



Thinking Ahead
for the Mediterranean



MEDPRO - Prospective Analysis for the Mediterranean Region

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Report of the Athens scientific workshop

Athens, May 31st - June 1st 2012

Session 1: MEDPRO Final Reference Scenario, Final Qualitative Alternative Scenarios

Dr. Ayadi (CEPS) welcomed the participants and started the session with an overview of the workshop, aiming to finalize the MEDPRO scenarios. Dr. Ayadi highlighted the importance of delivering completed works for each Work Package (WP) as soon as possible in order to submit deliverables on time. Dr. Ayadi confirmed that major part of the research under WPs 2, 3 and 5 has been completed and deliverables published on the MEDPRO website after a thorough review process. More research ought to be completed under WPs 4a, 4b, 6, 7, 8 and 9. The first scientific and financial report for the MEDPRO project has also been approved by the Commission.

Professor Capros (E3M Lab/ICCS) followed by introducing the modelling assumptions and initial results of the alternative quantitative scenarios simulated with the version of the GEM-E3 model developed for the MEDPRO project. Professor Capros presented the assumptions and the modelling mechanisms employed on trade, population, infrastructure investment and governance in each alternative scenario.

Regarding population, specific demographic inputs developed under WP3 have been taken into account. With input from WP5, trade integration occurs at a faster speed under QII and QIII than under the reference scenario (Q1). Under QII, the result is the formation of a single EU-MED11 market whereas under QIII the trade integration takes place between the MED11, the rest of the Arab countries and China. Similarly, under QII and QIII, the MED11 countries undertake further investments in infrastructure and human capital than foreseen under Q1.



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Part of the needed capital for infrastructure development comes as external inflows, provided by the EU under QII and the rest of the Arab countries and China under QIII. The remaining funds are raised by tax revenues, assuming that fiscal balances remain unchanged to allow for comparisons. Governance improvements, which are once again more present in QII and QIII, affect country risk premiums in the MED11 countries. Under the pessimistic regional conflict scenario of QIV, capital destruction and deterioration in capital inflows, trade integration, and governance are observed.

When comparing scenarios, the simulation results suggest that regional cooperation can significantly improve growth prospects of the MED-11 countries under QII and QIII while severe losses are observed under QIV. Increased investment in infrastructure provides the greatest boost to GDP growth, employment, and (private and public) consumption for the MED-11 countries under both QII and QIII. The results also suggest that the benefits are mutual for countries under heightened cooperation although the net impacts are greater under QII, largely due to the pre-existing linkages with the EU, especially valid for Israel, Tunisia, and Turkey. Similarly, improved governance and reduced country risk premiums are more evident under QII, most likely due to assumption of increasing global stability.

It was also noted that the case of Palestine should be handled with care as data was not comprehensive.

Professor Capros clarified that assumptions and figures on the modelling exercise are provided so as to serve the basis for comments and suggestions from the partners. The E3M Lab/ICCS aims at updating and revising the modelling approach following partners' suggestions in the weeks following the Athens meeting.

Responding to a question raised by Dr. Arbak and others on the assumptions regarding the capacity of the MED11 countries to draw and absorb capital inflows, Professor Capros stated that capital flows are assumed to be fully absorbed. The capacity of countries to draw international capital, in turn, is determined by each country's risk premium, existing stock of infrastructure, and other factors that are associated with returns to investment in the literature.



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Dr. De Wolf highlighted the need to explain the effects on MED11 countries of infrastructure investments and suggested to use the WP5 sectoral analysis to reinforce the GEME3 model's assumptions. Professor Capros explained that the GDP multipliers are within the range suggested by the literature although the final report will make a clear reference to those studies. The differences in multipliers between investments into different sectors depend on the level of the needed level of taxation (and the potential of the country to raise the appropriate taxes), labor market conditions, exposure of the economy to international trade, and the industrial structure of each economy. In the final report, these differences will be clearly depicted.

Dr. Ayadi suggested that the final report on the quantitative alternative scenarios should elaborate in detail that the modelling exercise distinguishes explicitly between shallow and deep trade integration. Dr. de Wolf suggested making use and explicit reference of the work of Ghoneim and Peridy published in MEDPRO website.

The session was wrapped up with partners' discussion on the refined assumptions to be employed in the modelling of the alternative scenarios. Dr. Ayadi suggested that QIII could model the MED11 region integration/collaboration with the BRICS. Professor Capros commented that in this case, no differentiation in terms of trade can take place between scenarios QII and QIII.

Dr. Sessa suggested that it might be more appropriate in QIII scenario to assume that EU economy would deteriorate in the future. This should show in interest rates and in trade assumptions. Dr. Blanc commented that from an EU-MED11 perspective QII is a win-win situation. Attention should be paid at the employment assumptions employed in the alternative scenarios.

Dr. Coutinho suggested that QII and QIII should differentiate more due to governance and risk developments and less due to trade (MED11 open up in both cases). Efficiency of trade liberalisation can also be modelled conditional on the level of governance.

Dr. de Wolf argued that scenario QII might be too ambitious regarding trade, non-tariff barriers (NTBs) and logistic performance changes for the MED11 by 2030. He suggested commenting on the final report that what is reported is the "best/the ambitious" not the "feasible/possible" outcome.



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Dr. Ayadi and Professor Capros commented that what was simulated answers the questions of MEDPRO technical annex on i) what is the best that can be expected from EU-MED11 cooperation and ii) what is the loss if cooperation is not enhanced.

Dr. Bosello suggested that from a methodological point of view it might be better not to change the modelling assumptions on trade between MED11 and the rest of the world model countries in QII and QIII scenarios. Trade liberalisation might be better to be kept only between EU-MED11 in QII scenario.

Professor El Mahdi suggested that WP leaders should read the report of E3M Lab/ICCS on the quantified alternative scenarios and see how the results compare to their work and how they can interpret the results from the perspective of their WPs.

After discussions with partners, Dr. Ayadi concluded the session by suggesting that in QII scenario should assumed the formation of a free trade area between EU-MED11. Full trade liberalisation should not be assumed to be taking place with the rest of world in order not to accentuate the vulnerability aspects. From a policy point of view this means that MED11 can enter into negotiations with the EU asking for some flexibility to protect some of their traded sectors. A full-blown customs union will be part of a sensitivity analysis. Infrastructure quality should be assumed to affect efficiency of trade liberalisation in both scenarios.

Regarding the main assumptions of the scenarios it has been concluded that:

1- Trade: QII: free trade agreement with EU. (Provide a sensitivity on trade – aggressive liberalization). QIII: free trade agreement with Arab countries and China (and if possible with BRICS).

2- Infrastructure: i) Different efficiency by country and origin of finance and ii) different level of investment on infrastructure by scenario.

3- Labour market: i) different participation rates by scenario (suggestions expected from partners (in particular Dr. Frederic Blanc on the situation overall and from ICCS team on female labor participation)) and ii) impact of education on labour productivity (with suggestions from Prof. El Mahdi)



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4- On Palestine case, Samir Abdallah will provide a box on the data constraints.

5- On the sectoral analysis, the papers on transport, information technology and telecoms, textile and agriculture will be looked at by the ICCS team and key conclusions will reinforce the GEME3 model's assumptions.

Dr. Ayadi suggested a change in meeting agenda by proceeding with WP3 and WP7 to continue with the refining of the qualitative and quantitative scenarios in day two of the meeting.

Session 2: WP3&WP7 - Demography, Human Capital, Inequality & Migration - Final Scenarios

Dr. Groenewold (NIDI) started the session by presenting the finalised demographic scenarios for the MEDPRO project. The quantified results have been based on explicit assumptions regarding fertility, life expectancy, mortality rates and net migration in each of the countries of MED11 region. The projections have employed Ayadi and Sessa's quantitative scenarios framework on coexistence of increase in wealth with regional cooperation.

Cooperation developments however are assumed to have differing impacts on fertility, mortality and migration conditions in each country. Fertility will continue to decline in all scenarios except QIV, dropping more rapidly in QII. Protection of family ties and the restricted introduction of Western-style dietary habits are assumed to lower mortality in QIII. Collapse of health care infrastructure will lower health status and leads to a massive emigration under QIV. The assumptions on fertility, life expectancy, and migration reflect the latter, resulting in quantitative scenario projections for each of the MED11 countries for the years 2010-2050.

Dr. Groenewold explained that projections should not be considered as contradicting the UN projections or being superior but rather complementing each other. The demographic projections suggest that the MED11 countries will be faced with serious challenges in the future regarding: i) the provision of work to the youth, ii) increase in dependency ratios, iii) health system transformation so as to address changes in population composition (addressing of diseases of ageing population), iv) pension system reforms in the presence of increasing ageing population and increase in dependency ratios and v) political developments as a result of changes in population composition (due to increasing percentage of youth and young adults in total voting-age population, a point raised by Dr. Arbak).



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It was agreed to send the final draft to the coordinator on the 15 June at the latest for publication.

Professor El Mahdy (FEPS) followed with the presentation of the scenarios on education, social protection and inequality in the MED11. The objective has been to draw a map of the current status and performance of the MED11 educational and social protection systems.

The analysis indicated that several MED11 countries record marginal changes overtime in primary gross enrollment rates (less than 1% change throughout the forecasted period). In secondary education, the gap that already exists between the MED11 countries will continue to widen. Countries like Algeria and Tunisia are expected to achieve growth rates of 35% and 27% in between year 2011 and 2030 in gross enrollment rates, while secondary level gross enrollment rates in Libya, and Turkey might remain the same or slightly fall (possibly due to an equivalent fall in dropout rates). Regarding tertiary enrollment rates, Turkey records the most outstanding result where the enrollment rate grows by 175% over the forecasted period.

Regarding inequality, a group of 7 countries out of the MED11 (Algeria, Egypt, Jordan, Morocco, Syria, Tunisia and Turkey) have been studied. Two reference scenarios (optimistic and pessimistic) have been used to project future paths up to 2020. The optimistic scenario assumes that per capita consumption of countries under consideration grows at a rate of 2% per annum, while change in per capita consumption is -2% in the pessimistic scenario. Positive growth leads to a rise in inequality and a shrinking middle class. Gini coefficient increases from 37,8 to 40,7 and the ratio of consumption of the richest to poorest quintile increases from 6.9 to 8.1, and middle class represents 72% of overall population (in the base year it accounted for 79%). The results suggest that higher income classes get most of the benefits of the MED11 growth path. The opposite is observed in the pessimistic scenario.

Dr. Tsani (E3M Lab/ICCS) followed with the third presentation of the session on making better use of female labour force in the MED11 region countries. The goal has been to assess the impact of the labour force changes on the economic development of the MED11 countries as a result of the changes in the female labour force participation.



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This has been pursued with the development of an econometric model regarding the determinants of female labour force participation in a satellite manner to the employment of the GEM-E3 model. The econometric exercise has drawn upon the existing literature on the characteristics and the determinants of female labour force participation. The results of the econometric estimations have been used as an input to the GEM-E3 model, in parallel with the original simulations.

In confirming that female labour force participation rates in the MED11 countries are lower than in other regions, the results further suggest that economic growth and female labour force participation in the MED11 countries follow a U-shaped relationship. Certain country-specific factors, such as educational attainment and level of urbanization, also matter. The use of these findings in the GEM-E3 indicates that the convergence of the female labour participation rates in the MED11 countries to the worldwide averages would lead to higher economic development in the region.

Among other comments, Dr. Blanc suggested that findings on female labour force participation rates can contribute to the design of the alternative quantified scenarios. Professor Capros clarified that E3M Lab/ICCS expect comments from partners on how to integrate changes in of labour participation rates in the alternative quantitative scenarios.

It was agreed that all papers from the WP7 i.e. paper on education and social protection, educational attainment, inequality, migration policies and female labor participation will be sent to the coordinator on the 15 June 2012. These papers will benefit from another final review.

A paper by Boris Najman will need substantial revision to be considered in the next round of publications.

Session 3: WP4a - Management of Environment and Natural Resources - Final Scenarios

Dr. Bosello started the session with the presentation of the completed and on-going work under WP4a on management of environment and natural resources in the MED11 region. The work undertaken assesses social, economic and environmental factors determining water uses in the MED11 countries. It also undertakes country level analysis of social economic and environmental impacts on agriculture of different MEDPRO scenarios, assessing climate change adaptation strategies in the MED11 countries.



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The first study estimated the role of biodiversity on coastal tourism arrivals globally, by testing whether species and habitat diversity exert a significant influence on the tourist's destination choice. The employment of cross section 3SLS econometric estimation technique suggests that the effects on environmental (biodiversity) amenities on the choice of the touristic destination are relevant and particularly strong among international tourists. Although an overall impact assessment is not included, the study provides an assessment for specific aspects of climate change impacts related to tourism and agriculture.

Regarding the second study on agriculture, the aim is at assessing how crop yields could respond due to future changes in temperature. The work completed for WP4a does not aim to replicate the work of WP8. More specifically, the model developed for the work package: i) extends up to 2050, ii) focuses on agriculture, iii) includes land as an independent factor of production, and iv) model only 5 regions for the MED11 (Turkey, Middle East, Egypt, Tunisia, Morocco, Algeria and Libya).

Dr. Ayadi suggested providing an estimate of the climate change adaptation costs under different scenarios and the potential policy implications. Professor Capros added that for such an analysis, inputs from other studies that examine adaptation costs in Mediterranean countries can be taken. He also noted that climate impacts should not differ much across the four scenarios; however, there might be different adaptation measures, which could be taken into account. Dr. Bosello suggested that in the final report on WP4a, an explanatory text on the cost of adaptation for each scenario can be added, based on the reference case and a survey of literature.

Next presentation provided by Dr. Osberghaus and Dr. Baccianti (ZEW) focused on a theoretical framework on adaptation to climate change in the MED11. For each of the alternative scenarios, the ZEW team made assumptions on governmental intervention and initiatives with regards to adaptation. In scenario QI, inefficient, inadequate or missing adaptation caused by an inappropriate government intervention is assumed. In QII scenario cooperation and coordination between governmental entities of both shores of the Mediterranean in pursuing their common adaptation policies is assumed. In QIII scenario poor coordination of adaptation policies is assumed. Scenario QIV assumes lack of cooperation in the formulation of adaptation policies.



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Regarding the role of the government, in the “Green Transition” relative to QII, clear and transparent assignment of tasks and responsibilities would lead to an efficient and effective regulation of externalities while removing of possible barriers for private adaptation. In the “Blue Transition” relative to QIII, poor coordination of adaptation policies could be triggered by the formulation and implementation of more isolated, nation-specific adaptation policies. In the “Red Transition” to QIV, prolonged absence of adaptation policies leads to highly negative results.

In the final paper, the team provides figures on adaptation costs based on the literature review. However, it should be noted that the information contained in the literature on MED11 adaptation costs remains limited.

The session drew to a close with the presentation of Dr. Esteve (UPM) on the main results and preliminary scenarios of water use in MED11 countries. The UPM team has developed an econometric model of water irrigation, which uses GDP, population and agricultural capital as inputs. The econometric model has been complemented with explanatory variables as suggested from the MEDPRO quantitative scenarios QII-QIV.

The UPM team will complete the analysis for QIII and promised to provide the WP8 their estimates on the costs of investment in infrastructure in water (irrigation, desalination, etc.) and data on water infrastructure investments undertaken in the MED11 countries. Prof. Capros clarified that WP8 needs practical specific inputs from UPM and their work on water and agriculture (i.e. the role of water in productivity of infrastructure and the different infrastructure costs).

Dr. Ayadi urged the UPM team to respect their commitment to complement the work undertaken in WP8. She also asked WP4a leader to reinforce the coordination of the WP to ensure coherence of the WP final outcome.

Further, it was agreed that all papers under WP4a will be sent in their final draft to the coordinator on 15 July 2012.



Session 4: WP4b - Energy and Mitigation to Global Warming - Final Scenarios

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The session started with the presentation of Dr. Hafner (FEEM) on the results of the WP4b. The work package develops domestic supply-demand energy scenarios including scenarios for energy exports to Europe. In doing so, the work package also elaborates the role that Europe can play in supporting the Mediterranean countries to satisfy their domestic energy needs in a sustainable fashion.

Although renewable energy sources represent a very small proportion of the total energy mix in the MED11, new projects are being implemented or will be implemented over the next years increasing their share to almost 10% of the total power generation by 2030. In some countries, the shifts will be more radical than in others. For instance by 2030, Algeria plans to produce 25% of its electricity production from renewable sources, partly in an attempt to increase its exports. These developments suggest that the MED11 countries record a break with the past in trying to reduce their dependence on hydrocarbons. Despite these more optimistic prospects, the planned projects have been heavily delayed due to the political and economic turmoil amidst the Arab Spring although there appears to be commitment from the region's governments that most projects will continue as planned.

Dr. Blanc (FEMISE) continued with a presentation on energy efficiency investments in the MED11 countries. Following questions on the highly improbable implied rates of return from investment in energy efficiencies, Dr. Ayadi and Professor Capros suggested re-confirming the estimations and revise the paper.

The last presentation was provided by Dr. Kouvaritakis (E3M Lab/ICCS) on the energy demand and supply scenarios for the MED11 countries, developed under the E3M Lab/ICCS team's MENA-EDS model. The analytical model takes as exogenous the macroeconomic, demographic and sectoral activity projections as well as international primary fuel prices developed in other work packages or obtained from public sources. The estimations have been applied to the MED-11 region excluding Palestine.

In the reference scenario, transport fuel prices for Turkey, Israel and Morocco are comparable to the EU. Tunisia and Lebanon record low taxation while for the remainder countries it is assumed that international spot prices are not covered. Most countries in the region realize the need for price reform. The reference scenario assumes a very gradual movement towards rational fuel prices in all countries.



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In the reference scenario two major trends are recorded: Electrification and expansion of gas use. Very high growth in electricity demand is recorded with only slight signs of saturation towards the end of the forecast period. In the reference scenario transport becomes the dominant sector for oil consumption in the MED11.

Under the first alternative scenario under “Green Transition” (QII), the region contributes to the climate policy effort of the EU, in particular taking part in the EU’s Emissions Trading System (ETS) and with substantial electricity exports from the MED-11 to the EU along with the development of centralized renewable energy production capacity. “Blue Transition” scenario (QIII), collaboration occurs only on a multilateral basis, between specific MED-11 countries, while electricity exports to the EU remain lower. This scenario assumes that the countries individually undertake vigorous measures in order to promote energy efficiency, the development of decentralised renewable energy sources, a reduction of import dependence for net importers of energy and the enhancement of the export capability of the energy-exporting countries. Under the “Red Transition” scenario (QIV), the MED-11 area is characterised by a shortage of capital, increased investment risks leading to high risk premiums and a stalling of market reform, with no scope for investing in interconnections to enable the export of renewable electricity to the EU.

The simulations of the scenarios suggest that despite deceleration in population growth, rapidly increasing prosperity means that energy consumption in the region expands considerably. Electricity demand is projected to grow even faster than population growth, parallel to the improvement of standards of comfort. Estimations further indicate that the huge potential for renewable sources, especially for solar thermal, photovoltaic and wind. Exploitation will depend to a large extent on active government support, favorable investment climate, and promotion of carbon-free technologies. The results further indicate the feasibility of high RES penetration rates.

Two important policy implications emerge from the comparison of the cooperation scenarios. The centralised approach is a win-win situation. The benefits are lower than in the decentralised approach but the risk is lower. In the decentralised approach benefits are higher but investment risk is higher, partly due to limited South-North integration. Both approaches liberate hydrocarbons for exports.



Session 5: Scenarios for Cooperation with the EU - Final Scenarios

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Dr. Sessa (ISIS) opened the fifth and final session of the workshop by presenting the adapted qualitative scenarios for the MED11. Recent developments in the MED11 region and interaction with MEDPRO researchers have led to a final refinement of the conceptual framework of the scenarios.

The general concepts behind the four scenarios have not been changed. The first quadrant, representing QI, continues to reflect the starting point of Euro-Mediterranean relations and continuation of current trends. Under the “Green Transition” (QII) scenario, a EU-MED11 market is created, including a common framework of action on migration, trade and environment. The “Blue Transition” (QIII) assumes a set of multilateral and differentiated agreements between the MED11 countries and the EU although the MED11 countries will foster a closer integration with other geopolitical actors like the rest of the Arab countries and China. Under the “Red Transition” (QIV), no sustainable pattern of development is assumed to be achieved, with tensions between the MED11 are assumed to rife and potentially lead to conflicts.

Dr. Sessa explained that key question for the MEDPRO scenarios regards to whether the total wealth will be increased or decreased for: i) EU as a whole, ii) MED11 as a whole, or for iii) single MED11 countries or sub-regions. He also suggested that the scenarios could be sensitive to the potential developments in the EU. For example, regarding the QIII scenario, one may assume that the EU does not change from the reference scenario. In turn, a substantial worsening of the conditions in EU may be assumed under QIV, which effectively contributes to the outcome. On that note, the Global EU 2050 scenarios may be considered as an input here.

Dr. Sessa ended his presentation by proposing to setup up of a Wiki MEDPRO. Dr. Ayadi encouraged partners to participate in this effort. Instructions on Wiki tools will be sent to the rest of the partners as soon as the page is set up.



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Conclusions

The meeting was closed with final remarks from Dr. Ayadi and proposals on dates for next meetings. Dr. Ayadi urged MEDPRO partners to update their financial budgets by 8 June, providing details on the amounts spent up until April 2012. Dr. Ayadi has also reminded the partners that the final date for expenditure claims is the 28th of February 2013. After that date, no reimbursement can be claimed on MEDPRO.

Dr. Ayadi reminded the partners about the objectives of Marseilles MEDPRO meeting on the 20-21 September 2012, more precisely to complete all policy papers of the WPs in particular WP4b, WP5, WP6 and WP7; to complete the GEME3 Model's alternative scenarios and scenarios of cooperation with Europe and main policy recommendations for each scenarios.

As for the publication policy, Dr. Ayadi clarified that not all MEDPRO deliverables will be published. Papers qualifying for publication need to be reviewed positively by at least 2 members of the scientific board, edited by CEPS team and conform to minimum quality requirements.

After informing Dr. Ayadi on their intentions, partners should may take own initiative in publishing their work in academic journals.

Dr. Ayadi will be in contact with external publishers (e.g. CUP, OUP, Springer and others) to publish the final MEDPRO outcomes by the end of the project.

As for the dissemination, it was agreed to have two stakeholders meetings in Tunis, hosted by ITCEQ on 5-6 November 2012, in Cairo, hosted by FEPS on 3-4 December 2012. The final conference will be organised by CEPS in Brussels on 27-28 February 2013.

The coordinator will discuss with European Commission to discuss the possibility to add an additional stakeholder meeting in Morocco and with IEMED about the Barcelona conference.