-0.9	-1.5	-2.3	-1.4	83.4	94.1
Albania	58.0	6.1	3.1	-1.7	-1.7	-0.6	1.0	53.1	48.8
Croatia	42.9	4.5	2.0	-1.0	-1.4	-2.9	-1.9	51.7	59.5
Egypt	78.8	7.5	-1.1	-6.3	-4.8	-2.8	3.5	63.8	53.9
Israel	96.1	4.0	5.1	1.0	0.6	-1.3	-2.3	107.9	120.4
Lebanon	173.1	4.2	6.3	3.5	1.2	-2.7	-6.1	204.9	240.1
Morocco	61.0	5.3	4.3	-0.6	-0.6	-0.2	0.4	59.2	57.5
Syrian AR	36.5	4.2	-7.7	-4.1	-6.8	-3.3	0.8	33.2	31.4
Tunisia	58.1	6.2	2.2	-2.2	-2.3	-0.2	2.1	48.5	40.7
Turkey	73.8	5.3	9.9	3.2	2.6	-6.7	-9.9	128.0	195.0

Sources: IMF (2008), author's calculations.

Table 3

Long-term fiscal sustainability in the Mediterranean countries

Country	Public debt (*D/Y*) (2006)	Growth rate of real GDP (*g*) (2007-12 project.)	Calculated (long-term) public balance ((*g*(D/Y)*)		Actual public balance (2003-06 averages)	Actual public balance (2006)	Diff. (Actual-Calculated)	
			Actual public debt assumption	Targeted public debt assumption (60 % of GDP)			Actual public debt assumption / Actual public balance (2003-06 averages)	Targeted public debt assumption (60 % of GDP) / Actual public balance (2006)
EU (average)	*67.1*	*3.0*	*-1.9*	*-1.8*	*-2.8*	*-1.7*	*-1.0*	*0.2*
Cyprus	69.2*	4.0	-2.8	-2.4	-3.7	-1.2	-0.9	1.2
France	64.2	2.2	-1.4	-1.3	-3.2	-2.4	-1.8	-1.1
Greece	98.0*	3.2	-3.1	-1.9	-5.2	-2.6	-2.1	-0.7
Italy	106.6*	1.5	-1.6	-0.9	-3.7	-3.4	-2.1	-2.5
Malta	64.0	2.7	-1.7	-1.6	-3.0	-2.6	-1.3	-1.0
Spain	39.8	3.5	-1.4	-2.1	0.9	1.8	2.2	3.9
Slovenia	28.2	4.1	-1.2	-2.4	-1.9	-1.2	-0.8	1.2
Non-EU (average)	*71.9*	*5.2*	*-3.7*	*-3.1*	*-5.2*	*-4.3*	*-1.5*	*-1.2*
Albania	55.9	6.1	-3.4	-3.7	-4.2	-3.2	-0.7	0.5
Croatia	42.5	4.5	-1.9	-2.7	-4.4	-3.9	-2.5	-1.2
Egypt	72.6	7.5	-5.4	-4.5	-8.4	-7.7	-3.0	-3.2
Israel	86.8	4.0	-3.5	-2.4	-4.4	-1.8	-0.9	0.6
Lebanon	178.1	4.2	-7.4	-2.5	-10.4	-11.1	-3.0	-8.6
Morocco	58.2	5.3	-3.1	-3.2	-3.9	-2.1	-0.8	1.1
Syrian AR	35.9	4.2	-1.5	-2.5	-4.2	-5.7	-2.7	-3.2
Tunisia	54.0	6.2	-3.3	-3.7	-2.9	-2.8	0.4	0.9
Turkey	63.1	5.3	-3.3	-3.2	-3.9	-0.8	-0.6	2.4

*Note: * Data refers to the year 2005.*

Sources: IMF (2008), author's calculations.

Finally, we briefly consider long-term fiscal sustainability in both Mediterranean regions under consideration. Table 3, because of its similarity to Tables 1 and 2, does not need to be illustrated in detail. It refers to equation (6) which helps us reveal the long-term sustainability of public finance. The results indicate that practically all Mediterranean countries (except Spain and Tunisia) show unsustainable long-term public finance. The group of countries including Cyprus, Malta, Slovenia (the EU Member States) and Albania, Israel, Morocco, Turkey (the non-EU Member States) face moderate problems with (negative) gaps between the actual and calculated fiscal balance of around 1.0 percentage points. However, the most substantial long-term fiscal problems might affect Greece and Italy (the EU Members) and Lebanon, Syrian AR and Egypt (the non-EU Members).

4. Conclusion

The sustainability of public finance has been an important issue for many Mediterranean countries in recent years. High fiscal deficits have characterized the economic history of many developed as well as developing countries, including in the Mediterranean region and in the euro area. While the non-EU Mediterranean countries exhibit some specific fiscal features and challenges, they also face others that are common to many euro area (and other) countries, in particular concerning deficits and debt reduction and the maintenance of fiscal discipline. By using mainstream (primary fiscal gap) theory (proposed by Buiter (1983) and Blanchard (1990)), the analysis for the EU and the non-EU Mediterranean countries ensures some degree of restrictiveness. Based on simple mainstream theory measures of fiscal sustainability, the results indicate that fiscal sustainability seems to be a problem in many Mediterranean countries, particularly in Greece, Italy and France (in the EU Mediterranean region) as well as in Croatia, Egypt, Lebanon and Turkey (in the non-EU Mediterranean region). For these economies it is vital to maintain relatively high economic growth rate as well as to secure more favorable interest rates on public debt in the near future in order to mitigate additional fiscal burdens of unfavourable external (e.g. fiscal pressures due to globalisation) as well as internal factors (e.g. demographics).

However, since the paper is dealing with an ex ante analysis on the grounds of ex post algebra of sustainability some caution should be exercised. First, all the indicators used in the analysis are sufficient (but not necessary) conditions for long-run sustainability. Indeed, it may be sub-optimal to prevent a country from smoothing its expenditure because this would lead to overshooting the fiscal ratio that corresponds to a long-run equilibrium. Second, most of the indicators require assumptions about macroeconomic variables (e.g. GDP growth, interest rates, primary balance etc.) which are implicitly assumed to be exogenous. Finally, a great majority of factors (such as demographics, etc.) that characterize the situation in the considered economies are not included in these indicators.

References

Aristovnik, A. and Berčič, B., (2007), Fiscal Sustainability in Selected Transition Countries. *Ekonomický časopis*, Bratislava : Slovak Akad. Press, 7.55: 659-675.

Ballabriga, F. and Martinez-Mongay, C., (2003), "*Sustainability of EU public finances, European Economy"*, ECFIN Economic Papers No 225.

Bispham, J.A. (1987). "*Rising public sector indebtedness: Some more unpleasant arithmetic"*. In Boskin, M.J., Flemming, J.S. & Gorini, S. (eds.). Private saving and public debt, 40-71.

Blanchard, O. (1990), "*Suggestions for a New Set of Fiscal Indicators",* Economics Department Working Paper 79. Paris: OECD.

Blanchard O. (1993), "*Suggestions for a new set of fiscal indicators",* In Verbon, H.A.A. & Van Winden, F.A.A.M. (eds). (1993). The political economy of government debt, 307:25.

Berenger, V. and Llorca, M., (2007), "*Political determinants of the fiscal sustainability: evidence from six developed individual countries",* Working Paper presented at the AFSE Conference in Paris, September, 21, 2007; and in the 2007 Labsi International Conference "Political Economy and Public Choice: Theory and Experiments", University of Siena, September 27-29, 2007.

Buiter, W. (1983), "*Measurement of the Public Sector Deficit and its Implications for Policy Evaluation and Design",* In International Monetary Fund Staff Papers, 30, June 1983, pp. 306-49.

Buiter, W. (1985), "*Guide to Public Sector Debt and Deficits",* Economic Policy: A European Forum 1: 13-79.

Croce, E., and Juan-Ramon, H., (2003), "*Assessing Sustainability: A Cross-Country Comparison",* IMF Working Paper 03/145. Washington, DC, United States: International Monetary Fund.

Fanizza, D., and Mourmouras, A., (1994), "*Fiscal indicators",* Seminar on Fiscal Policy Management in Economies in Transition (Lecture No. 16) – 7-18 November. Washington D.C.: Fiscal Affairs Department and IMF Institute, International Monetary Fund.

Frederiksen, N.K., (2005), *Long-Term Fiscal Indicators: "Sustainability versus Terminal Debt Constraints*". Working Paper 14/2005, Ministry of Finance, Denamrk.

Gonzalez-Paramo, J.M., Rolàn, J.M., and Sebastian, M., (1992), *Issues on fiscal policy in Spain.* In Bank for International Settlements. 1992. Current issues in fiscal policy and their implications for the conduct of monetary policy: 189-220.

Hemming, R., and MacKenzie, G.A. (1991), Public *expenditure and sustainable fiscal policy*. In Chu, K. & Hemming, R. 1991. Public expenditure handbook: 7-13.

International Financial Statistics 2007 (and 2008). Washington: IMF.

Pasinetti, L. L., (1998), The Myth (or Folly) of the 3% Deficits/GDP Maastricht "parameter", *Cambridge Journal of Economics*, 22: 103-16.

Roux, A. (1993), "The public debt: A medium-term perspective", *The South African Journal of Economics*, 61(4): 324-33.

Sturm, M. and Siegfried, N., (2005), "*Fiscal Policy in Mediterranean Countries Developments, Structures And Implications For Monetary Policy",* ECB Occasional Paper No 69, Frankfurt am Main.

Wickens, M., (1992), *Fiscal Indicators*. Pretoria: Department of Finance, Unit of Fiscal Analysis and Policy planning.