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WP 5 - Economic integration, trade, investment and sectoral analyses

Determinants of Growth and Inflation in Southern Mediterranean Countries

Leonor Coutinho

Abstract

Despite significant economic reforms in many Southern Mediterranean EU neighbour countries, their growth performance has on average been subdued. This study analyses the differences in growth performance and macroeconomic stability across Mediterranean countries, to draw lessons for the future. The main findings are that Southern Mediterranean countries should benefit from closer ties with the EU that result in higher levels of trade and FDI inflows, once the turbulence of the 'Arab Spring' is resolved, and from the development of financial markets and infrastructure. They will also benefit in keeping inflation under control, which will depend in great part on their ability to maintain fiscal discipline and sustainable current accounts. One of the main challenges for the region will be to implement structural reforms that can help them absorb a large pool of unemployed without creating upward risks to inflation.

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Leonor Coutinho[*]

1. Introduction

There has been increasing interest on the part of the EU in closer economic integration of its 11 Southern Mediterranean Neighbours (MED-11 henceforth), as evidenced by their inclusion in the successive partnership programmes since 1995, the most recent of which being the Union for the Mediterranean (UfM).[1] The MED-11 is far from a homogeneous group of countries, but they do share some common political, cultural and economic characteristics as well as proximity to the EU. This study focuses on understanding the growth performance of this group of countries, and factors determining their macroeconomic stability, so as to highlight future strengths and risks. There have been significant economic reforms in many of these countries, but despite that, their growth performance has on average been subdued, and lower than in most other developing regions in the world, with the average hiding significant differences that are important to understand.

The oil price booms of the 1970s greatly benefited the MED-11, through a sharp increase in exports and investments in oil-producing countries such as Algeria, Libya and to a lesser extent Egypt, Syria and Tunisia. These gains spilled over to their neighbours through significant increases in worker remittances, trade and capital flows. But in the 1980s, as oil prices declined, most MED-11 countries experienced a significant decline in GDP per capita growth rates and suffered from continued high unemployment.

The deterioration in economic conditions was a catalyst for economic reforms in a number of countries (see Abed & Davoodi, 2003). These reforms have included the progressive liberalisation of trade flows, incentives to foreign direct investment (FDI), increased exchange rate flexibility and a range of fiscal reforms spanning from tax and benefit reforms (e.g. the introduction of value-added taxes and the phasing out of food and energy subsidies) to the reform of public expenditure management.[2] Countries that pursued reforms such as Egypt, Jordan, Morocco and Tunisia subsequently reported relatively higher rates of per capita GDP growth.

Better macroeconomic management has led to relative economic stability and contributed to improve the growth rates of the MED-11 countries in the 1990s. In particular, sounder monetary

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[1] The group of MED-11 countries consists of Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian Authority, Syria, Tunisia and Turkey. The UfM is a broader programme that includes other Mediterranean Neighbours.

[2] The phasing-out of subsidies, however, has been recently reversed in some countries, as social unrest put pressure on governments to offset the impact of surging global food and fuel prices, showing that, once conducted, reforms should not be considered as irreversible (see IMF, 2011 a).

and fiscal policies resulted in relatively low and declining rates of inflation, the narrowing fiscal deficits and relatively low levels of domestic debt compared with those of developing countries in other regions.

Even as economic performance in the region improved in the 1990s and in the period of 2000-09, the MED-11 as a group achieved an annual average per capita growth rate of only 2.7% in 2000-09, compared with an annual average of about 5% for all middle-income countries. One important effect of this subdued record was a persistently high rate of unemployment, aggravated by relatively high growth rates of population and labour force.[3]

The relatively poor growth and employment performance of the MED-11 may be linked to their weak integration into the global economy. There is some evidence in the growth literature that more open economies tend to grow faster than those that adopt inward-looking growth strategies, at least in the long run, and this literature is reviewed below.

Other factors that may be dragging on the region's growth performance are relatively poor institutions and poor business environments. Despite the reforms undertaken in several countries, there is a consensus that they have been stalled due to a loss of political momentum. But the 'Arab Spring' pro-democracy movements in some MED-11 countries in 2011, notably in Tunisia, Egypt, Syria and Libya, may change this tide and push for deep reforms more than ever.[4]

In this context, the purpose of this study is to take stock of the MED-11 macroeconomic performance, as measured by the rate of per-capita GDP growth, explore its main determinants and discuss possible scenarios for the future. This will allow us to pinpoint areas where reforms would yield greater dividends in terms of growth, and where recent advances should be preserved. In addition, since macroeconomic stability has been identified in the literature as an important pre-requisite for growth, and inflation as a prominent indicator of macroeconomic stability, the study also explores the main drivers of inflation in the region.[5] The paper will also suggest where closer integration with and support from the EU can contribute to achieve economic convergence between the MED-11 and the more advanced countries, and the EU in particular.

2. Literature review

The growth literature has identified several factors that can improve a country's growth performance. These factors can be grouped into six categories: i) macroeconomic stability, ii) economic openness (trade and FDI), iii) financial market development, iv) investment and infrastructure, v) human capital, vi) performance of the public sector and vii) good institutions. In this section we will review some of the evidence on the effects of these factors on growth.

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[3] The average population growth for the Middle East and North Africa region between 2000 and 2009 was about 1.9%, compared to about 1.2% for the world, 0.7% for the OECD and 0.4% for the European Union, according to World Bank Statistics.

[4] The 'Arab Spring' is the label that has been given to the wave of demonstrations and protests calling for reform and democratic change in several Middle Eastern and North African countries. These demonstrations started in Tunisia and spread to Egypt, Bahrain, Yemen, Libya and Syria.

[5] The whole body of literature on the virtues of price stability hinges on its positive effects on growth (see Woodford, 2003, and references therein).

2.1 Macroeconomic stability

There are many arguments for macroeconomic stability to promote growth. Among other things, it reduces systemic risk and increases investment and trade. In an environment of high and unpredictable rates of inflation, economic agents find it difficult to make predictions for the future and tend to withhold investments. In addition, the information content of relative price changes becomes blurred and resources are not allocated as efficiently. Barro (1996), for instance, shows that, empirically, the estimated effect of inflation on growth is significantly negative when some plausible instruments are used in the statistical procedures, although he stresses that the clear evidence for adverse effects of inflation comes from the experiences of high inflation. The virtues of price stability and its positive impact on investment and growth have also been argued in the extensive literature on inflation targeting (see Woodford, 2003, and references therein).

2.2 Trade openness and FDI

The growth literature has identified openness to trade as an important driver of economic growth. A country is more open to external trade when the barriers to international transactions, which can include tariffs, quotas, non-tariff measures and other institutional barriers and transportation costs, are relatively low or non-existent. Countries that are more open to trade tend to have higher ratios of trade (measured by the average of exports and imports) to GDP. In the theoretical literature, international trade promotes the efficient allocation of resources through comparative advantage and fosters competition among firms. In endogenous growth models, including for instance Grossman & Helpman (1991) and Lee (1993), the higher long-term growth results from increasing returns to scale in those sectors that are promoted by trade (see also Chang et al., 2009). Another channel through which trade can increase growth is through the dissemination of knowledge and technological progress. In the models of Romer (1992) and Barro & Sala-i-Martin (2005), for instance, trade lowers the cost of imitating technological advances in leader countries, allowing the followers to grow faster and converge. Although there are numerous counter arguments in the theoretical literature, showing that openness to trade can be detrimental to growth in the presence of market imperfections (see Rodriguez & Rodrik, 2001, for a survey), recent empirical literature has come in support of a positive link between openness and growth, in particular, when a range of other institutional factors are taken into account (see Chang at al., 2009, and references therein). In parallel, however, there is also an important strand of literature arguing that the benefits of globalisation are often unevenly distributed within countries between rich and poor, increasing inequality (see Harrison, 2007, and references therein); and there is also some evidence that benefits from openness may be non-linear in the sense that a half-hearted globalisation in the style of China's may yield better outcomes than a full-fledged one, unless all countries abide by the same rules (see Rodrik, 2011, and references therein).

Foreign direct investment (FDI) is another channel for the dissemination of technology and knowledge across countries. In particular, the investments of large multinational corporations give developing countries access to advanced technologies, skilled labour and more efficient management practices (see for instance Carkovic & Levine, 2005). Despite the robust theoretical underpinning for a positive impact of FDI on growth, the empirical research on the issue has been less conclusive, with some authors (e.g. Borensztein et al., 1998; Alfaro et al., 2004) finding a positive link between FDI and economic growth, and others finding no evidence in support of that (e.g. Aitken & Harrison, 1999; Carkovic & Levine, 2005). The strongest

evidence in support of positive effects of FDI on growth comes from micro-data studies, which show that multinational firms are more productive.[6]

2.3   Financial market development

Well-developed financial markets can improve growth through a range of channels (see Demirgüç-Kunt & Levine, 2008, for a detailed survey).[7] Firstly, financial markets have an important role in mitigating the problems associated with asymmetric information and transactions costs, which prevent funds from flowing efficiently from savers to entrepreneurs. This efficient flow of funds is essential for an optimal allocation of resources across economic agents and inter-temporally, and economic decisions regarding how much to save and invest, which ultimately determine physical and human capital accumulation, technological progress and therefore growth (see for instance Greenwood & Javanovic, 1990; Jacoby, 1994; Morales, 2003). A second channel through which financial development can positively impact growth outcomes is through its effects on monitoring costs and its incentives on corporate governance. In more developed financial markets, financial intermediaries reduce the costs of monitoring, thereby putting pressure on firms to improve governance practices (see Bencivenga & Smith, 1993). Thirdly, financial development, by helping risk diversification, allows investors to choose projects with higher expected returns, allowing for instance for more (even if riskier) innovation (see King & Levine, 1993). In addition, a developed financial market also allows large volumes of savings to be pooled into investments that would otherwise be constrained to economically inefficient scales (Sirri & Tufano, 1995). Finally, financial markets can also improve economic efficiency and growth by facilitating specialisation. Greenwood & Smith (1996) show that greater specialisation requires more transactions. Therefore, by lowering transaction costs, financial development can facilitate a process of specialisation leading to productivity gains and higher rates of economic growth.

2.4   Investment and infrastructure

In the standard neoclassical growth model for a closed economy, an increase in the investment rate increases the steady state level of output and increases growth in the short-run, while the country converges to its new steady-state level. Even this simple type of models therefore justifies an empirical positive relationship between investment rates and economic growth. Some empirical studies of cross-country growth, including DeLong & Summers (1991) and Mankiw et al. (1992), did report finding of such a statistically significant relationship. Barro (1996) notes, however, that it is important to account for the possibility of reverse causality, since a positive coefficient in this case may reflect instead a positive relation between growth opportunities and investment. This reverse effect is especially likely to apply for open economies, in which there is a choice between investing at home or abroad. In fact, Blomstrom et al. (1993) as well as Barro (1996) show that when investment is instrumented appropriately, the positive effect of investment on growth becomes statistically insignificant. Barro (1996), however, also shows that many of the variables that are statistically significant in explaining growth, such as life expectancy (used as a proxy for the quality of human capital) and the inflation rate, also affect investment. Hence a reasonable interpretation of the statistically insignificant investment coefficient is that some policy variables, such as price stability, encourage economic growth partly by stimulating investment.

A related issue is that of infrastructure. In standard growth models in which factors are complementary, an increase in the stock of infrastructure raises the productivity of other factors.

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[6] Contessi & Weinberger (2009) provide a summary of the empirical literature.

[7] Ayadi et al. (2012) study the determinants of financial development across the Mediterranean.

Roads and telecommunications, for instance, increase the productivity of capital and labour by giving easier access to raw materials, intermediate inputs and information. But the possibility that infrastructure investment may crowd-out private investment, especially when financed through taxation or borrowing on domestic financial markets, has also been highlighted in the literature (see Straub, 2008, and references therein). Several cross-country panel data studies, however, do confirm a significant positive impact of infrastructure on output growth (see, for instance, Canning, 1999; Demetriades & Mamuneas, 2000; Röller & Waverman, 2001; Calderón & Servén, 2004).

2.5 Human capital

Several growth theories imply a positive effect of human capital on per capita output growth. Human capital can increase economic growth by increasing the productivity of labour (Barro, 1997). High levels of human capital are also said to impact on growth by facilitating technology adoption (for example, Benhabib & Spiegel, 2005; Acemoglu, 2003; Caselli & Coleman, 2006). It can also improve growth by affecting institutions, since higher levels of human capital foster democracy, lead to better governance and favour more equality in the society, which are pre-requisites for political stability (see Aghion et al., 1999). But while the theoretical literature tends to agree on the effects of human capital on growth, the empirical evidence on the issue has been mixed. Mankiw et al. (1992) for instance show a significant link between enrolment rates in secondary education and growth of per capita GDP, but other studies (including Pritchett, 2001, and references therein) find an insignificant or negative effect, when using alternative measures of human capital. Recent research, however, shows that the inconsistency in the estimates is in great part due to data limitations (see De la Fuente, 2006; Cohen & Sotto, 2007) and that the link between human capital and growth is robustly positive when appropriate data are considered. When measuring investment in education, several studies have also pointed to the importance of measuring the quality of investments in education rather than the quantity.[8]

2.6 The public sector

The growth literature has also highlighted the role of the public sector in explaining differences in growth performance across countries. While government expenditures in education are typically found to improve growth performance (see Bose et al., 2007 and references therein), large and inefficient governments can negatively impact on growth through a series of channels. Large government expenditures can crowd out private sector demand through their effects on interest rates and credit availability. In addition, the taxes required to finance, at least in part, government expenditures are often distortionary, imposing deadweight losses on the economy. There are also a number of costs associated with revenue collection that range from administrative to tax enforcement. The government can also have a negative impact on growth through poor investment policies and through the poor delivery of public services, such as public infrastructure. These will negatively affect aggregate productivity and deteriorate the investment climate in which the private sector operates. On the other hand, in endogenous growth models, there is scope for well-designed government expenditure and tax systems to play an important role in determining long-term growth, through its effects on the rates of investment in human and physical capital (see Stokey & Rebelo, 1995; Mendoza et al., 1997; Bose et al., 2007, and references therein). By well-designed systems, the literature implies an emphasis on non-distortionary forms of taxation, and on productive expenditures (expenditures with a substantial physical and human capital component that would enter in the private

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[8] Coutinho et al. (2009) provide some evidence of this for Mediterranean countries, despite the data limitations. Also Barrios & Schaechter (2008) point to the issue of efficiency, by showing that the correlation between public expenditure in education and education attainment is rather weak in Europe.

production function as described in Barro & Sala-i-Martin, 1995; Devarajan et al., 1996). There is also a growing literature on the benefits of e-government for productivity and growth (see European Commission, 2006, for an impact assessment of the EU experience).

2.7 Institutions

Recent research has also emphasised the role played by institutions in the determination of development outcomes (see North, 1990). This strand of the growth literature argues that in the long run, the main factor encouraging the convergence of living standards is the adoption of high-quality institutions, which can ensure the protection of property rights (thus promoting private sector development and investment), the rule of law (thus enforcing contracts and enabling markets to operate), law-and-order and political stability (thus minimising disruptions to economic activity), control of corruption (minimising rent-seeking and other unproductive activities). Without appropriate institutions, policies aimed at enhancing growth fall on unfertile soil and the economy will display particular vulnerability to external shocks. This positive link between institutions and growth has been largely corroborated by a range of empirical studies (see for instance Burki & Perry, 1998; Rodrik et al., 2004).

3.   Some stylised facts for the MED-11

This section describes a selection of variables of interest for the analysis of growth drivers for the MED-11, which is in great part determined by data availability. For comparisons and to extend our sample size, we also include in the analysis four EU-Mediterranean countries (France, Greece, Italy and Spain). These countries (EU-MED henceforth) share some characteristics with other countries in the MED-11 group, especially Israel and Turkey, and will make the panel more balanced between more developed and less developed countries. Since very few data are available for the Palestinian Authority, we exclude this country altogether from the analysis. The data sources are described in detail in Appendix 1.

The set of variables includes the growth rate of GDP per capita (in constant PPP terms), and the initial level of GDP per capita (also in constant PPP terms), to account for convergence effects. As a measure of macroeconomic stability, we use the rate of CPI inflation. As a proxy for financial development, we consider both domestic credit to the private sector (as a percent of GDP) and the Chinn and Ito capital account openness index.[9] Chinn & Ito (2008) show that capital account openness explains subsequent financial development as measured by alternative indicators including private credit growth, and can therefore be a more encompassing proxy for financial development. Openness to trade is captured by the average of imports and exports of goods and services as a ratio to GDP. Net FDI inflows as a ratio to GDP as well as total investment as a ratio to GDP are also considered (it is difficult to distinguish between public and private investment, since data are very limited). As a proxy for public infrastructure, we use the number of telephone lines per 100 persons, which is the variable with the largest country coverage among those commonly used in the literature.[10]

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[9] The index is the first principal component of four IMF binary variables reported in the IMF's "Annual Report on Exchange Arrangements and Exchange Restrictions" (see IMF, 2011), which provides information on the extent and nature of the restrictions on external accounts for a wide cross-section of countries (See Chinn & Ito, 2002 and 2008).

[10] These data were obtained from the World Development Indicators database, and correspond to fixed telephone lines that connect a subscriber's terminal equipment to the public switched telephone network and that have a port on a telephone exchange, as well as integrated services digital network channels and fixed wireless subscribers. Other World Bank indexes on quantity and quality are available but have limited coverage for this group of countries. Another important data source is the United Nations E-

Data on human capital and investment in human capital for this group of countries are poor. Enrolment rates are available from the World Development Indicators, but only for a few countries and years. The Barro and Lee database provides data on schooling for the MED-11, excluding the Palestinian Authority and Lebanon. From this dataset we consider secondary completion rates (as a % of the population above 15 years of age), and average years of total schooling. This data, however, have several limitations and in general have not yielded significant results in growth analysis (see Cohen & Soto, 2007). Therefore, as an alternative, we try to capture some information about differences in human capital formation by considering also total public expenditures in education as a ratio to GDP (data on expenditures per student are also very limited).

Finally, we also look at the government budget balance to GDP ratio, and at two alternative governance measures.[11] The first governance measure considered is the Freedom House Political Rights Index (PRI), which ranks countries from 1 (highest degree of freedom) to 7 (least amount of freedom).[12] The second governance measure is the Polity2 index of democracy, which ranges from +10 (strongly democratic) to -10 (strongly autocratic).[13]

3.1 Mediterranean countries in the 1980s

Table 1 we can see averages of the selected variables for the period 1980-89 (some data are not available). The performance of most MED-11 countries in the 1980s was relatively poor if we compare with the average for developing countries at more or less the same income level. In this period, according to the World Economic Indicators, lower-middle income countries have grown on average at a rate of about 4%, and this is probably the appropriate benchmark group for the MED-11 countries at the time (except Israel); while upper middle income countries in this period grew at a rate of about 1.5%.

Algeria, Jordan, Lebanon and Syria recorded negative average growth rates of GDP per capita in the 1980s.[14] Among these countries, both Lebanon and Syria experienced high inflation rates. Algeria's rate of inflation in this period was more moderate but close to 2-digit levels. Syria showed particularly low levels of financial development (inferred both from the indicator of domestic credit to private sector as a percent of GDP, and by the capital account openness index), and both Syria and Algeria showed levels of trade openness below the MED-11 average, in this period. These countries also seem to have experienced relatively low FDI inflows (no data are available for Lebanon, though). Algeria also performed poorly in terms of infrastructure and Syria had relatively low indexes for schooling (secondary completion rates and average years).

Government Development Database, which provides, for instance, an infra-structure index, but only for a few years since 2003.

[11] We also look at data on government expenditures as a ratio to GDP but the overall size of the government does not appear to be related to growth performance, and data on the detailed composition of government expenditures are limited for this set of countries (see Coutinho et al., 2009).

[12] See Freedom in the World (2011).

[13] See Polity IV Project (2010). The World Bank Governance Indicators are also available for this set of countries, but only from 1996.

[14] It is important to note that Lebanon experienced civil war in this period.

Table 1. Selected indicators, averages for 1980-89

	Per Capita GDP Growth (%)	Per Capita GDP 1980 PPP $	Inflation (CPI)	Domestic Credit to Private Sector % of GDP	Capital Account Openness Index	Trade Openness % GDP	FDI Net Inflows % of GDP	Total Investm. % of GDP	Infrastructure Phone Lines per 100 persons	Completion Rate, % of +15 pop. (Secondary)	Average Years of Total Schooling	Public Expend. in Education % of GDP	Govern. Budget Balance % of GDP	Political Rights Index (PRI)	Democracy Index (Polity2)
MED-11[1]	-5.7	5345	23.0	41.5	-0.9	32.8	0.8	26.0	1.4	11.9	4.9	5.6	-	4.8	-4.2
Algeria	-0.1	6358	8.6	63.2	-1.7	25.7	0.1	33.9	0.8	17.2	4.2	-	-	5.8	-8.3
Egypt	2.6	2432	15.8	27.0	-1.8	21.7	2.7	28.6	0.5	11.2	3.9	5.0	-	4.8	-6.0
Israel	1.5	15028	63.2	63.9	-0.7	45.0	0.4	20.6	3.3	23.6	10.4	8.8	-	2.0	9.0
Jordan	-1.7	3931	6.2	56.5	-0.4	58.2	0.9	29.3	1.6	15.8	5.9	6.6	-	5.4	-8.9
Lebanon	-56.0	-	55.8	60.0	2.5	53.6	-	-	2.6	-	-		-	5.3	0.0
Libya	-	-	7.9	-	-0.9	-	-	-	1.3	13.7	4.4	5.3	-	6.2	-7.0
Morocco	1.3	2335	7.0	19.0	-1.6	25.9	0.4	24.1	0.1	5.4	2.5	5.9	-	4.0	-8.0
Syria	-2.0	3364	20.7	7.1	-1.8	17.8	0.1	23.2	1.4	4.7	4.3	5.4	-	6.0	-9.0
Tunisia	0.6	3617	8.2	59.2	-1.1	36.4	1.8	28.8	0.9	9.5	3.9	5.5	-	5.4	-7.2
Turkey	2.7	5694	36.5	17.9	-1.2	11.0	0.2	19.5	1.6	5.7	4.6	2.1	-	3.3	3.6
EU-MED	1.7	17920	10.6	63.6	-0.5	21.7	0.8	22.4	3.4	19.4	7.2	3.7	-7.2	1.2	9.3
France	1.8	20253	6.4	91.9	-0.2	22.3	0.5	21.1	3.7	17.9	7.0	5.2	-2.3	1.0	8.4
Greece	0.3	17211	17.3	37.6	-1.1	25.3	1.0	23.1	3.4	27.5	8.1	2.1	-8.1	1.4	8.8
Italy	2.4	18837	9.7	51.1	-0.4	20.8	0.3	23.2	3.4	19.0	7.3	4.7	-11.2	1.0	10.0
Spain	2.4	15379	9.2	73.7	-0.1	18.5	1.3	22.3	3.2	13.3	6.5	2.7	-	1.2	9.8

[1] Mean of 11 countries, excluding Palestine; simple averages

A "-" denotes missing data.

Egypt, Morocco, Tunisia and Turkey, all experienced positive growth rates of GDP per capita in this period, but subdued compared to the group of lower-middle income countries, with the highest average growth rate of 2.7% registered in Turkey. In this sub-group of countries, inflation rates were relatively high in the 1980s, with Turkey and Egypt being the worst performers. These countries also scored poorly in terms of financial development alongside Morocco. Trade openness was also relatively low in Egypt and Turkey; while FDI was low in Morocco and Turkey, but relatively high in Egypt and Tunisia. Infrastructure was generally poor in this sub-group, and measures of schooling were significantly below those of the EU-MED, although public expenditures in education were relatively high in the region. Only in Turkey were public expenditures in education relatively low both for the region's average of 5.6% and for the average of the EU-MED countries included in the sample (3.7%). Governance indicators were also relatively poor in the MED-11, except for Israel and to a certain extent Turkey. In the period analysed, Israel performed close, but below the average of the EU-MED countries in terms of GDP per capita growth, possibly due to a high rate of inflation (63%), and relatively low levels of investment and FDI inflows.

In this period capital account openness was generally low, both in the MED-11 region and in the EU-MED region, with the average for the MED-11 below that of the EU-MED. Differences in capital account openness across countries in the MED-11 region were also more significant than in the EU-MED region.

3.2   Changes in the 1990s

In the 1990s the growth rate (simple average) of the MED-11 group was higher than in the previous decade, mostly due to an impressive post-civil-war recovery of the Lebanese economy, which recorded a 6.3% growth rate in GDP per capita (see

Table 2). The Lebanese inflation rate also came down to about half the average registered in the previous decade, and trade openness registered an increase relative to the previous decade, as did the proxy for infrastructure development (no information is available for fiscal policy or governance trends).

Tunisia also contributed to boosting the average growth rate of the MED-11, registering an average growth rate of GDP per capita of 3.2%, as opposed to 0.6% in the 1980s. This country also halved its average inflation rate and registered improvement of the indicators of financial development, trade openness, FDI, investment and infrastructure relative to the previous decade. Although not much progress was registered in terms of political rights (PRI), the index of democracy showed a small improvement both in Tunisia and Lebanon (Polity2).

In general all countries in the region improved their inflation performance in the 1990s, except for Algeria and Turkey. This lowering of inflation was accompanied by an improvement in per capita growth rates.

Algeria and Turkey were indeed the only countries to have experienced deterioration in the average per capita growth rate in this period, relative to the previous decade. Besides the deterioration in average inflation rates, both countries also experienced deterioration in trade openness relative to the 1980s, although not in the levels of FDI, which remained more or less stable, albeit at relatively low levels. In Algeria, the average investment ratio also dropped significantly.

In this period, capital account openness improved significantly in the EU-MED region but the average of the MED-11 region registered only a marginal increase. Some countries in the region, however, including Egypt, Morocco and Turkey, experienced significant improvements.

Table 2. Selected indicators, averages for 1990-99

	Per Capita GDP Growth (%)	Per Capita GDP 1990 PPP $	Inflation (CPI)	Domestic Credit to Private Sector % of GDP	Capital Account Openness Index	Trade Openness % GDP	FDI Net Inflows % of GDP	Total Investm. % of GDP	Infrastructure Phone Lines per 100 persons	Completion Rate, % of +15 pop. (Secondary)	Average Years of Total Schooling	Public Expend. in Education % of GDP	Govern. Budget Balance % of GDP	Political Rights Index (PRI)	Democracy Index (Polity2)
MED-11[1]	2.2	5736.6	9.5	41.9	-0.5	34.0	1.0	24.1	2.0	17.3	6.2	5.4	-	5.3	-3.7
Algeria	-0.5	6215.4	16.0	14.7	-1.1	24.8	0.3	28.5	1.4	27.9	6.1	-	0.2	5.9	-4.0
Egypt	2.2	3184.6	10.2	32.9	-0.4	23.2	1.2	20.9	1.5	17.6	5.3	5.3	-	5.7	-6.0
Israel	2.3	17863.5	10.6	65.2	-0.6	35.0	1.3	24.1	3.7	22.1	11.0	7.7	-	1.3	9.1
Jordan	0.4	3292.7	4.9	65.9	-0.1	62.9	1.2	29.4	2.1	27.3	7.6	5.6	-3.7	4.0	-2.4
Lebanon	6.3	5689.2	22.3	61.1	2.3	37.8	-	28.0	2.7	-	-	2.6	-	5.9	-
Libya	-	-	6.0	28.3	-1.2	24.5	-0.1	14.0	1.9	17.9	6.0	4.0	1.8	7.0	-7.0
Morocco	1.0	2684.0	4.3	32.9	-0.8	28.4	0.7	22.7	1.2	7.9	3.6	5.5	-0.6	5.0	-7.0
Syria	2.8	2945.1	6.9	9.6	-1.8	28.5	0.9	22.7	1.8	4.3	4.6	5.7	-4.1	7.0	-9.0
Tunisia	3.2	4018.6	4.7	66.1	-0.7	40.7	2.1	26.6	1.7	13.1	5.3	6.3	-2.7	5.8	-3.6
Turkey	2.1	7806.2	56.6	18.7	-0.5	15.8	0.4	23.5	3.1	11.6	5.7	2.4		3.6	8.0
EU-MED	1.6	21337.2	5.2	60.3	1.3	22.3	1.2	20.8	3.8	26.3	8.6	4.3	-5.9	1.0	9.8
France	1.4	24314.8	1.9	88.4	1.8	22.6	1.6	19.2	4.0	30.3	8.9	5.7	-3.9	1.0	9.0
Greece	1.1	17489.7	10.8	31.7	0.0	23.6	0.9	20.8	3.8	30.8	8.8	2.8	-8.5	1.0	10.0
Italy	1.4	23774.9	4.0	51.5	1.8	21.3	0.3	20.1	3.8	25.2	8.3	4.7	-7.4	1.0	10.0
Spain	2.3	19769.6	4.2	69.6	1.3	21.8	2.1	23.1	3.6	18.8	8.5	3.9	-3.9	1.0	10.0

[1] Mean of 11 countries, excluding Palestine; simple averages

A "-" denotes missing data.

3.3 Changes in the 2000-09 decade

In the decade of 2000-09, the average growth rate of the MED-11 group improved only slightly relative to the previous decade (see

Table 3). Lebanon's average growth rate slowed from the 6.3% to 3.3%. Also Israel and Syria slowed down from 2.3% and 2.8% to 1.6% and 1.4%, respectively.

Algeria's average per capita GDP growth rate improved significantly, from -0.5% in the previous decade to 2.1%. This came together with a significant decline in average inflation from 16% to 3.2%, and an increase in trade openness, FDI inflows, investment ratio and the indicator of infrastructure development.

The average GDP per capita growth rates of Jordan and Morocco also improved significantly – from 0.4% and 1% to 3.6% and 3.4%, respectively. Both countries experienced a fall in average inflation in this period. They also recorded a substantial increase in FDI inflows, especially Jordan.

The best performers in this decade were Jordan, Lebanon, Morocco and Tunisia, with average rates of inflation below 4% and increased FDI net inflows; with Jordan and Lebanon registering average FDI-to-GDP ratios of 10% and 12%, respectively. With the exception of Lebanon, the other three countries also recorded above-average investment ratios, relatively high shares of expenditure in education and above-average governance scores (compared to the MED-11 average). These last three variables score less favourably in the case of Lebanon, but this country has nevertheless registered relatively high FDI inflows.

The worst performers among the group in this period were Libya and Syria. Both scored low in terms of financial development, FDI, investment and governance.

Schooling indexes improved across the region (except perhaps in Libya and Syria) and in some countries have even surpassed the EU-MED average in this period, but there were no significant changes in governance scores.

Capital account openness also improved on average, although some countries like Morocco, Tunisia and Turkey did experience some deterioration in this decade. In Libya and Syria, on average, there were no significant changes in capital account openness between the 1980s and the 2000-09 period.

Table 3. Selected indicators, averages for 2000-09

	Per Capita GDP Growth (%)	Per Capita GDP 2000 PPP $	Inflation (CPI)	Domestic Credit to Private Sector % of GDP	Capital Account Openness Index	Trade Openness % GDP	FDI Net Inflows % of GDP	Total Investm. % of GDP	Infrastructure Phone Lines per 100 persons	Completion Rate, % of +15 pop. (Secondary)	Average Years of Total Schooling	Public Expend. in Education % of GDP	Govern. Budget Balance % of GDP	Political Rights Index (PRI)	Democracy Index (Polity2)
MED-11[1]	2.7	7759.7	3.2	49.4	0.1	38.8	4.7	23.1	2.6	20.5	7.2	4.8	-	5.4	-1.5
Algeria	2.1	6086.9	3.2	11.6	-1.1	33.4	1.4	31.7	2.0	34.4	7.3	4.3	4.8	6.0	0.0
Egypt	2.9	3992.3	7.2	49.4	2.3	27.2	3.8	18.9	2.6	22.8	6.7	4.5	-8.3	6.0	-4.5
Israel	1.6	23172.7	2.0	86.1	2.0	38.9	4.1	18.8	3.8	23.8	11.3	6.6	-3.4	1.0	10.0
Jordan	3.6	3590.5	3.7	78.1	2.5	62.8	10.5	24.8	2.4	37.2	8.9	4.9	-4.2	5.1	-2.3
Lebanon	3.3	8563.0	2.6	77.2	1.1	30.9	12.0	22.5	2.9	-	-	2.5	-12.7	5.5	7.0
Libya	2.1	12350.8	0.3	12.7	-1.2	40.7	2.2	17.5	2.7	15.1	7.4	2.7	17.7	7.0	-7.0
Morocco	3.4	2911.3	1.9	50.5	-1.1	34.5	2.2	29.7	1.7	10.7	4.6	5.6	-2.0	5.0	-6.0
Syria	1.4	3725.3	4.7	12.6	-1.8	35.0	1.8	18.2	2.7	4.4	5.0	5.2	-2.7	7.0	-7.0
Tunisia	3.6	5444.4	3.3	66.1	-1.1	46.2	4.3	25.4	2.5	15.9	6.8	7.0	-2.1	6.3	-3.8
Turkey	2.3	9408.9	18.6	22.6	-0.9	24.3	1.7	19.0	3.3	19.7	6.7	2.9	-4.5	3.2	7.0
EU-MED	1.2	25440.9	2.5	99.9	2.4	27.3	2.2	23.1	3.9	30.8	9.8	4.5	-3.8	1.0	9.8
France	0.7	28403.3	1.8	95.1	2.5	26.5	3.0	20.4	4.0	38.3	10.1	5.7	-3.7	1.0	9.0
Greece	3.0	20518.1	3.3	68.4	2.3	27.9	0.9	22.5	4.0	31.4	10.1	3.6	-6.1	1.0	10.0
Italy	-0.1	27713.6	2.2	90.4	2.5	26.3	1.3	21.0	3.8	32.3	9.2	4.6	-3.3	1.0	10.0
Spain	1.2	25128.8	2.8	145.8	2.5	28.5	3.7	28.5	3.8	21.4	9.9	4.3	-2.0	1.0	10.0

[1] Mean of 11 countries, excluding Palestine; simple averages

A "-" denotes missing data.

4. Empirical analysis: Determinants of growth

In order to analyse in a more systematic way the drivers of growth for the region, this section uses econometric tools to identify the factors that may significantly contribute to explaining differences in performance among MED-11 countries and between the MED-11 and the EU-MED. The next subsection explains in detail the empirical methodology employed.

4.1 Empirical methodology

Our empirical objective is to analyse the way in which the individual country characteristics summarised above affect growth. These characteristics, as observed before, did change over time, and hence it is appropriate to use pooled cross-country and time-series data. Unfortunately the time span of some of the variables makes it difficult to include them in a regression analysis. This is the case with most fiscal variables.

We follow the recent panel-data growth regression literature that uses the Generalized Method of Moments (GMM) estimation procedures to address the problem of endogeneity and control for unobserved country-specific factors (see Levine et al., 2000; Dollar & Kraay, 2004; Chang et al., 2009). The GMM method uses differentiation to deal with unobserved fixed effects and allows for a large set of instruments to address the problem of endogeneity (see Arellano & Bond, 1991). The sample consists of an unbalanced panel of 10 of the MED-11 countries (it excludes the Palestinian Authority) and four EU-Mediterranean countries (France, Greece, Italy and Spain). For each of them, the dataset includes observations consisting of non-overlapping 4-year averages spanning the period 1980–2009. We chose to construct 4-year averages rather than the 5-year averages that are common in the literature in an attempt to extend the sample as much as possible, given that some of the data series are relatively short. The inclusion of the four EU-MED countries increases the sample, makes it more balanced between high-income and middle-upper income countries and allows testing for the hypothesis of convergence across the Mediterranean.

The starting point of the analysis is the standard linear growth regression, given by equation (1):

$$y_{i,t} - y_{i,t-1} = \beta_0 y_{i,t-1} + \beta_1' Z_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \tag{1}$$

In equation (1), the growth rate of GDP per capita (left hand side) depends on the logarithm of the initial level of GDP per capita ($y_{i,t-1}$) and on a set of explanatory variables Z. The subscript i indexes the country, the subscript t indexes the time period; μ_t and η_i represent unobserved time and country-specific effects, respectively and ε is the error term.[15]

In the set of explanatory variables, we consider, in broad terms, the rate of CPI inflation, financial development, openness, FDI, investment, human capital indicators, and governance. In alternative specifications we also tested for the significance of fiscal variables, including government expenditures as a ratio to GDP, government revenues as a ratio to GDP and government budget balances as a ratio to GDP. But these variables always come up as insignificant, perhaps due to their short sample size, so the results regarding these variables are broadly inconclusive and have not been included in the report.[16]

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[15] The country effects, η_t are basically time-invariant country characteristics, which can be eliminated by differencing the model. The time specific effects μ_τ can be captured by including time-dummies in the model, to account for time-specific events that affect growth but which are not reflected in the explanatory variables.

[16] These results are available from the authors upon request.

According to the literature (see Arellano & Bond, 1991), the most appropriate method for estimating equation (1) is to use the GMM estimation method. The GMM procedure can deal with the presence of unobserved country-specific effects, which cannot be dealt with standard within-group or difference estimators, due to the dynamic nature of the regression. The same concerns the problem of possible endogeneity of the regressors. The GMM estimation is based on differencing to control for unobserved effects and, on instrumenting to control for endogeneity.

Notice that equation (1) can be rearranged as follows:

$$y_{i,t} = (1 + \beta_0)y_{i,t-1} + \beta_1' Z_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \tag{2}$$

Country-specific effects can be eliminated from (2) by taking first differences. This yields equation (3):

$$y_{i,t} - y_{i,t-1} = (1 + \beta_0)(y_{i,t-1} - y_{i,t-2}) + \beta_1'(Z_{i,t} - Z_{i,t-1}) + (\mu_t - \mu_{t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \tag{3}$$

Instrumenting is required in this context to address the problem of the likely endogeneity of the explanatory variables. In addition, the new error term $(\varepsilon_{i,t} - \varepsilon_{i,t-1})$, by construction, is correlated with the lagged-dependent variable, $(y_{i,t-1} - y_{i,t-2})$. The GMM estimation method takes advantage of the panel nature of the dataset and considers a large set of instruments consisting of previous observations of the explanatory and lagged-dependent variables. This works well under the assumption that the regression error term is uncorrelated with past values of the explanatory variables, although current and future values of the explanatory variables may be affected by growth shocks. To test whether instruments are valid (i.e. uncorrelated with the residuals), we consider two commonly used specification tests. The first is known as the Sargan test, for which instruments are valid under the null hypothesis. Failure to reject the null provides support for the model in the case of this test. The second test examines whether the original error term in equation (1) and (2), ε_i, is serially uncorrelated. The appropriate null hypothesis is that residuals of equation (3) have no second-order serial correlation. Failure to reject the null gives again support for the model. Second-order serial correlation of the differenced residual would indicate that the original error term is serially correlated and follows a moving average process of at least order one. This would reject the appropriateness of the proposed instruments and call for the use of higher-order lags.[17]

4.2 Empirical results

Table 4 shows estimates of equation (1) using the GMM procedure, as described above. Specification (1) is the baseline specification, in which we include as regressors the initial GDP per capita, the rate of inflation, the ratio of domestic credit to the private sector to GDP as a proxy for financial development, the trade openness indicator, the FDI to GDP ratio, the investment to GDP ratio, the proxy for infrastructure (number of fixed telephone lines per 100 persons) and the secondary completion rate as a proxy for human capital.[18]

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[17] Notice that the differenced residuals should exhibit first-order serial correlation even if the original error term (in levels) is uncorrelated, unless the residuals in levels follow a random walk.

[18] Following Chang et al. (2009), we introduce inflation in the model as the absolute value of CPI inflation minus 2% to account for the fact that very low or negative inflation rates are also a sign of macroeconomic instability (the results are not affected by small changes to the 2% benchmark).

Table 4. Drivers of growth, dependent variable: Growth rate of GDP per capita

	(1)	(2)	(3)	(4)	(5)
Log of Initial GDP per capita	-0.494***	-0.533***	-0.541***	-0.549***	-0.771***
	[0.105]	[0.067]	[0.073]	[0.076]	[0.159]
Inflation	-0.039***	-0.050***	-0.037**	-0.036**	-0.055***
	[0.010]	[0.017]	[0.017]	[0.018]	[0.008]
Financial Development (Private Credit, % GDP)	0.020				
	[0.016]				
Financial Development (Initial Capital Account Openness)		0.617**	0.567***	0.576***	0.491***
		[0.264]	[0.203]	[0.213]	[0.157]
Trade Openness	0.207***	0.200***	0.203***	0.203***	0.147***
	[0.038]	[0.050]	[0.050]	[0.050]	[0.035]
FDI (% of GDP)	0.600***	0.518***	0.527***	0.517***	0.881***
	[0.140]	[0.145]	[0.158]	[0.152]	[0.160]
Investment (% of GDP)	0.035	0.105*	0.124	0.121	0.103**
	[0.045]	[0.063]	[0.076]	[0.080]	[0.046]
Infrastructure	1.357*	1.483***	1.302**	1.348***	2.349***
	[0.715]	[0.408]	[0.506]	[0.492]	[0.708]
Human Capital (Secondary Completion)	-0.032	-0.043			
	[0.041]	[0.059]			
Expenditures in Education (% of GDP)					1.819***
					[0.705]
Initial Governance (Freedom House PRI - inverse ranking)				0.426	1.497
				[0.885]	[1.007]
Observations	83	85	85	85	73
Number of countries	13	13	13	13	11
2nd order autocorrelation test (p-value)	0.77	0.82	0.92	0.90	0.48
Sargan test (p-value)	0.35	0.63	0.54	0.60	0.85

Estimation Method: Differenced GMM

Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

Constant and Time effects ommitted

Lebanon is excluded from the analysis due to insuficient data; it is possible to include Lebanon in specifications (3), (4), and (5), but only one cross-section of data is available due to insuficient data on FDI, and the results do not change signficantly (these estimates are shown in Appendix 2). Algeria and Libya are excluded from (5) due to insuficent data on expenditures in education; the Palestinian Authority is excluded from the analysis also due to insuficient data.

Note: All variables (except initial variables) represent 4-year averages.

We have tested the significance of a dummy for the four EU-MED countries (France, Greece, Italy and Spain), but this was never significant, and therefore has not been included in the estimates presented in the report. Dummies for oil-producing countries were also always insignificant, suggesting that these characteristics are perhaps being picked up by differences in

other variables.[19] In specification (2), we replace the private-credit-to-GDP ratio, which always comes out as insignificant, by the capital account openness indicator at the beginning of the period. In doing this we follow Chinn & Ito (2008), who show that this variable significantly impacts on the financial development for the period. The results show financial development as proxied by this variable to be robustly correlated with growth performance. In specification (3) we exclude the human capital variable from the model, since it is never significant (very similar results are obtained if average years of total schooling are used instead to proxy for human capital). In specification (4), we add governance to the model. We proxy governance by the inverse of the Freedom House PRI rankings, so that a higher value implies better governance, and use the initial level rather than period averages (we also tested the Polity2 index of democracy and the results do not change substantially).[20] Finally, in specification (5), we also include expenditures in education as a percent of GDP (these however are not available for Algeria and Libya).

The estimates in Table 4 exclude Lebanon, since data for this country are limited, besides excluding the Palestinian Authority. In Appendix 2 we show estimates that include one cross-sectional observation for Lebanon corresponding to the last period in the analysis for which FDI data are available, and the results regarding other variables remain broadly the same.

The results support the hypothesis of convergence across countries on both sides of the Mediterranean. The coefficient on initial GDP is negative and significant in all specifications reported in Table 4. This implies that on average countries with relatively low levels of GDP per capita have been growing faster than countries with relatively high levels, as required in a convergence process.

In all specifications, the rate of inflation appears with a significant and negative sign as would be expected. High rates of inflation create macroeconomic uncertainty which reduces economic efficiency. Put differently, disinflation among this group of countries has in general been rewarded with better growth performance.

Financial development as proxied by the initial level of capital account openness is robustly correlated with better growth performance. The results show that for this group of countries capital account openness may indeed be a better proxy for financial development (see Chinn & Ito, 2008 and also Mouley, 2012a).

Openness to trade is also significant in all specifications with a positive sign. Although there are mixed results in the empirical literature regarding the role of openness on economic growth (see Chang et al., 2009 and references therein), among this set of countries, openness to trade is associated with better growth performance. The same significant positive impact is also observed for FDI. Notice that there is strong evidence that FDI inflows are correlated with better institutions (see Bénassy-Quéré et al., 2007); therefore the differences in institutions across

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[19] The growth analysis in this section excludes the Palestinian Authority, for which most of the data are not available, and Lebanon for which no data on schooling are available and data on FDI are limited. Appendix 2 shows the results including cross-sectional information available for Lebanon, corresponding to the last period analysed. Dependent Variable: Growth rate of GDP per capita. All variables (except initial variables) represent 4-year averages.

[20] We use the initial level of governance to avoid including this variable in the set of instruments. By considering the initial level of governance, we can treat this variable as exogenous. The initial level of capital account openness is also treated as exogenous in the analysis.

countries and within countries over time, which our database may not fully capture, are possibly being captured in part by this variable.[21]

The coefficient associated with the ratio of domestic investment to GDP, although having the expected positive sign, is not always significant. This is consistent with the idea that returns on public investment have had lower returns in the MENA region (see Straub et al., 2009). It is difficult however, to distinguish between the effects of public and private investment, since available data on private investment are too limited. The insignificance of the results may also have to do with the fact that other factors that affect investment (e.g. inflation, openness and FDI) are already accounted for in the regressions (see Barro, 1996).[22] Results are more robust for the indicator of infrastructure (number of fixed telephone lines per 100 persons). The coefficient on this indicator is always positive and significant.

Human capital proxied by secondary completion rates is insignificant and has even an unexpected negative sign (the same result holds if the average years of total schooling are used instead). This is in line with findings that returns from education in some of the countries in the region are low, with young graduates often remaining unemployed (see Arbak, 2012). It may also reflect the fact that the Barro and Lee dataset has several limitations and in general does not yield significant results in growth analysis (see Cohen & Soto, 2007). When we include the ratio of public expenditures in education to GDP in the analysis to capture differences in investment in human capital, we find a significant and positive impact of this variable on growth. Our results that public expenditures in education affect growth positively are in line with the findings of growth studies that look at the detailed composition of public expenditure (see for instance Bose et al., 2007).

Results of our analysis suggest that MED-11 countries are likely to gain from closer ties with the European Union, which can strengthen trade and investment links. They should also gain from developing their financial markets and improving infrastructure.

Declining inflation rates have had, on average, a significant positive impact on growth performance. In the period of 2000-09, the MED-11 countries included in

Table 3, except for Turkey, had all brought inflation below 2-digit levels. And although inflation in Turkey was still relatively high in this period, significant progress was made.

According to Friedman (1963), "inflation is always and everywhere a monetary phenomenon". Thus, significant differences in inflation can be explained by differences in money growth. However, as pointed out by Cottarelli et al. (1998), this is not in itself very interesting. It is more interesting to analyse the non-monetary factors that lead the authorities to allow the money supply to expand and inflation to rise, including incentives for monetising government deficits, and for competitive devaluations. To try to understand the role of these factors and infer about the sustainability of low inflation rates in the region, we adapt the analysis of Cottarelli et al. (1998) to our set of countries and the available data in the next section.[23]

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[21] Bénassy-Quéré et al. (2007) provide evidence that institutions matter independently of GDP per capita. In particular, their results point out bureaucracy, corruption, but also information, banking sector and legal institutions as important determinants of inward FDI.

[22] The time series on e-governance are not long enough to test the hypothesis that the quality of governance affects the quality of investment and thus its impact on growth performance of the country.

[23] For a detailed analysis of monetary policy in the region and its links to inflation, see Mouley (2012b).

5. Digging deeper: Determinants of inflation

5.1 Empirical methodology

To analyse the determinants of inflation, we follow a similar methodology of Cottarelli et al. (1998). We adapt this methodology to our data availability, and use again GMM as the estimation method to account for endogeneity problems.

Cottarelli et al. (1998) relate inflation to past inflation and a range of explanatory variables as shown in equation (4):

$$\pi_{i,t} = \alpha_i + \beta\pi_{i,t-1} + \gamma'X_{i,t} + \varepsilon_{i,t} \tag{4}$$

where π is the logarithm of inflation; X is a set of explanatory variables; and ε is an error term.[24] In this study this equation will be estimated by differenced GMM. The observations correspond to annual data between 1980-2009, but the panel is unbalanced. In the set of explanatory variables we include: i) catching-up effects; ii) fiscal determinants; iii) balance of payments related factors; iv) labour market factors; and v) institutional factors.

To capture catching-up effects, we use the logarithm of the initial GDP per capita. Cottarelli et al. (1998) include instead lagged relative prices to account for catching-up, but these data are not available for our set of countries.[25] The coefficient of this variable is expected to be negative: countries with lower GDP per capita and therefore lower price levels should experience higher rates of inflation as they catch-up.

In the set of fiscal determinants we use the deficit and the debt-to-GDP ratios. Large disequilibria in public finances often translate into inflation, since they end up been monetised one way or another. The coefficients on these variables are expected to be positive.

As balance of payments-related factors we include the current account deficit, our measure of openness (average of imports and exports as a ratio to GDP), and exchange rate regime dummies (Peg and Float).[26] Larger current account deficits are expected to be associated with exchange rate devaluations that are accompanied by money supply expansions and inflation, and therefore a positive coefficient is expected for this variable. On the other hand, more trade openness is usually associated with lower inflation: countries that are more open to trade have more incentives to contain inflation and maintain their competitiveness, and have less incentives to stimulate the economy through surprise monetary expansions.

Finally, inflation can also be associated with the exchange rate regime. Exchange rate pegs can often be successful anchors for inflation. To control for this, we use a de facto exchange rate classification from Rose (2010), which groups countries into "de facto pegs"; "de facto floats", and "de facto intermediate" regimes, and include in the model dummies for the first two categories, leaving the third as the benchmark.

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[24] As in Cottarelli et al. (1998) we use the logarithm of inflation due to the presence of high rates of inflation in the sample, as a way of reducing the risk of heteroscedasticity in the residuals.

[25] According to the Balassa-Samuelson theory, the price level of rich countries should be higher than the price level of poor countries, since the higher productivity of tradables in richer countries will be translated into higher prices for non-tradables. In a catching-up process, as the productivity of tradables rises faster in developing countries, these should experience higher inflation (catching-up of non-tradable prices), than richer countries.

[26] The dummy Peg takes the value 1 if the country runs a de-facto pegged regime according to the IMF, and zero otherwise. The dummy Float takes the value 1 if the country runs a de-facto free floating regime according to the IMF, and zero otherwise. This leaves out intermediate regimes as the benchmark case.

As labour market factors, we include the rate of unemployment. Although a higher NAIRU (non-accelerating inflation rate of unemployment) may be associated with higher equilibrium inflation, as the authorities have more incentives to use expansionary monetary policy to inflate the economy, higher unemployment is also associated with more slack in the economy and less pressure on prices to go up as the economy is catching-up.

As institutional variables we include a dummy capturing EMU membership effects for the four EU-MED countries in the sample (D_{emu}), and a dummy for inflation targeting regimes (basically this is a dummy for Israel and Turkey).[27] To control for financial sector considerations that may affect the decision of central banks when changing interest rates to fight inflation, we also include domestic credit to the private sector as a percent of GDP, as a measure of the health of the domestic banking sector.[28]

Although in several MED-11 countries food, energy, and fuel subsidies limit the effects of producer price increases on CPI inflation (see Albers & Peeters, 2011; World Bank, 2011), there is no sufficient time series data that make it possible to include this information in the analysis in a meaningful way. Many countries in the region have reduced or are phasing out this type of subsidies, to respond both to external and to fiscal pressures; hence time series information would be essential in this case. Some of these effects may be, at least on average, picked up by the coefficient on lagged inflation, which measures inflation persistence.

5.2 Empirical Results

The estimation results are reported in Table 5. Column (1) shows the basic specification in which all variables are included. In subsequent columns insignificant variables are omitted sequentially. The results show some inflation persistence. The coefficient on lagged inflation is positive and in general significant.[29] The catching-up effect captured by lagged per capita GDP is also significant and with the expected negative sign.

The government deficit to GDP ratio is significant in all specifications, and with the expected positive sign. Larger government deficits are associated with higher inflation. Although the coefficient on the debt-to-GDP ratio is also positive, it is not significant, and since both fiscal variables are likely to be capturing the same thing, we drop this variable from specification (2) onwards.

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[27] The Demu dummy takes the value 1 for the periods in which the country belongs or was in the run-up to membership in the euro area and zero otherwise; hence it always takes the value zero for MED-11 countries. The run-up period was considered as the two-years prior to membership during which the candidate countries had to comply with the Maastricht convergence criteria, and therefore maintain inflation relatively low. The Dinflation_target dummy takes the value 1 for Israel and for Turkey, starting from the dates when this regime was adopted in each country (1997 in Israel and 2006 in Turkey) and zero in all other cases.

[28] Cottarelli et al. (1998) capture these financial market considerations by a discrete choice variable measuring the health of the domestic banking system. This variable, which comes out as insignificant in their analysis, is based on a survey asking IMF country economists to rank the state of the domestic banking system from 1 (Sound) to 10 (Crisis). Such a variable is not available in our case. We did try to use capital account openness to control instead for financial development, but this variable is also insignificant in this analysis, and the other results do not change substantially.

[29] The inflation persistence coefficient can also be capturing the effect of price subsidies. The fact that it is not always significant may indicate that the average hides important differences in inflation persistence across countries and over time which are worth investigating as more time series data on this type of subsidies becomes available.

Table 5. Determinants of inflation, dependent variable: Log of inflation

|	(1)	(2)	(3)	(4)	(5)	(6)
Log of Inflation t-1	0.253**	0.165	0.219**	0.223**	0.207*	0.201
	[0.112]	[0.114]	[0.105]	[0.103]	[0.118]	[0.122]
Log GDP per capita t-1	-2.291***	-2.649**	-2.429***	-2.350***	-2.320***	-2.376***
	[0.688]	[1.037]	[0.601]	[0.551]	[0.886]	[0.857]
Government Deficit to GDP	0.061***	0.058***	0.050***	0.047***	0.037**	0.037**
	[0.009]	[0.014]	[0.011]	[0.013]	[0.018]	[0.017]
Government Debt to GDP	0.001					
	[0.003]					
Domestic Credit to GDP	-0.001	0.003	-0.000	0.001		
	[0.002]	[0.004]	[0.003]	[0.003]		
Current Account Deficit to GDP	0.050**	0.049	0.051*	0.050*	0.055**	0.055**
	[0.022]	[0.030]	[0.027]	[0.026]	[0.028]	[0.028]
Trade Openness	0.036*	0.028	0.032	0.031	0.031	0.030
	[0.018]	[0.025]	[0.021]	[0.022]	[0.020]	[0.020]
Unemployment Rate	-0.107***	-0.134***	-0.121***	-0.124***	-0.117***	-0.119***
	[0.032]	[0.022]	[0.023]	[0.023]	[0.023]	[0.024]
Peg	0.093	-0.205				
	[0.094]	[0.134]				
Float	0.117	0.179	0.144			
	[0.189]	[0.301]	[0.232]			
Demu	-0.402***	-0.497**	-0.532**	-0.530**	-0.673**	-0.676**
	[0.143]	[0.237]	[0.226]	[0.227]	[0.270]	[0.265]
Dinflation_target	0.274**	0.471*	0.211	0.189	-0.006	
	[0.137]	[0.275]	[0.157]	[0.161]	[0.299]	
Observations	170	171	171	171	173	173
Number of countries	12	12	12	12	12	12
2nd order autocorrelation test	0.167	0.121	0.133	0.134	0.146	0.145
Sargan test	0.574	0.491	0.472	0.520	0.380	0.359

Estimation Method: Differenced GMM

Robust standard errors in brackets. Constant omitted.

*** p<0.01, ** p<0.05, * p<0.1

The effect of the government deficit on inflation is particularly important for the MED-11, where the debate on the quality of fiscal policy and institutions has been at the forefront of discussions with the EU.[30] The 2008-09 economic crisis has also put important strains on government budgets, which should be reversed if inflation is to be kept under control (see Figure 1). Here it is important to note the strains that food and energy subsidies have put on the budgets of some of the MED-11 countries (see Albers & Peeters, 2011). With mounting food and energy prices, this type of subsidies have reached up to more than 10% of total current expenditures in some countries and do pose a real threat to fiscal stability and thus inflation.

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[30] The first Euro-Mediterranean ECOFIN meeting in Morocco, in June 2005, identified fiscal policy as one of the four priority areas for accelerating reform and improving the growth prospects of the EU Mediterranean partner countries (MED partners).

Figure 1. Government budget balances (% of GDP)
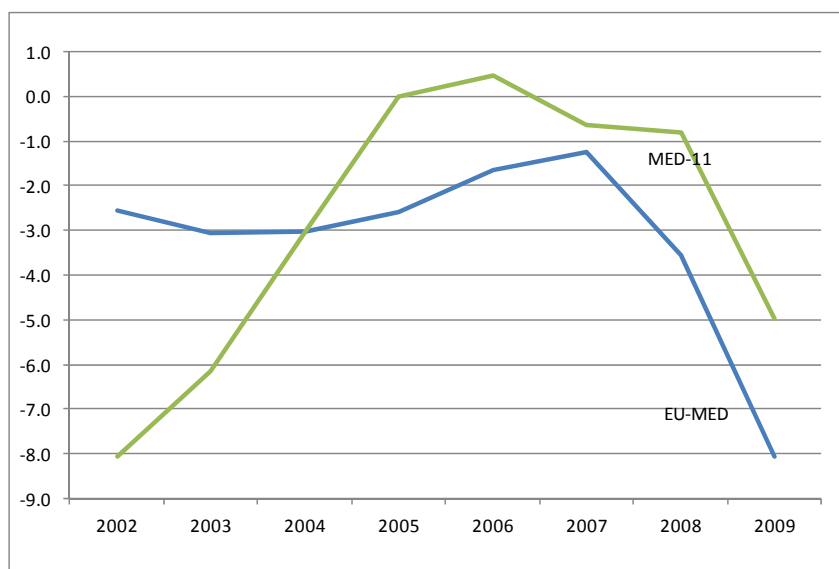
*Excluding the Palestinian Authority; simple average.

Among the balance of payments factors, only the current account deficit is systematically associated with differences in inflation. Larger current account deficits are found to be correlated with higher rates of inflation in most specifications. Figure 2 shows the evolution of current account balances for the EU-MED and the MED-11 groups. It also shows the evolution of current account balances for the south Mediterranean group, excluding the net oil exporters, Algeria and Libya (MED-9). Current accounts in the MED-11 and MED-9 have on average improved from a low in 1983 to a peak in 2006, and have since deteriorated. Further deterioration of current accounts could bring to the discussion issues related to exchange rate regimes and monetary policy.

*Figure 2. Current account balances (% of GDP*
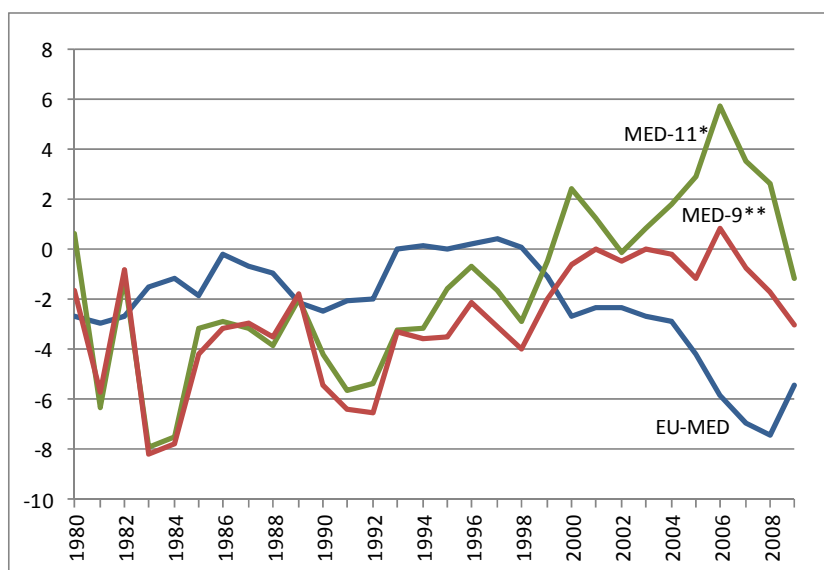
*Excluding the Palestinian Authority; simple average.
**Excluding the Palestinian Authority, Algeria and Libya; simple average.

The coefficient on unemployment is also significant in all specifications and with a negative sign. We do not have a measure of the NAIRU for these countries, and hence we cannot effectively test for the hypothesis that higher equilibrium unemployment is associated with higher inflation. Our results suggest instead the existence of some trade-off between inflation and unemployment. High unemployment, although undesirable, may be creating slack in the economy which has been keeping inflation under control. On the other hand, reductions in unemployment mainly driven by public sector employment expansions put a strain on public finances and stimulate consumption, which in association with low productivity, generate upward pressure on prices and inflation.

Unemployment in the MED-11 has been persistently high. Figure 3 shows the recent evolution of unemployment rates in the MED-11 and the EU-MED. Although the unemployment rate in the MED-11 has been steadily declining since 2002, it has remained above 2-digit percentage rates, and there are signs of a reversal in the trend during the financial and economic crisis of 2008-09, although it is not possible to infer about the persistency of this reversal from the currently available data. In any event, the results indicate that increasing employment without creating inflationary pressures will pose a challenge for MED-11 countries. Employment strategies that rely on the expansion of public sector employment without improvements in productivity are likely to result in higher inflation. Alternatively, product and labour market reforms that increase flexibility and promote private sector investment should help, together with appropriate macroeconomic management.

Figure 3. Unemployment rates (%)
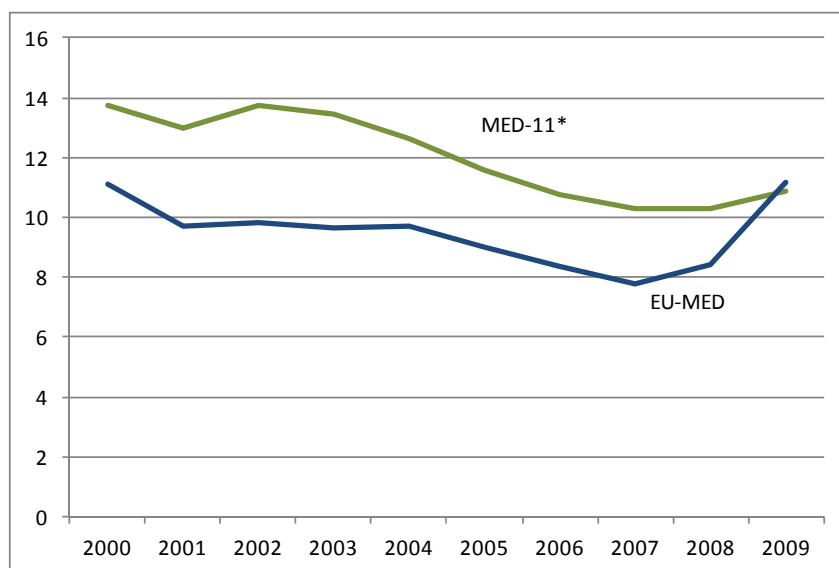
*Excluding the Palestinian Authority, Lebanon, and Libya; simple average.

Finally, the euro area dummy shows up significant, showing that membership in EMU has helped the EU Mediterranean countries keep inflation under control. Interestingly, the inflation targeting dummy is only significant in some of the specifications and with a positive coefficient. This could be due to the fact that it may be still too early to analyse the effects of targeting inflation in Turkey, since the country has only adopted this regime in 2006.[31]

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[31] It is also important to note that Turkey has experienced difficulties in maintaining the inflation rate on target, and was forced to change it in 2008, a move which may have negatively affected the regime's

6.   The MED-11 and the EU in 2030

What can then be the role of the EU in promoting growth and stability among its Mediterranean neighbours? The evidence in this study points to the role of economic integration in fostering growth in the region. Although there is no evidence that closer ties to the EU would be preferred to closer ties to other World regions, the EU is a close industrial neighbour of the MED-11, and it is a natural candidate for enhanced partnership. The evidence presented in section 4 suggests that the MED-11 can benefit from enhanced trade links with the EU, and specifically from the reduction of tariffs and easing of non-tariff measures between the two blocs. The potential for trade expansion between the EU and the MED-11 as well as among the MED-11 countries that could result from lowering tariffs, and easing non-tariff barriers – including improving trade logistics – is discussed in Ghoneim et al. (2012).[32] De Wulf &Maliszewska (2009) provide details on how the EU could help in this deepening of economic integration between the EU and MED-11 with well-targeted support initiatives that should go beyond the lowering of tariffs that was the main approach of the Association Agreements. This increase in trade between the MED-11 and the EU, however, should not come at the expense of a reduction in trade with other regions (trade diversion). Instead trade policy should contribute to enhancing the overall openness of the MED-11 countries. Only then will trade expansion contribute to boosting their growth performance.[33]

Close links to the EU can also come in the form of increased FDI. According to the analysis, FDI inflows also help to explain differences in growth performances across the Mediterranean (see Sekkat, 2011, for a detailed discussion of the determinants of FDI and trade in the MED-11). The 'Arab Spring', however, has brought to the region a great deal of uncertainty about business conditions in South Mediterranean region, which may remain unresolved for an unknown period of time. Increased and long-lasting instability is likely to result in the withdrawal of foreign companies from the region and deter others from tapping into the market; hence in the short-term the EU's greatest contribution should be to help the region regain political stability.[34] In the long run, programmes designed at increasing EU-country's direct investment in the MED-11 should increase the growth prospects of the region, if they contribute to increasing the overall FDI inflows to the region (i.e. does not crowd-out other investment).[35]

The EU and the MED-11 can also gain from collaboration in the area of financial market development, once the EU is able to sort out problems in its own financial markets.[36] EU

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credibility. Furthermore, in 2010-11, Turkey tried a monetary policy which in the view of many economists is very unconventional as a means of bringing down inflation: the central bank of Turkey lowered interest rates to depreciate the currency and curb capital inflows, simultaneously raising bank's reserve ratios as a means of cooling domestic credit (see *Financial Times,* 2011a).

[32] MEDPRO Technical Report (Working Package 5).

[33] Viner (1950) introduced the concepts of "trade creation" and "trade diversion" when analyzing the effects of customs unions. Since then a number of studies have produced empirical estimates of these effects for regional liberalization agreements. Martínez-Zarzoso et al. (2009), for instance show some evidence of trade diversion effects coming from Euro-Mediterranean agreements. This issue has also been analyzed in detail in de Wulf & Maliszewska (2009).

[34] For information on the early effects of the Arab Spring on foreign businesses in the region see *Financial Times* (2011b).

[35] Baldwin et al. (1996) discuss the issue of 'investment diversion', in the context of the EU.

[36] The financial market crisis which started in the US in 2007, quickly spread to Europe and further developed into government debt crises in Ireland, Greece and Portugal, and as of early 2012 financial stability had not yet been regained.

engagement in this area can come not only in the form of FDI but also in terms of cross-border transactions and collaboration in the area of regulation and supervision of the financial sector.

In the area of macroeconomic policy, the EU can probably have a significant influence. Improving the quality of public finances in the Mediterranean neighbourhood of the EU has been on the agenda of EU-Mediterranean partnership meetings.[37] Improvements in this area should include a selective use of fiscal resources, which should be channelled to areas that are proved to be growth-enhancing, such as education. They should also aim at ensuring the sustainability of fiscal policy, so as to contain the monetisation of government deficits and inflation. In addition, the experience of the euro area at maintaining price stability can perhaps be of use to the region, as threats to inflation start to emerge. Although there is no robust evidence that pegged exchange rates deliver more price stability, the pegs in the region have been de-facto pegs to the US dollar and there is little experience of pegging to the euro (only for the pegs of Tunisia and Morocco, in which the euro has had a relatively large weight). Further research to investigate the advantages of using a peg to the euro as a means of anchoring inflation would be of particular interest in this area. Adam & Cobhmas (2009) compare alternative exchange rate regimes for the MENA region in terms of their impact on trade, using a gravity model. They do find that a peg to the euro would be the most trade-boosting alternative for most countries under consideration but they do not address the consequences of this regime choice for price stability. In any event, the experience with pegged exchange rate regimes to date has proven that the credibility of any peg rests on the sustainability of fiscal policy (see Flood & Marion, 1999 and references therein). Without ensuring this sustainability first, pegged exchange rates cannot be the solution for macroeconomic stability in the region.

Finally, Europe could help to bring down unemployment in the MED-11 through targeted support for the improvement of the business climate for the private sector. One of the main challenges facing MED-11 countries, and the Middle-East and North Africa in general, is that of absorbing a large pool of potential workers into productive employment activities, and among this, a large pool of young and increasingly more skilled labour market entrants (see Holzmann & Pouget, 2010). Employment strategies that rely on expanding low-productivity public sector employment impose strains on public finances which can ultimately lead to the monetisation of government deficits and inflation. Instead, improving the conditions for private sector development should be the key to breaking up the inflation-unemployment trade-off. This should entail the improvement of institutions, and may include initiatives to ease labour and product market rigidities. Improved migration policies in Europe can also potentially play a role. There is increasing consensus in the literature and policy circles that realistic solutions to the migration issue requires well-designed migration management systems that can maximise the benefits and minimise the risks for all parties involved (see Holzmann & Pouget, 2010 and references therein).

7. Conclusions

The aim of this study was to shed light on the determinants of growth and inflation in a set of EU neighbouring countries (the MED-11). The study analyses past trends and cross-sectional information to identify the factors that seem to have been most important in determining differences in output growth and CPI inflation, both across time and across countries. Although

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[37] This has been one of the priority areas discussed in the series of Euro-Mediterranean ECOFIN Ministerial Meetings that have taken place since the first meeting in Skhirat, in June 2005.

it is possible that structural changes may change the relative importance of such driving forces, understanding past trends is important for inferring about the future.

It is important to notice that data limitations have imposed significant constraints on the analysis. Nevertheless some interesting results have emerged. In terms of output growth, the stylized facts reveal Algeria, Libya, Syria and even Turkey, as underperforming relative to their income group. At the same time Lebanon, Tunisia and with a delay Jordan, have experienced impressive recoveries from the turbulent 1980s.

To further understand what may be driving such differences in performance across countries and time, we used regression analysis to estimate the links between output growth and a range of explanatory variables commonly used in the literature and for which data are available with a reasonable sample. In an attempt to eliminate cyclical effects, but taking into account the need to keep the sample as long as possible, the growth regression analysis was undertaken on 4-year averages of the data. To account for endogeneity problems, GMM was used as the estimation method.

The analysis strongly supports the hypothesis of convergence across income groups, since growth rates are found to be negatively related to the level of initial income, with poorer countries growing faster on average than richer countries (mostly EU-MED countries). With the exception of the 1980s, this phenomenon could already be inferred by comparing the growth averages of the MED-11 to the average of the EU-MED.

The growth analysis unveiled the rate of inflation as an important determinant of output growth in the region. This result corroborates other growth studies including broader sets of countries, and partly explains the subdued performance of the MED-11 on average in the 1980s, and of Turkey in general.

Another important determinant found is financial market development, when proxied by the initial level of capital account openness. This proxy has been found in the literature to be a more encompassing measure of financial development. Additionally, openness to trade and FDI inflows are also found to be strongly correlated to growth performance. This result is also in line with the literature, although certain studies using broader groups of countries have often reached less conclusive results regarding these variables. The importance of financial development, trade and foreign investment for growth in the region underpins the importance of a deeper integration of the region in the world economy, and of strengthening economic ties with the European Union.

Finally, there is also some evidence that expenditure in education can be important in explaining differences in performance. This indicator is intended to account for differences in investment in human capital, in the absence of better quality data on stocks of human capital and better data on expenditures. Further research would benefit from higher quality data that would more accurately take into account differences in the stock of human capital and differences in the efficiency with which resources committed to education are used.

Although there is now a growing literature on the effects of fiscal policy on growth, fiscal policy data for this set of countries are very limited, and the available series are often discontinued.[38] Including variables such as the deficit to GDP ratio, total expenditures to GDP ratio or revenues to GDP ratio do not yield significant results and reduce the sample size significantly. Efforts should be made to improve the quality of fiscal data, including the composition of expenditures and revenues, and other data. Recent data gathering exercises,

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[38] Coutinho et al. (2009) attempt to analyse the growth effects of fiscal policy using detailed fiscal data, but the study has several limitations due to data availability, and the set of countries is slightly different.

including institutional indexes and trade logistics indicators, are now regularly published and should enrich the future research possibilities.[39]

One important threat to the sustainability of MED-11 countries' output growth performance can come from undesirable developments in inflation. In order to understand the factors that could derail inflation, we use econometric analysis to analyse non-monetary determinants of inflation following Cottarelli et al. (1998). We also use GMM estimation in this analysis to account for endogeneity.

Our analysis revealed that government budget deficits appear to have been important determinants of inflation in the region, with larger deficits being associated with higher rates of inflation. Hence inflation stability may well hinge on the countries' ability to maintain fiscal discipline. It is important therefore to ensure that the institutions in place can deliver this necessary discipline.

The results of our analysis also reveal that current account imbalances are associated with higher inflation. Large current account imbalances create pressures for countries to produce nominal devaluations through monetary expansion, which ultimately results in inflation. Although moderate current account deficits can be healthy for the economy to the extent that they reflect foreign investment in the economy, growing imbalances should be monitored.

Finally, our analysis suggests an important trade-off between inflation and unemployment. High unemployment rates are an important problem in the region. Reducing unemployment should not come at the cost of increased inflation. To achieve this goal, labour and product market reforms that increase their flexibility need to be launched, and business conditions in general improved.

The unemployment problem is perhaps what most strikingly links countries on both shores of the Mediterranean, and one of the areas in which the EU can potentially play a greater role, not only in helping to shape the reform agenda towards the promotion of healthy business environments that can serve as a basis for further private sector development in the region, but also in the area of migration policies. Smart migration management systems could help to channel some of the MED-11 young and increasingly educated labour market entrants to good jobs in Europe, with higher benefits and reduced costs for stakeholders.

Monetary policy is another area in which cooperation between the MED-11 and the EU could be fruitful. The study does find that membership in the euro area has contributed to inflation stability. Although this is not an option for the MED-11, possible pegs to the euro could be assessed as a means for central banks in the region to borrow the ECB's credibility. The experience with fixed exchange rate regimes has shown however that fiscal sustainability is essential for the credibility of any peg; hence sound fiscal management becomes once more the key issue.

Finally, it can be stressed that cooperation with the EU moving towards 2030 should also pass through revising trade and investment relations between the two regions. Trade and foreign investment have been identified as catalysts for growth, and the EU is a privileged partner for the region due to its proximity and historic ties. Provided that facilitating trade and investment between the two regions does not come at the cost of a reduction in trade with other regions and investment from other regions, increased partnership in these areas should improve the growth prospects of the MED-11. In the short-term, the challenge in this area is to help the region find a new balance, as the "Arab Spring" resolves itself.

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[39] The World Bank Doing Business rankings, and the World Bank Logistics Performance Index (LPI), for instance can be exploited in the future, when significant time series information is available.

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Appendix 1. Description of the data

Explanatory & Other Variables	Description	Source	Availability**
GDP per Capita	GDP per capita, PPP (constant 2005, International $, Units)	WDI	1980-2009
Population	Population in millions	WEO	1980-2009
Inflation	Inflation, average consumer prices	WEO	1980-2009
Financial Development	Domestic credit to private sector (% of GDP)	WDI	1980-2009
Openness	Imports + exports of goods and services (% of GDP)	WDI	1980-2009
FDI (% of GDP)	Foreign direct investment, net inflows (% of GDP)	WDI	1980-2009
Investment (% of GDP)	Gross fixed capital formation (% of GDP)	WDI	1980-2011
Infrastructure	Logarithm of telephone lines per 100 people	WDI	1980-2009
Expenditures in Education (% of GDP)	Public expenditures in education (% GDP)*	WDI	1981-2009
Government Deficit	General government net lending/borrowing (% of GDP)	WEO	1990-2009
Overall Governance	Exponential of the average of the six World Bank Governance Indicators*	WB	1996-2009
Government Debt	Total debt stocks (% of GDP)	GDF, Eurostat, and Bank of Israel	1980-2009
Current Account Deficit	Current account deficit (% of GDP)	WEO	1980-2010
Unemployment	Unemployment rate, percentage of total labor force	WEO	1980-2010
Peg	Dummy variable for pegged exchange rate regime	Rose (2010)	1980-2010
Float	Dummy variable for floating exchange rate regime	Rose (2010)	1980-2010
Demu	Dummy variable for European Monetary Union membership	Own Research	1980-2011
Dinflation_target	Dummy variable for Inflation targeting countries	Own Research	1980-2010

* Interpolated for some missing years

** Shows the maximum availability, but samples are shorter for some of the countries considered.

Appendix 2. Additional results

The analysis presented in the text excludes Lebanon, because information on schooling is not available for this country. Although data on FDI is also limited, in this appendix we show the results that can be obtained by including one cross-sectional observation for Lebanon, corresponding to the last period included in the analysis, for the specifications in Table 4 that do not include information on schooling. The results are show in Appendix Table 1.

Table A1. Growth Regressions Excluding Expenditures in Education (Lebanon included)

	(3)b	(4)b	(5)b
Log of Initial GDP per capita	-0.544***	-0.554***	-0.81***
	[0.073]	[0.075]	[0.173]
Inflation	-0.039**	-0.037**	-0.059***
	[0.017]	[0.018]	[0.009]
Financial Development (Private Credit, % GDP)			
Financial Development (Initial Capital Account Openness)	0.611***	0.614***	0.519***
	[0.203]	[0.211]	[0.145]
Trade Openness	0.207***	0.209***	0.146***
	[0.050]	[0.049]	[0.036]
FDI (% of GDP)	0.507***	0.494***	0.851***
	[0.157]	[0.148]	[0.178]
Investment (% of GDP)	0.130*	0.125	0.118***
	[0.077]	[0.081]	[0.045]
Infrastructure	1.440***	1.495***	2.669***
	[0.532]	[0.523]	[0.849]
Expenditures in Education (% of GDP)			1.999**
			[0.785]
Initial Governance (Freedom House PRI - inverse ranking)		0.717	1.890*
		[0.943]	[1.069]
Observations	86	86	74
Number of countries	14	14	12
2nd order autocorrelation test (p-value)	0.96	0.92	0.49
Sargan test (p-value)	0.54	0.60	0.87

Estimation Method: Differenced GMM

Robust standard errors in brackets; *** p<0.01, ** p<0.05, * p<0.1

Constant and Time effects omitted

Algeria and Libya are excluded from (5)b due to insufficient data on expenditures in education; the Palestinian Authority is excluded from the analysis also due to insufficient data. There is only one cross sectional observation for Lebanon corresponding to the last period included in the analysis, due to insufficient data on FDI.

About MEDPRO

MEDPRO – Mediterranean Prospects – is a consortium of 17 highly reputed institutions from throughout the Mediterranean funded under the EU's 7th Framework Programme and coordinated by the Centre for European Policy Studies based in Brussels. At its core, MEDPRO explores the key challenges facing the countries in the Southern Mediterranean region in the coming decades. Towards this end, MEDPRO will undertake a prospective analysis, building on scenarios for regional integration and cooperation with the EU up to 2030 and on various impact assessments. A multi-disciplinary approach is taken to the research, which is organised into seven fields of study: geopolitics and governance; demography, health and ageing; management of environment and natural resources; energy and climate change mitigation; economic integration, trade, investment and sectoral analyses; financial services and capital markets; human capital, social protection, inequality and migration. By carrying out this work, MEDPRO aims to deliver a sound scientific underpinning for future policy decisions at both domestic and EU levels.

Title	MEDPRO – Prospective Analysis for the Mediterranean Region
Description	MEDPRO explores the challenges facing the countries in the South Mediterranean region in the coming decades. The project will undertake a comprehensive foresight analysis to provide a sound scientific underpinning for future policy decisions at both domestic and EU levels.
Mediterranean countries covered	Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, Tunisia and Turkey
Coordinator	Dr. Rym Ayadi, Centre for European Policy Studies (CEPS), rym.ayadi@ceps.eu
Consortium	Centre for European Policy Studies, **CEPS**, Belgium; Center for Social and Economic Research, **CASE**, Poland; Cyprus Center for European and International Affairs, **CCEIA**, Cyprus; Fondazione Eni Enrico Mattei, **FEEM**, Italy; Forum Euro-Méditerranéen des Instituts de Sciences Economiques, **FEMISE**, France; Faculty of Economics and Political Sciences, **FEPS**, Egypt; Istituto Affari Internazionali, **IAI**, Italy; Institute of Communication and Computer Systems, **ICCS/NTUA**, Greece; Institut Europeu de la Mediterrania, **IEMed**, Spain; Institut Marocain des Relations Internationales, **IMRI**, Morocco; Istituto di Studi per l'Integrazione dei Sistemi, **ISIS**, Italy; Institut Tunisien de la Compétitivité et des Etudes Quantitatives, **ITCEQ**, Tunisia; Mediterranean Agronomic Institute of Bari, **MAIB**, Italy; Palestine Economic Policy Research Institute, **MAS**, Palestine; Netherlands Interdisciplinary Demographic Institute, **NIDI**, Netherlands; Universidad Politecnica de Madrid, **UPM**, Spain; Centre for European Economic Research, **ZEW**, Germany
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