Macroeconomic Scenarios for the Euro-Mediterranean Area

Quantification based on the GEM-E3 Model

Leonidas Paroussos, Kostas Fragkiadakis, Ioannis Charalampidis, Stella Tsani and Pantelis Capros

Abstract

Four alternative macroeconomic scenarios for southern Mediterranean countries are quantified in this study with the use of GEM-E3, a general equilibrium model. These are i) the continuation of current policies (business-as-usual scenario), ii) southern Mediterranean–EU cooperation (Euro-Mediterranean Union scenario), iii) a global opening of the southern Mediterranean countries and cooperation with the rest of the Middle East and other developing countries like China (Euro-Mediterranean alliance scenario), and iv) a deterioration in the regional political climate and a failure of cooperation (Euro-Mediterranean under threat scenario). Explicit assumptions on trade integration, infrastructure upgrade, population and governance developments are adopted in each scenario. The simulation results indicate that an infrastructure upgrade and governance improvements in the context of southern Mediterranean–EU cooperation could benefit most of the countries under consideration. The analysis remains important in light of ongoing regional developments and the need to design the best policies to pursue in the aftermath of the Arab spring.

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List of Abbreviations

AVEs	Ad valorem equivalents
BRIC	Brazil, Russia, India and China
CGE	Computable general equilibrium
EAEs	Emerging Asian economies
EU–MED	EU–Mediterranean
FDI	Foreign direct investment
GAFTA	Greater Arab Free Trade Agreement
GTAP	Global Trade Analysis Project
ICT	Information and communications technology
ILO	International Labour Organization
IO	Input–output
LPI	Logistics performance index
ME	Middle East
NTBs	Non-tariff barriers
QI	Scenario QI or reference scenario
QII	Scenario QII: Euro-Mediterranean cooperation
QIII	Scenario QIII: Development of a global policy by the southern and eastern Mediterranean countries
QIV	Scenario QIV: Deterioration of the political climate in the southern and eastern Mediterranean region
SEMCs	Southern and eastern Mediterranean countries

Explanatory Notes

Unless otherwise stated, the following notes apply throughout the text:

1. Equivalent variation of welfare refers to the Hicksian equivalent variation of welfare and is expressed in US$.

2. Monetary values are expressed in US dollars (2007 value).

3. Changes in the alternative scenarios, compared with the reference scenario, are expressed in cumulative terms for the period 2015–30.

4. The southern and eastern Mediterranean countries (SEMCs) are Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian Autonomy, Syria, Tunisia and Turkey.

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1.   Introduction

This report documents the work completed for Work Package 8 on "Scenario building and impact assessment" of the MEDPRO project. The goal of Work Package 8 is to simulate alternative scenarios of economic development for the Euro-Mediterranean region based on varying approaches to cooperation policy. The research work for this purpose has included extensive data collection, model calibration and scenario construction using the GEM-E3-MEDPRO model, a computable general equilibrium model derived from the standard GEM-E3 model and extended for the MEDPRO project. The scenarios simulate the implementation of policies associated with i) Euro-Mediterranean cooperation (referred to as QII); ii) the development of a global policy by the southern and eastern Mediterranean countries (SEMCs), i.e. opening up and cooperating with the rest of the Middle East and other developing countries like China (QIII); and iii) a deterioration of the political climate in the region (QIV). The scenarios are compared with the reference scenario (QI), which assumes a continuation of current policies in the Euro-Mediterranean area.

The definition of the scenarios follows the general framework developed by Ayadi and Sessa (2011) concerning alternative future scenarios for the Euro-Mediterranean region. The quantified projections focus on ten countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the Palestinian Autonomy, Syria and Tunisia, often referred to as 'southern Mediterranean' neighbours, plus Turkey. With the exception of Turkey, the rest of the SEMCs participate in the Barcelona Process and the European Neighbourhood Policy. Turkey, while not included in the Barcelona Process or the European Neighbourhood Policy, attracts special attention because of its negotiations for EU membership.

The remainder of the report develops as follows: section 2 discusses the main features of the GEM-E3-MEDPRO model. Section 3 discusses the theoretical underpinning of the alternative scenarios of Euro-Mediterranean policies. Section 4 summarises the simulation results for the QI–QIV scenarios. Section 5 summarises the results of the sensitivity analysis performed. The last section attempts to draw conclusions and useful policy implications.

2.   Main features of the GEM-E3-MEDPRO model

The alternative scenarios are quantified with the use of the GEM-E3-MEDPRO model.[1] The GEM-E3-MEDPRO is an applied general equilibrium model that provides details on the macroeconomy

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[1] The GEM-E3-MEDPRO model is a version of the GEM-E3 model. GEM-E3 is the result of a collaborative effort in the 1990s by a consortium involving the National Technical University of Athens, the Catholic University of Leuven (Centre for Economic Studies), the University of Mannheim and the Centre for European Economic Research (ZEW) as the core modelling team. Since the initial model version, E3MLab and other contributors have extended the model in various directions, including the development of model versions suitable for analysing growth, market reforms (e.g. the EU internal market) and structural policies. The model has been extensively used in a series of studies completed for the European Commission and in

and its key sectors for each individual country. It is an applied, large-scale model, formulated entirely in structural form. The model computes the equilibrium prices of goods, services, labour and capital that simultaneously clear all markets under the Walras law.[2] GEM-E3-MEDPRO is dynamic, recursive over time, and involves the dynamics of capital accumulation and technology progress, stock and flow relationships and backward-looking expectations.

The GEM-E3-MEDPRO model has a worldwide coverage. It is a multi-country model that treats each country separately and links countries through the endogenous trade of goods and services. The model includes multiple industrial sectors and economic agents, allowing the consistent evaluation of the distributional effects of policies. The version employed for the MEDPRO project considers 19 countries/regions and 23 economic activities. The sector-specific and regional disaggregation of the model is presented in Table 1 and Table 2 respectively. The model is specifically designed to simulate economic development by sector, as influenced by investment in infrastructure and human capital, risk perception, population developments and trade liberalisation.

The model covers the major aspects of public finance, including all substantial taxes, social policy subsidies, public expenditures and deficit financing. The GEM-E3-MEDPRO model is solved for the period 2010 to 2030 following five-year time steps. The model is calibrated on the GTAP v.8 database[3] (with 2007 as the base year) and extended to separately represent all the SEMCs. In the GTAP database, most of the SEMCs are grouped into regions. Additional data from various statistical sources were collected to complement the GTAP database and build detailed social accounting, bilateral trade, consumption and investment matrices for each of the SEMCs.[4] The statistical sources used to construct the database include the scholarly literature, international financial institutions, national statistical offices, etc. The data collection revealed significant data scarcity and lack of consistency in terms of the data matrices on social accounts. This problem was encountered for most of the SEMCs.

Table 1. GEM-E3-MEDPRO sectoral coverage

No.	Sector	No.	Sector
1	Agriculture	13	Transport equipment
2	Animal products	14	Consumer goods industries – Food
3	Coal	15	Consumer goods industries – Rest
4	Crude oil	16	Textiles and clothing
5	Oil refining	17	Construction
6	Natural gas extraction	18	Transport
7	Gas distribution	19	Communication
8	Transmission and distribution of electricity	20	Business – Financial services
9	Water	21	Public services
10	Chemical products	22	Recreational and other services
11	Other energy-intensive	23	Dwellings
12	Electric goods – Other equipment goods		

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several research projects (http://www.e3mlab.ntua.gr/index.php?option=com_content&view=category&id=36%3Agem-e3&Itemid=71&layout=default&lang=en and http://ipts.jrc.ec.europa.eu/activities/energy-and-transport/gem-e3/).

[2] The model follows a general equilibrium approach.

[3] See the Global Trade Analysis Project (https://www.gtap.agecon.purdue.edu/). The selection of the base year is based on the latest year for which a fully complete detailed database is available for each of the countries/regions included in the model.

[4] For a detailed analysis on the construction of the model database and on the development of the reference scenario, see Paroussos et al. (2013a) and Paroussos et al. (2013b) respectively.

Table 2. GEM-E3-MEDPRO regional aggregation

Country/Region	Code	Country/Region	Code
Algeria	DZA	**Turkey**	TUR
Egypt	EGY	**EU-10 countries** [a]	R15
Israel	ISR	**New EU member states** [b]	NEU
Jordan	JOR	**Southern EU member states** [c]	EUS
Lebanon	LBN	**Emerging Asian economies** [d]	EAE
Libya	LBY	**Rest of the OECD countries** [e]	ROECD
Morocco	MAR	**Rest of the emerging economies** [f]	REE
Palestine	PAL	**Rest of the Middle East** [g] **(the Gulf region)**	ME
Syria	SYR	**Rest of the world**	ROW
Tunisia	TUN		

[a] Austria, Belgium, Denmark, Finland, Germany, Ireland, Luxembourg, Netherlands, Sweden and the UK

[b] Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Bulgaria and Romania

[c] Cyprus, France, Greece, Italy, Malta, Portugal and Spain

[d] China, Hong Kong, Taiwan, Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam and India

[e] Australia, New Zealand, the Rest of Oceania, Japan, Korea Republic, Canada, the US, the Rest of North America, Switzerland, Norway and the Rest of EFTA

[f] Mexico, Argentina, Brazil, Chile, Venezuela, Albania, Belarus, Croatia, Russian Federation, Ukraine, the Rest of Eastern Europe, the Rest of Europe, Kazakhstan, Kyrgyzstan, the Rest of the Former Soviet Union, Azerbaijan and Georgia

[g] Armenia, Bahrain, Iran Islamic Republic, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Yemen and Iraq

Extensive work has been carried out to estimate the missing data and to render the data matrices consistent. Different balancing methods (including RAS and cross-entropy methods) have been used in this process. For estimating the missing data, a variety of alternative information sources have been employed and analogies derived based on countries for which data existed. Once the consistent data matrices covering the entire requirements of the model were constructed, the model was calibrated and used for the simulation of the reference and the alternative scenarios.

3. The alternative scenarios of Euro-Mediterranean policies

3.1 Overview

The countries in the southern Mediterranean area will have to cope with significant challenges over the coming decades. These involve economic reforms, trade liberalisation, infrastructure, enhancements of human capital and improved governance. The southern Mediterranean region is of strategic importance to the EU in both economic and political terms. In the 1995 meeting in Barcelona, the EU explicitly committed itself to promoting Euro-Mediterranean political and economic cooperation. At the summit in Paris on 13 July 2008, the EU member states, candidate countries and partner countries in the Mediterranean area decided to upgrade the Barcelona Process and to create the Union for the Mediterranean.[5]

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[5] See "Paris Summit for the Mediterranean", July 2008 (http://www.eu2008.fr/PFUE/lang/en/accueil/PFUE-07_2008/PFUE-13.07.2008/sommet_de_paris_pour_la_mediterranee_4758.html).

The qualitative scenarios for the Euro-Mediterranean region developed by Ayadi and Sessa (2011) have formulated the theoretical underpinning for the quantitative scenarios simulated with the GEM-E3-MEDPRO model. Ayadi and Sessa (2011) defined a set of qualitative scenarios of Euro-Mediterranean policies by looking at several core determinants of Euro-Mediterranean growth and cooperation and by taking into consideration the recent turmoil in the Arab countries. The scenarios develop along two core dimensions: EU–MED cooperation and sustainable development (Figure 1).

Figure 1. Alternative scenarios quantified for the MEDPRO project
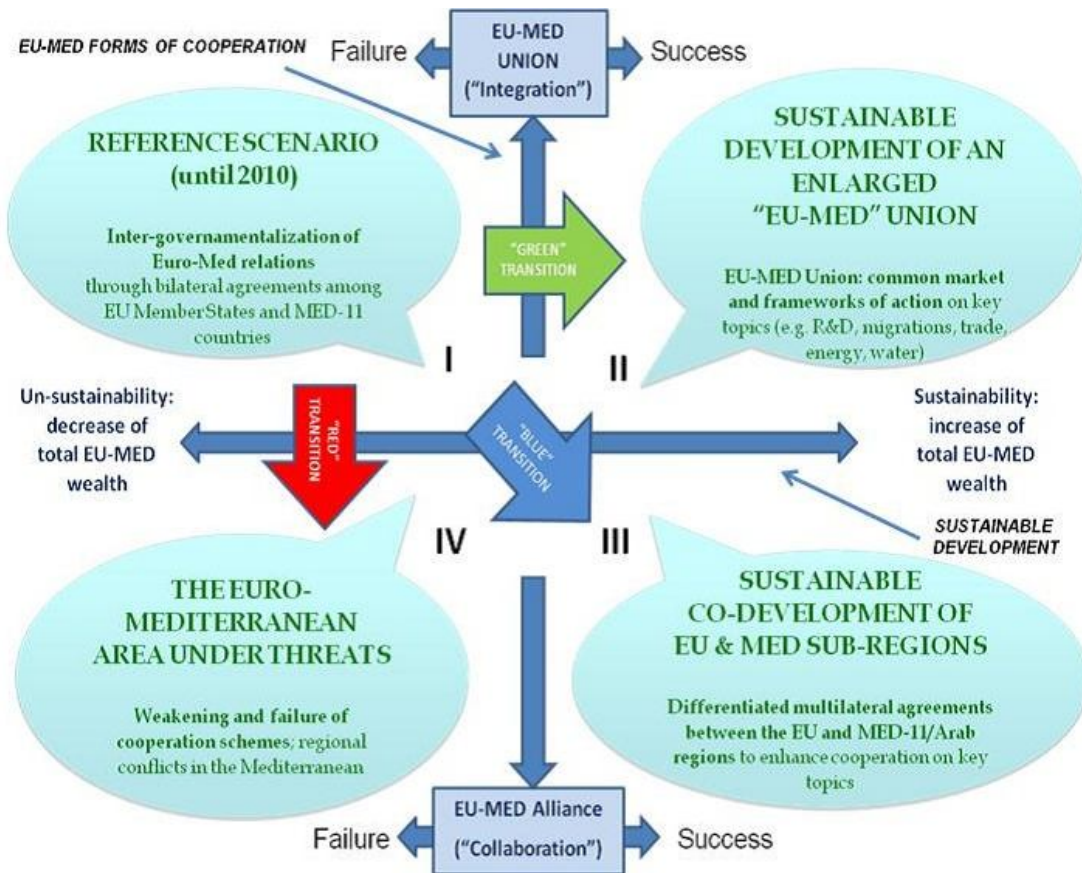
Source: Ayadi and Sessa (2011).

Four different scenarios of the Euro-Mediterranean policies have been defined:

1) The reference scenario (quadrant I, Figure 1) assumes that the Euro-Mediterranean policies in place and the present state of affairs continue without any substantial change up to 2030.

2) In the scenario of "sustainable development of an enlarged 'EU–MED' union" (see quadrant II, Figure 1), the Euro-Mediterranean countries join an integrated economic area, with a common market and institutions in place that advance cooperation, including migration, trade, investment and governance. Governance improvements are assumed to reduce the risks associated with the SEMCs. The scheme follows the common trade model of the European Community. Enlargement to include the SEMCs is a scenario in which the countries in the region exploit their complementarities and achieve a stable economic environment, attractive for investment. EU–SEMC cooperation is assumed to lead to an upgrade in the infrastructure and an enhancement of human capital in the SEMC region. The main bulk of infrastructure and human capital investment is assumed to be undertaken by the SEMCs. The EU is assumed to contribute to infrastructure investment but to a lesser extent. Investment is assumed to influence productivity and facilitate the trade integration of the SEMCs. In addition, EU–SEMC cooperation is assumed to influence social norms and health standards affecting the demographic developments in the region.

3) The scenario of "sustainable co-development of the EU and Mediterranean sub-regions" (see quadrant III, Figure 1) does not include integration of the SEMCs[6] into the European Economic Area. In this scenario, the SEMCs are assumed to form a common market, to develop global policies and to proceed with trade integration with other regions in the world, notably the Middle East and certain Asian countries, such as China and India. Cooperation with the Middle Eastern and Asian countries will also lead to infrastructure upgrading and human capital investment in the SEMCs. The expenditures will be mainly undertaken by the SEMCs, but additional funding will flow from other Middle Eastern and Asian countries.

4) The pessimistic outlook for development, described by the scenario of the "Euro-Mediterranean area under threats" (see quadrant IV, Figure 1), envisages the possibility of an escalation in regional conflicts. Sporadic conflicts in the region are assumed to persist and spread from one country to another, leading to increased political uncertainties, economic strains and social difficulties. In this scenario, the absence of cooperating authorities is expected to undermine the capacity of the EU and other major geopolitical actors to achieve the necessary cooperation in key economic sectors. In this scenario, conflicts are assumed to affect demographic developments, to halt the trade integration of the SEMCs with the EU and other countries/regions in the world, to lead to the dilapidation of infrastructure and of capital stock in the region, to a deterioration of governance and an increase of the investment risks associated with the latter.

The E3MLab team has simulated several versions of the quantitative scenarios that have been defined based on the work of Ayadi and Sessa (2011). For the purposes of sensitivity analysis, an additional scenario simulates a more sustainable growth path for the SEMCs, in which structural changes are financed without increases in the countries' current account deficits. Another alternative scenario simulates the "optimal" pathway regarding GDP growth and employment for the SEMCs, beyond the scenarios proposed by Ayadi and Sessa (2011). This latter scenario (henceforth Q*) is designed and simulated after the quantification of the QII and QIII scenarios. Its design is based on a combination of the best policies already included in the QII and QIII scenarios.

3.2   Main assumptions

As noted above, the scenario of sustainable development of an enlarged EU–MED union depicted in quadrant II, Figure 1 (henceforth scenario QII) assumes that EU–SEMC cooperation will improve significantly compared with the reference scenario. In the scenario of sustainable co-development of the EU and Mediterranean sub-regions depicted in quadrant QIII, Figure 1 (henceforth, scenario QIII) the SEMCs are assumed to increase the cooperation among themselves as well as with other countries in the Middle East and the rest of the world (mainly Asian economies, including China) compared with the reference scenario. In the scenario of the Euro-Mediterranean area under threat depicted in quadrant IV, Figure 1 (henceforth, scenario QIV) a future with persisting tensions in the Mediterranean and failure of the EU–SEMC area and the SEMCs to integrate and cooperate is assumed.

The quantification of the above alternative scenarios has incorporated explicit assumptions about the following aspects:

i)   population and labour force,

ii)   investment in infrastructure and human capital,

iii) governance and risk, and

iv)   trade liberalisation in the SEMC region.

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[6] Turkey is not assumed to be part of the EU in 2030.

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The assumptions and their quantification in each of the alternative scenarios are based on the work and the inputs provided by the rest of the MEDPRO project partners (discussed in detail below). The following subsections summarise the assumptions employed for the quantification of the alternative scenarios.

3.2.1 Population and labour force

Population data have been extracted from the International Labour Statistics database of the International Labour Organization (ILO) and the World Bank database.[7] Projections regarding the EU countries have been extracted from the *2012 Ageing Report* prepared by the European Commission (2011). For the rest of the model countries (excluding the SEMCs), the projections provided by the ILO up to 2020 have been employed. For the period 2020–30, the trends of the 2015–20 projection period are assumed to continue. For the SEMCs, the estimations of population growth for the period 2015–30 have been based on the population projections provided by Groenewold et al. (2011). These were built on the qualitative analysis of Ayadi and Sessa (2011) and were developed under four alternative demographic scenarios (S1–S4) up to the year 2050 for each of the SEMCs.

For the QI scenario, the population projections of scenario S1 have been used. This scenario describes a demographic future in which past trends are extrapolated. The assumptions underlying the S1 demographic projections state that the EU and the SEMCs fail to upgrade their partial and ad hoc style of cooperation to a coherent framework of action and collaboration on key political, security, economic, socio-cultural and environmental issues. In this scenario, the net migration rates observed over the period 2005–10 for individual countries are assumed to remain constant for the whole projection period. An exception are the rates for the period 2010–15, for which it is assumed that for some countries emigration numbers will be higher as a result of the political turmoil and insecurity in a number of countries in 2011.

The S1 scenario assumes that the EU continues imposing severe restrictions to legal immigration. It is assumed that refugee stocks will not alter significantly. The presence of refugees (e.g. Iraqi refugees in Jordan) is assumed to put pressure on available national (health, housing) resources and the ecosystem, and this may, directly or indirectly, impinge on the health conditions of nationals. The presence of large refugee stocks may affect labour (im)migration flows, as refugees, for their survival, will try to compete in the local labour market, with or without work permits.

The observed decline of fertility rates in most countries is assumed to continue and eventually remain at constant levels, i.e. at replacement level. This means that women, on average, give birth to 2.1 children during their reproductive life. Improvements and a levelling-off of changes in life expectancies are expected to continue in the SEMCs. The recorded differentials among countries regarding life expectancies are also assumed to continue in the future.

Data and projections on the active population and participation rates have been extracted from the ILO database. For the SEMCs, it is assumed that the growth of the active population follows the growth rates of the population group aged 15-64 over the period 2010–30 as documented in the work of Groenewold et al. (2011). The QI scenario assumptions on population and active population are presented in Table 3.

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[7] See the websites of the ILO (http://laborsta.ilo.org/default.html) and World Bank (http://DataBank.World Bank.org/ddp/home.do).

Table 3. Population and active population in the QI scenario

Country	Population			Active population (15-64)		
	Million persons (2010)	Million persons (2030)	Annual % growth rate (2010–30)	Million persons (2010)	Million persons (2030)	Annual % growth rate (2010–30)
Algeria	35.5	45.3	1.23	24.2	31.0	1.24
Egypt	81.1	109.3	1.50	51.5	70.8	1.61
Israel	7.6	9.9	1.30	4.8	6.1	1.29
Jordan	6.0	9.0	1.98	3.5	5.8	2.46
Lebanon	4.2	4.9	0.69	2.9	3.3	0.77
Libya	6.4	8.0	1.19	4.1	5.5	1.41
Morocco	32.0	38.7	0.97	21.2	25.9	0.99
Palestine	4.2	7.4	2.91	2.3	4.3	3.19
Syria	20.4	29.7	1.89	12.1	18.9	2.25
Tunisia	10.5	12.4	0.81	7.3	8.4	0.70
Turkey	72.8	87.7	0.94	49.2	59.6	0.96
SEMCs	280.7	362.3	1.28	183.2	239.6	1.35
Rest of the Arab world	176.6	225.9	1.24	116.1	149.7	1.28
EU-27	502.1	522.2	0.19	336.6	319.4	-0.27
Emerging Asian economies	3,092.6	3,619.1	0.79	2114.1	2,471.2	0.78
Rest of the world	3,232.5	4,184.1	1.25	2,031.0	2,620.3	1.97
World	7,284.6	8,913.7	1.03	4,781.0	5,800.2	1.30

Sources: Authors' estimations based on ILO, European Commission (2011) and Groenewold et al. (2011) data and projections.

Following Groenewold et al. (2011), in the QII scenario it is assumed that the net migration volumes of the SEMCs will increase, while in the QIII scenario migration levels will be the same as those in QI. Fertility is assumed to decline but at higher rates in the QII scenario than in the QIII scenario. Family norms and values are assumed to remain intact in the QIII scenario, leading to fertility rates that are higher than in the QII scenario. Life expectancy in QIII is assumed to be higher than in QII (Table 4). Annual increases in life expectancies in the SEMCs are assumed to be somewhat higher in the QIII scenario than in the QII scenario. In the QIII scenario, it is assumed that a Pan-Arab identity is cultivated with a common set of norms, values and legal rights that are somewhat distinct from those maintained in the EU.

In scenario QIV, it is assumed that high emigration from and low immigration to the SEMCs is recorded. Net migration numbers are assumed to hover at very high and negative numbers, as emigrants are assumed to outnumber immigrants. The decline in fertility is assumed to be slow. A similar trend is assumed for mortality levels, as improvements in life expectancies are the lowest of all four alternative scenarios.

The deteriorating economies are assumed to result in poorer health services, including availability and access to family planning services. The net effect of macro-level economic and political developments is assumed to lead fertility levels to increase in most countries to levels observed in

the 1990s. Macroeconomic hardships are assumed to lead to higher maternal mortality rates and higher infant mortality rates, leading to life expectancies that hardly increase.[8]

Table 4. Assumptions used for demographic projections in the alternative scenarios

	QI	QII	QIII	QIV
Total fertility rate[*]	2.1	1.5	1.8	2.4
Mortality[**]	0.12	0.18	0.25	0.06
Migration				
2010–15	UN projections[***]	Same as QI	Same as QI	Same as QI
2015–20	UN projections	Twice the QI	QI	High migration
2020–30	UN projections	As 2010–15	Zero balance	High migration

[*] Total fertility rates assumed to be reached by 2050
[**] Life expectancy increase (in years) per calendar year
[***] Official UN projections were increased because of recent political changes
Source: Authors' notes based on Groenewold et al. (2011).

Table 5 presents the active population estimated for each scenario. In the QII scenario, the combined effect of lower fertility rates and increased migration results in the active population in the SEMC region being smaller compared with QI by 930,000 persons in 2030. In the QIII scenario, the SEMC active population is estimated to stand higher by 1,500,000 persons in 2030 compared with the QI scenario. In the QIV scenario, the total active population of the SEMCs in 2030 is estimated to be smaller in comparison with QI by 10,400,000 in 2030.[9]

Table 5. Active population projections in scenarios QII–QIV

	Active population (15-64)					
	QII		QIII		QIV	
	Annual % growth rate (2010–30)	Difference from QI	Annual % growth rate (2010–30)	Difference from QI	Annual % growth rate (2010–30)	Difference from QI
Algeria	1.20	-0.04	1.26	0.02	1.03	-0.21
Egypt	1.59	-0.02	1.64	0.03	1.47	-0.15
Israel	1.78	0.50	1.51	0.22	0.22	-1.06
Jordan	2.42	-0.04	2.51	0.05	1.71	-0.75
Lebanon	1.56	0.79	1.25	0.47	-0.24	-1.02
Libya	1.06	-0.35	1.27	-0.14	0.70	-0.71
Morocco	0.85	-0.15	1.03	0.03	0.84	-0.15
Palestine	3.15	-0.04	3.21	0.02	2.37	-0.82
Syria	2.16	-0.09	2.24	-0.01	1.93	-0.32
Tunisia	0.64	-0.06	0.71	0.01	0.40	-0.30
Turkey	0.96	0.00	0.98	0.02	0.88	-0.08
SEMCs	1.33	-0.02	1.38	0.03	1.13	-0.22

Source: Authors' estimations based on Groenewold et al. (2011).

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[8] In summary, in QI the population changes are assumed to follow current trends, in QII the population is assumed to marginally fall in the SEMCs, in QIII the population marginally increases while in QIV the population is assumed to fall in the SEMCs.

[9] These figures are the authors' estimations based on based on ILO, European Commission (2011) and Groenewold et al. (2011) data and projections.

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The GEM-E3-MEDPRO model uses as an input the projection of the total labour force by country. The ILO (2010) participation rates were used to estimate the labour force for the QI scenario. For the QII–QIV scenarios, the assumptions on participation rates were based on Blanc (2012)[10] and Tsani et al. (2012). According to Blanc (2012), the cooperation of the SEMCs with the EU in the QII scenario is expected to increase labour participation rates in the SEMCs due to increased rates of female participation in the labour force.

Tsani et al. (2012) have estimated that removing the region-specific barriers to female participation in the labour force in the SEMCs would increase female labour participation rates by 5%. In the QII scenario, it is assumed that region-specific barriers are removed as a result of partnership between the EU and SEMCs, and hence the female participation rates in the labour force in each of the SEMCs increase as suggested by Tsani et al. (2012). In the QIII scenario, these rates are assumed to increase in the SEMCs, but at lower rates than in QII. In the QIII scenario, region-specific barriers to female participation in the labour force are assumed to be partially lowered. Thus in the QIII scenario, the rate of increase in female labour force participation in the SEMCs is moderated to 1% above the QI scenario. The projections of the labour force used in each scenario are represented in Table 6.

Table 6. Projections of the labour force and labour force growth rate in scenarios QI–QIV

	2010	% Annual growth rate (2010–30)			
	(m. persons)	QI	QII	QIII	QIV
Algeria	11.20	1.46	1.64	1.50	1.43
Egypt	27.10	2.07	2.09	2.08	2.04
Israel	3.18	1.83	1.87	1.95	1.36
Jordan	1.55	2.74	2.86	2.77	2.61
Lebanon	1.45	1.29	1.32	1.42	1.05
Libya	2.38	1.54	1.56	1.51	1.36
Morocco	11.39	1.39	1.43	1.41	1.35
Palestine	0.97	3.49	3.53	3.50	3.35
Syria	5.46	2.80	2.89	2.81	2.75
Tunisia	3.83	1.29	1.34	1.30	1.21
Turkey	26.52	1.38	1.40	1.39	1.36
SEMCs	95.03	1.75	1.80	1.77	1.69
Rest of the Middle East	59.78	2.49	2.49	2.55	2.49
EU-27	243.66	-0.10	-0.07	-0.10	-0.10
Emerging Asian economies	1,538.11	0.78	0.78	0.78	0.78
Rest of the World	1,495.77	1.36	1.36	1.36	1.36
World	3,432.35	1.049	1.051	1.050	1.047

Source: Authors' estimations based on Groenewold et al. (2011).

3.2.2 *Investment in infrastructure and human capital*

The SEMCs score relatively low in terms of infrastructure. According to the World Economic Forum's *Global Competitiveness Report 2011-2012* (Schwab, 2011), with the exception of Israel (which ranks 33rd), no SEMC is ranked in the top 40 countries based on the available stock and quality of infrastructure (Figure 2). A growing amount of empirical literature debates the

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[10] Derived from an unpublished MEDPRO mimeo, which the authors can make available upon request.

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importance of infrastructure to economic growth (Box 1). Investment in infrastructure in the SEMC region is expected to have a triple effect: i) the first is associated with the financing of infrastructure projects, ii) the second is associated with the changes in the productivity of the country undertaking the investment in infrastructure and iii) the third is associated with the direct economic multiplier effect from producing the equipment and services required to build the infrastructure.[11]

Figure 2. Global infrastructure rankings
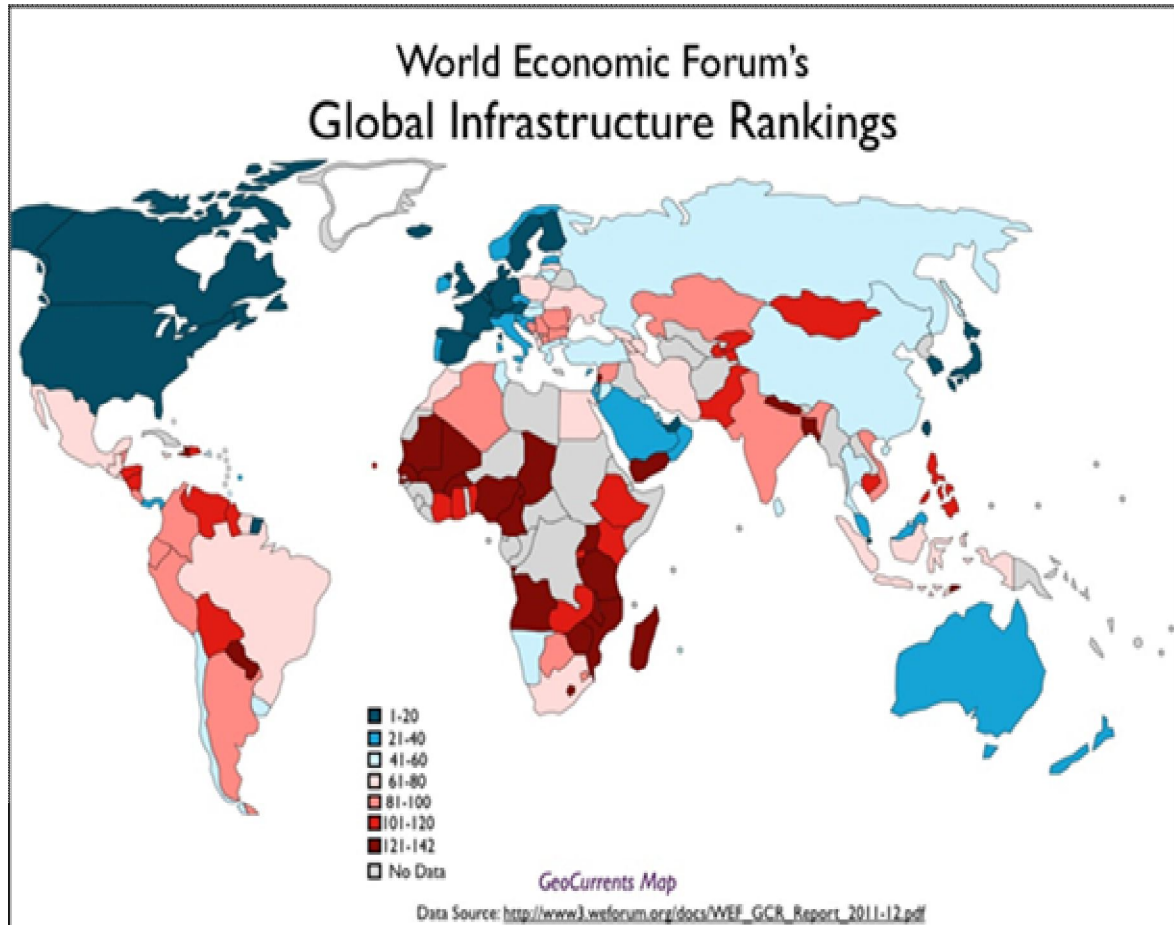
Source: GeoCurrents (http://geocurrents.info/economic-geography/problems-with-global-infrastructure-rankings).

For the quantification of the assumptions on infrastructure, five alternative aspects of infrastructure are considered: i) transport, ii) water and sanitation, iii) telecommunications, iv) electricity and v) human capital. The existing infrastructure assets of the SEMCs are measured using the indicators presented in Table 7. For each scenario, different assumptions are made about the development of each index for each SEMC. These assumptions are based on detailed studies performed under each MEDPRO Work Package (see below) and completed with an additional survey of the literature. In each scenario simulated, it is assumed that the financing of infrastructure projects is partly sourced from national funds and partly from foreign aid. SEMCs would raise a VAT-type tax to collect the necessary funds to finance the investment in infrastructure.

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[11] The multiplier effect refers to the increase in final income arising from any new injection of spending.

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Box 1. Infrastructure and economic growth

The relationship between infrastructure and economic growth has been studied extensively in the literature. Indicative is the work of Hirschman (1958), Arrow and Kurz (1970), Judd (1987), Aschauer (1989), Barro (1990), King and Rebelo (1990), Baxter and King (1993), Canning and Fay (1993), Glomm and Ravikumar (1994), Gramlich (1994), Hulten (1996), Kessides (1996), Cohen and Paul (2004), Teruel and Kuroda (2005), Romp and de Haan (2005) and Cadot et al. (2006). The World Bank's World Development Report (1994) and Jimenez (1995) provide surveys of why infrastructure is important to economic development and evaluate empirical results estimating the contribution of public capital and infrastructure to growth. All of the later works explore and identify a positive relationship between investment in infrastructure and factor productivity. This positive association varies in magnitude depending on the stock of infrastructure available in each country, on the utilisation to which infrastructure is subject as well as on the type of infrastructure under consideration (roads, telecommunications, water and sanitation, etc.). Aschauer (1989; 2000) identifies the presence of large returns to public capital using US data, while Canning et al. (1992) and Canning and Perotti (1994) estimate large growth effects of physical infrastructure. Easterly and Rebelo (1993) find that public investment in transport and communication is consistently correlated with economic growth. Demetriades and Mamuneas (2000) analyse 12 OECD countries and find that public infrastructure capital has positive long-run effects on activity. Calderon and Serven (2008) and Calderon (2009) analyse the impact of infrastructure on economic performance of African countries. They find that infrastructure is positively and significantly related to real GDP per capita growth. Loayza and Odawara (2010) analyses the effects of infrastructure in Egypt by examining the major sectors of infrastructure, including electricity generation, transportation, telecommunication, and water and sanitation. They find that "an increase in infrastructure expenditure of 1 percentage point of GDP would lead to a net present value gain of 6 percentage points of per capita GDP for the first 25 years of implementation and 10.5 percentage points of per capita GDP for the first 50 years".

Alternative explanations of the relationship between infrastructure provision and economic growth have been developed in the literature to date. Macroeconomists suggest that infrastructure may impact on economic growth directly through a direct productivity effect on production inputs, by complementing private investment and by crowding-out private spending through the financial system. Public infrastructure may increase the marginal productivity of production inputs. In doing so, it raises the perceived rate of return on and may increase the demand for, physical capital by the private sector. In the short run, infrastructure may also affect private capital formation indirectly, through changes in output and relative prices. Public capital in infrastructure may raise the marginal productivity of the factor inputs (capital and labour), thereby lowering marginal production costs and increasing the level of private production. In turn, this scale effect on output may lead, through the standard accelerator effect, to higher private investment (thereby raising production capacity over time and making the growth effect more persistent). In the short term, an increase in the stock of public capital in infrastructure may have an adverse effect on activity, to the extent that it displaces (crowds out) private investment. This short-run effect may translate into an adverse growth effect if the drop in private capital formation persists over time. However in the longer term, the increase of public spending and the upgrade of infrastructure improve the state of the economy (e.g. increases productivity, procedures to host FDI are improved) hence leading to more investment (crowding in effect). The productivity effect of infrastructure is the argument that is most commonly proposed to account for the growth effect of infrastructure investment. A higher stock of public capital in infrastructure would tend to raise the productivity of other inputs, such as labour and the stock of private capital, thereby reducing unit production costs. Given decreasing returns, the magnitude of this effect would depend on the initial stock of public capital. In mature economies, productivity effects are likely to be limited; but in low-income countries, they could be substantial.

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Table 7. Indices considered for development of the assumptions on infrastructure investment in the SEMCs

Sector/aspect	Indicator
Transport	Road density (km/100 km^2 of land area)
	Roads per unit of population (km/population)
	Roads per unit of GDP (km/GDP)
Water and sanitation	Improved water source (% of population with access)
	Improved sanitation facilities (% of population with access)
Telecommunications	PCs/1,000 persons
	Internet accounts/1,000 persons
	Fixed telephone lines/1000 persons
	Online population/1,000 persons
	Mobile cellular subscriptions/1,000 persons
	TVs/1,000 persons
Energy	Delay in obtaining an electrical connection (days)
	Access to electricity/100 persons
Human capital	School enrolment (primary, secondary, tertiary), % of gross education of the labour force

Source: Authors' notes based on the World Bank's DataBank definitions.

Evidence from the EU along with developed and developing countries suggests that transport takes the largest share of investment in infrastructure.[12] Based on this evidence, in scenarios QII and QIII it is assumed that the largest share of infrastructure investment in the SEMCs pertains to that in transport infrastructure. In the QII scenario, it is assumed that transport accounts for 40.18% of the total infrastructure investment in the SEMCs. In the QIII scenario, investment in transport accounts for 32.78% of the total investment. Investment in all the other aspects of infrastructure (telecommunications, human capital, etc.) is based on evidence from new member states of the EU as well as developed countries, such as the UK and Germany.[13]

Table 8 summarises the allocation of the total budget directed at infrastructure investment for the different kinds of infrastructure for all four scenarios.[14]

Table 8. Assumptions on infrastructure investment in the SEMC region in scenarios QI–QIV

		Transport	Human capital	Water & Sanitation	Telecommunication	Electricity	Total
QI	in %	33.79	13.33	20.64	1.39	30.85	100
	in bn US $	467.58	184.51	285.59	19.22	427.06	1383.97
QII	in %	40.18	17.21	14.82	1.21	26.58	100
	in bn US $	986.03	422.45	363.62	29.68	652.41	2454.18
QIII	in %	32.78	14.89	17.41	1.27	33.65	100.
	in bn US $	683.40	310.37	363.05	26.51	701.47	2084.81
QIV	in %	27.19	5.73	27.96	0.80	38.32	100.
	in bn US $	350.49	73.83	360.34	10.37	493.86	1288.88

Source: Authors' estimations.

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[12] See for instance Uppenberg et al. (2011) and Clark et al. (2001), in which data on several developed and developing countries suggest that investment in transport infrastructure has accounted for the largest part of public investment. Over the period 2006–09, EU investment in transport infrastructure alone has accounted for the largest share of public investment, equal to 0.7% of GDP.

[13] Data on new EU member states show that public investment in human capital ranges from 0.2% (Latvia) to 1.2% of GDP. For developed countries like the UK, Germany, Italy, Spain and France, investment in water supply, transport and communication ranged from around 3.2% of GDP in 1995 to 4% of GDP in 2008.

[14] For detailed figures on investment in infrastructure by type in scenarios QI–QIV, see the appendix, Table 67 to Table 70.

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The alternative scenarios assume different financing partners for investment in infrastructure projects. According to the Infrastructure Consortium for Africa (ICA, 2011), China has emerged as one of the major investors in African infrastructure, with a market share of more than 20% in contracting infrastructure projects (among the foreign investors). The ICA estimated that the total Chinese commitments to Africa's infrastructure in 2010 was $9 billion, while India's commitments to infrastructure projects in the region were averaging $500 million from 2003 to 2007; for the Arab countries, the financing of infrastructure projects was $3.2 billion in 2010. Of this budget, 64% was allocated to North African countries. The funds of the European Commission used for infrastructure investment in Africa in 2010 amounted to $1.8 billion.[15]

A. Transport

Table 9 presents the current status of transport infrastructure for each of the SEMCs. Carruthers (2013) provides estimates of the needed additions to the transport infrastructure in each scenario. The additions needed to expand/upgrade the transport infrastructure in each scenario are presented in Table 10. These additions are calculated on the basis of the following assumptions:

- QI assumes that the network density of the SEMCs in 2030 will reach the global average network density of 2010.

- QII assumes that in 2050 the transport infrastructure of the SEMCs will be the same as the average of the EU-27 in 2008. This means that by 2030, the difference between the current infrastructure standards and the EU benchmark values will be reduced by a third.

- QIII groups the SEMCs according to GDP per capita. Countries with high GDP per capita are assumed to set higher standards to achieve in transport infrastructure than those with lower per-capita incomes.

- QIV forecasts that in 2030 the SEMCs will keep the national average infrastructure investment of the last decade.

Table 9. Transport infrastructure indices in the SEMCs, 2007

	Surface area (sq. km)	Roads, total network (km)	Road density (km of road per 100 sq. km of land area)	Roads, paved (% of total roads)	Rail lines (total route km)	Airports (incl. airfields)	Airports with unpaved runways	Main ports (according to tonnage and number of ships serviced)
Algeria	2,381,740	112,039	5	74	4723	142	82	9
Egypt	1,001,450	100,472	10	89	5,195	84	12	7
Israel	22,070	18,318	83	100	1,005	47	18	4
Jordan	89,320	7,878	9	100	294	18	2	1
Lebanon	10,450	6,970	67	85	0	7	2	2
Libya	1,759,540	83,200	5	57	0	144	80	4
Morocco	446,550	58,216	13	70	2,110	56	25	5
Syria	185,180	68,157	37	90	1,801	99	70	3
Tunisia	163,610	19,371	12	75	1,991	29	14	5
Turkey	783,560	362,660	46	89	8,686	98	9	8
Palestine	6,020	5,588	93	92	0	0	0	0
SEMCs	6,849,490	842,869	12	83	25,805	724	314	48

Sources: World Bank and CIA World Factbook.

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[15] For a review of the policy and financing frameworks governing Euro-Mediterranean relations and on the determinants of Official Development Assistance (ODA), see Ayadi and Gadi (2013).

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Table 10. Transport infrastructure additions 2015–30 assumed in scenarios QI–QIV

Type of infrastructure	Units	QI	QII	QIII	QIV
Paved roads	km	174,436	307,145	301,234	118,918
Unpaved roads	km	32,296	58,995	88,313	30,152
Railways	km	4,274	16,452	4,709	2,246
Runways	km	11	92	17	7
Passenger terminals	m^2	888,062	976,869	888,062	732,652
Container berths	number	45	42	64	38

Source: Carruthers (2013).

Unit investment costs for each type of transport infrastructure are provided by Carruthers (2013). The expenditure for expanding/upgrading the transport infrastructure in each scenario is presented in Table 11.

Table 11. Total investment in transport infrastructure, cumulatively over 2015–30

	QI		QII		QIII		QIV	
	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)
Algeria	2.10	75.01	4.50	160.73	2.79	99.76	1.40	50.01
Egypt	1.60	69.12	2.30	99.35	2.10	90.71	1.00	43.20
Israel	0.20	9.20	0.60	27.60	0.20	9.20	0.20	9.20
Jordan	1.50	8.30	2.60	14.39	2.00	11.07	1.00	5.54
Lebanon	0.40	2.57	1.20	7.70	0.40	2.57	0.40	2.57
Libya	1.30	25.73	4.30	85.10	4.00	79.16	1.70	33.64
Morocco	2.00	43.46	3.80	82.56	2.60	56.49	1.30	28.25
Syria	1.90	24.28	2.50	31.95	2.70	34.50	1.40	17.89
Tunisia	1.80	20.41	3.10	35.14	2.39	27.14	1.10	12.47
Turkey	0.90	187.37	2.10	437.20	1.30	270.65	0.70	145.73
Palestine	1.50	2.14	3.00	4.29	1.50	2.14	1.40	2.00
SEMCs	1.13	467.58	2.39	986.03	1.66	683.40	0.85	350.49

Source: Authors' estimations based on Carruthers (2013).

B. Water supply, health, environment and sanitary services

Investment in water infrastructure relates to projects that improve water management, increase access to water and improve/extend irrigation facilities. The investment cost to upgrade water infrastructure varies depending on the share of the population that is located in rural areas and the geographical dispersal of houses. Table 12 summarises the percentage of the population with access to improved water and sanitation facilities. Data on the population with access to water and sanitation facilities have been extracted from the "Economic and Structural Database" (World Bank DataBank, 2011).

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Table 12. Water, health and sanitation infrastructure indices in the SEMCs*

	Health expenditure, total (% of GDP)	Hospital beds (per 1,000 people)	Improved sanitation facilities (% of population with access)	Improved water source (% of population with access)
Algeria	4.36	2.00(2004)	94	84
Egypt	4.93	2.08	95	98
Israel	7.57	5.83	100	100
Jordan	8.64	1.80	98	97
Lebanon	8.43	3.43	98 (2005)	100
Libya	2.79	4.00 (2006)	97	54 (2001)
Morocco	5.18	1.10	69	81
Palestine	n.a.	1.00 (1996)	91	86
Syria	3.21	1.47	93	89
Tunisia	6.16	1.76	85	94
Turkey	6.04	2.80	90	98

* Data are for 2007 unless the latest year for which data are available is given in parentheses.
Source: World Bank.

Varela-Ortega et al. (2012) have estimated the expenditures to be made on water infrastructure for each scenario. These expenditures depend on the water usage assessed for each scenario. The main drivers of water usage are i) socio-economic (e.g. GDP and population) and ii) physical and natural characteristics (e.g. country area and precipitation). As described in Varela-Ortega et al. (2012), lower expenditure on water infrastructure assets in QII and QIII (compared with QI) actually represent lower prices. It is assumed that the services provided by the QII and QIII investments in terms of water access and irrigation are the same as in QI but at lower costs; hence, in QII and QIII, water productivity increases. The opposite is assumed to hold for QIV. Table 13 summarises the investment in water and sanitation infrastructure in the alternative scenarios.

Table 13. Total investment in water and sanitation infrastructure assumed in scenarios QI–QIV, cumulatively over 2015–30

	QI		QII		QIII		QIV	
	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)
Algeria	0.00	0.00	0.05	1.93	0.05	1.93	0.59	21.07
Egypt	2.92	126.14	4.03	174.17	3.96	171.06	3.91	168.90
Israel	0.60	27.60	0.61	27.87	0.61	27.87	0.76	34.96
Jordan	4.02	22.25	4.86	26.90	4.82	26.70	7.40	40.96
Lebanon	1.34	8.60	1.58	10.17	1.76	11.30	2.05	13.16
Libya	2.97	58.78	3.29	65.19	3.17	62.70	1.01	19.99
Morocco	1.30	28.25	1.40	30.42	1.40	30.42	1.58	34.33
Syria	0.15	1.92	0.25	3.22	0.29	3.68	1.76	22.49
Tunisia	0.12	1.36	0.14	1.59	0.14	1.59	0.24	2.72
Turkey	0.00	0.00	0.05	11.24	0.07	14.99	0.00	0.00
Palestine	7.49	10.71	7.64	10.92	7.56	10.82	1.23	1.76
SEMCs	0.69	285.59	0.88	363.62	1.12	363.05	0.87	360.34

Source: Authors' estimations based on Valera-Ortega et al. (2012).

C. Telecommunications

Table 14 presents the current status of telecommunications infrastructure for each SEMC. The data to calculate the telecommunication infrastructure assets have been extracted from the World Bank's database.

Investment in telecommunications infrastructure is mainly made through private firms. Public contributions to this kind of infrastructure are low. Using the Abbassi (2011) study on ICT it was possible to quantify the four alternative scenarios by making the following assumptions:

- In QI, Jordan, Morocco, Egypt, Lebanon and Tunisia follow Israel and Turkey in terms of telecommunications infrastructure. It is assumed that these countries will reach Israel's current infrastructure status in 2060. Algeria and Palestine are assumed to follow Jordan, Morocco, Egypt and Tunisia with a five-year lag. Syria is the last to follow, with a ten-year lag.

- QII assumes the same pattern as QI. Jordan, Morocco, Egypt and Tunisia will reach the current infrastructure status of Israel in 2040.

- QIII also assumes the same pattern as QI. Jordan, Morocco, Egypt and Tunisia will reach the current infrastructure status of Israel in 2045.

- In QIV, there is no upgrade of the telecommunications infrastructure. The current infrastructure is assumed to dilapidate at 2% p.a.

Table 15 presents the public expenditure on infrastructure for each scenario.

Table 14. Telecommunication infrastructure indices in the SEMCs, 2000 and 2009

	Telephone lines (per 100 people)		Internet users (per 100 people)		Total investment (bn US$) 2000
	2000	**2009**	**2000**	**2009**	**2000–09**
Algeria	5.77	8.91	0.49	11.23	5.35
Egypt	8.11	12.94	0.64	24.28	12.34
Israel	49.44	44.76	19.96	61.23	10.92
Jordan	12.84	8.32	2.64	26.49	2.24
Lebanon	15.39	19.15	7.95	23.68	0.40
Libya	11.57	16.98	0.19	10.80	1.35
Morocco	4.95	11.12	0.69	41.30	8.69
Syria	10.48	19.30	0.18	17.31	0.89
Tunisia	10.10	12.34	2.72	33.83	3.56
Turkey	28.91	23.01	3.76	36.40	24.86
Palestine	8.51	9.37	1.18	32.32	0.88

Source: World Bank (2011).

Table 15. Total investment in telecommunications infrastructure assumed in scenarios QI–QIV, cumulatively over 2015–30

	QI		QII		QIII		QIV	
	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)
Algeria	0.12	4.39	0.16	5.77	0.15	5.34	0.09	3.19
Egypt	0.11	4.76	0.19	8.04	0.16	7.01	0.04	1.89
Israel	0.00	0.14	0.01	0.48	0.01	0.48	0.00	0.14
Jordan	0.19	1.06	0.26	1.42	0.24	1.31	0.13	0.75
Lebanon	0.16	1.03	0.24	1.54	0.21	1.38	0.09	0.58
Libya	0.02	0.41	0.03	0.65	0.03	0.58	0.01	0.19
Morocco	0.04	0.82	0.06	1.36	0.05	1.19	0.02	0.34
Syria	0.21	2.69	0.28	3.61	0.26	3.32	0.15	1.89
Tunisia	0.05	0.54	0.07	0.84	0.07	0.74	0.02	0.28
Turkey	0.01	2.84	0.03	5.23	0.02	4.48	0.00	0.75
Palestine	0.36	0.54	0.49	0.74	0.45	0.68	0.24	0.37
SEMCs	0.05	19.22	0.07	29.68	0.06	26.51	0.03	10.37

Source: Authors' estimations based on Abbassi (2011).

D. Electricity sector

Fragkos et al. (2012) have developed alternative scenarios of energy supply and demand for the SEMC countries in accordance with the Ayadi and Sessa (2011) theoretical framework.[16] Following the scenario definitions of "Euro-Mediterranean policy to 2030" as presented in Ayadi and Sessa (2011), a scenario of electricity supply and climate change mitigation has been specified, namely the "MED–EU-27 Energy Cooperation" scenario, in addition to the reference (business-as-usual) scenario. The aim of the MED–EU energy cooperation scenario is to project a power supply mix in the SEMCs in the context of Mediterranean integration and GHG emission-reduction policies.

This scenario is in line with the "Green Transition" scenario of the Ayadi and Sessa (2011) framework. To quantify a scenario involving successful MED–EU integration, a cooperative MED–EU frame of action towards climate change mitigation and the establishment of a well-interconnected Mediterranean electricity grid are assumed. In this context, the MED–EU energy cooperation assumes that such projects as the Mediterranean Solar Plan, Desertec and MEDRING will partly materialise and that the EU Emissions Trading Scheme will expand to the SEMCs with special provisions for these countries.

In the QIII scenario, it is assumed that no collaboration occurs among countries towards climate change mitigation. This scenario is based on the assumption that the MED–EU area moves towards decentralised production in the energy sector rather than an integrated approach (as assumed in QII). Instead, each SEMC individually commits its efforts to developing renewable energy sources, promoting energy efficiency, reducing import dependence (for net importers) and/or increasing its export capability (for net exporters). The promotion of renewable electricity exports to the EU is

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[16] The authors note that the economies of the SEMCs, with the exception of Israel, are far from having saturated energy needs in relation to potential growth and improving living conditions. So they present energy–GDP elasticity close to or higher than one, in contrast to developed economies, for which the elasticity is well below one. Electrification is a dominant trend and the GDP elasticity of electricity demand has been higher than that for total energy.

much more limited compared with scenario QII. Finally, flows of foreign direct investment (FDI) to the renewable resource sectors extend beyond facilities for concentrated solar power production to other forms of renewable energy sources, such as wind, rain and geothermal heat.

Table 16. Total investment in the electricity sector assumed in scenarios QI–QIV, cumulatively for 2015–30

	QI		QII		QIII		QIV	
	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)
Algeria	1.16	41.53	2.13	76.11	1.66	59.37	1.26	44.91
Egypt	1.42	61.51	3.38	146.15	4.07	175.78	2.68	115.68
Israel	0.68	31.07	0.85	38.98	1.02	46.82	0.66	30.15
Jordan	2.22	12.31	2.91	16.11	3.21	17.77	2.36	13.05
Lebanon	1.66	10.67	2.11	13.52	2.42	15.50	1.64	10.55
Libya	1.09	21.56	1.88	37.15	1.50	29.76	1.07	21.22
Morocco	1.13	24.54	1.74	37.82	1.79	38.81	1.11	24.01
Syria	2.98	38.14	3.55	45.32	3.73	47.64	3.37	43.11
Tunisia	1.31	14.84	2.16	24.53	1.91	21.69	1.23	13.91
Turkey	0.81	168.76	1.03	213.46	1.18	244.83	0.84	174.79
Palestine	1.40	2.13	2.14	3.26	2.30	3.51	1.62	2.47
SEMCs	1.04	427.06	1.58	652.41	1.70	701.47	1.20	493.86

Source: Authors' estimations based on Fragkos et al. (2012).

E. Human capital

Table 17 presents the current status of human capital assets in each SEMC in terms of the education level of labour and expenditure per student. Arbak (2012) measures human capital as equivalent to the aggregate stock of productivity, averaged over various education and experience levels. Productivities are estimated through the use of returns to education and experience in the Mediterranean. The four alternative scenarios were quantified based on the work of Arbak (2012) by employing the following assumptions:

- QI assumes a continuation of past trends. Spending on education is such that the share of the labour force with tertiary education is projected to linearly follow past trends.

- In QII, the enrolment rates in tertiary education increase. In 2030, the share of the labour force with tertiary education increases to reach 40% of the total on average.

- In QIII, the enrolment rates in tertiary education also increase. In 2030, the share of the labour force with tertiary education increases to reach 36% of the total on average.

- QIV assumes that enrolment rates decrease. No additional spending on education is forecasted. The share of skilled labour in the labour force remains at base year levels throughout the simulation period.

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Table 17. Human capital indices in the SEMCs, 2010

	Education of labour force (% of total)			Public expenditure per student (% of GDP per capita)[*]		
	Primary	**Secondary**	**Tertiary**	**Primary**	**Secondary**	**Tertiary**
Algeria	72.15	19.65	8.20	11.32	17.16	24.42
Egypt	63.20	21.40	15.40	16.09	15.69	33.12
Israel	16.52	39.48	43.99	21.15	21.74	30.93
Jordan	75.20	17.85	6.95	15.77	18.75	26.68
Lebanon	57.70	18.20	24.10	8.14	9.68	13.77
Libya	79.53	11.83	8.63	13.86	16.48	23.45
Morocco	79.53	11.83	8.63	16.59	42.52	97.12
Syria	75.20	17.85	6.95	6.09	15.60	35.64
Tunisia	64.55	28.90	6.55	18.37	23.71	81.08
Turkey	63.20	21.40	15.40	11.03	9.65	35.31
Palestine	61.28	15.65	23.07	22.27	19.47	71.28

[*] Public expenditure (current and capital) includes government spending on educational institutions (both public and private) and education administration as well as subsidies for private entities (students/households and other privates entities). See the World Bank's DataBank definitions.

Source: Authors' estimations based on World Bank data.

In the QIV scenario, there is no additional infrastructure (to the QI scenario) for investing in human capital in the SEMCs. No capital transfers from the EU, the Middle East region or the rest of the world targeting human capital in the SEMCs are expected to take place. Assuming the presence of conflicts, government investment in human capital in the SEMCs is restricted to 50% (70% for Israel) for the year 2015. Investment in the SEMC region is assumed to recover after 2020.

Table 18. Total investment in infrastructure for enhancing human capital assumed in scenarios QI–QIV, cumulatively for 2015–30

	QI		QII		QIII		QIV	
	(% of GDP)	**(bn US$)**	**(% of GDP)**	**(bn US$)**	**(% of GDP)**	**(bn US$)**	**(% of GDP)**	**(bn US$)**
Algeria	0.30	10.85	0.80	28.40	0.57	20.42	0.12	4.26
Egypt	0.64	27.77	1.69	73.07	1.21	52.38	0.24	10.55
Israel	0.92	42.53	1.06	48.72	0.92	42.53	0.44	20.10
Jordan	0.27	1.49	0.70	3.87	0.50	2.79	0.11	0.61
Lebanon	0.62	3.95	1.62	10.38	1.16	7.44	0.23	1.50
Libya	0.52	10.37	1.38	27.39	0.99	19.58	0.19	3.83
Morocco	0.45	9.67	1.18	25.63	0.84	18.29	0.16	3.48
Syria	0.34	4.33	0.88	11.29	0.64	8.13	0.14	1.73
Tunisia	0.57	6.44	1.49	16.87	1.07	12.13	0.22	2.52
Turkey	0.32	66.70	0.84	175.72	0.60	125.88	0.12	25.11
Palestine	0.29	0.41	0.78	1.12	0.55	0.79	0.09	0.12
SEMCs	0.45	184.51	1.03	422.45	0.75	310.37	0.18	73.83

Source: Authors' estimations based on Arbak (2012).

F. Assumptions for capital stock in the QIV scenario

Scenario QIV assumes that the SEMCs are involved in conflict. Thus government spending is modified accordingly, directing more at the sectors related to defence (ammunition, military equipment, etc.) and less at the sectors that furnish government demand in times of peace. The consumption patterns in the SEMCs are assumed to change under conflict, requiring more from consumption categories (such as food and medical care), and less from recreational services and miscellaneous goods and services categories.

The presence of conflicts is associated with the destruction of the existing stock of capital in the SEMCs (Table 19). The quantification of the QIV scenario employs explicit assumptions on the stock of capital destroyed. Capital destruction is assumed to take place in 2015. The conflict between Israel and Palestine is assumed to worsen. This assumption leads to the relatively higher capital destruction rate in the latter countries compared with the rest of the SEMCs. The remaining countries are associated with lower rates of capital destruction stemming from the effects of regional tensions and conflicts.

Table 19. Capital stock losses assumed in scenario QIV*

	% of capital stock lost during 2015–30 period
Algeria	10
Egypt	12
Israel	14
Jordan	11
Lebanon	14
Libya	11
Morocco	11
Syria	11
Tunisia	9
Turkey	12
Palestine	35

* Losses pertain to the total capital stock in the economy. The magnitude of the losses assumed is associated with the probability of conflict in each country and proximity to the Palestinian–Israeli conflict.

Source: Authors' estimations.

3.2.3 Risk and governance

In the quantification of the alternative scenarios, appropriate assumptions have been employed regarding governance and institutional quality in the SEMCs and the effects of the latter on the SEMCs' perceived risk.[17] In the GEM-E3-MEDPRO model, the risk directly affects the cost of investment through the interest rate and thus the user cost of capital. In the QI scenario, the interest rate has been adjusted according to the sovereign risk of each country so as to incorporate the extra/lower return required by the investing agents. The reference long-term interest rate of each

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[17] A wide range of literature relates the quality of governance to FDI flows and investment returns, to the ease of access to credit, to the perceived financial risk of a country and to the cost of investment. Indicative is the work of Globerman and Shapiro (2002) and Benassy-Quere et al. (2007). The ability to manage debt, current account and deficit imbalances may affect investors' choices of capital allocation and the ease of access to credit of the respective countries. Governance and political risk determines the country-risk rating or sovereign ratings, both closely related to investment decisions and FDI (Cosset and Roy, 1991).

country has been based on the ranking that the country has in Euromoney[18] and the interest rate of the worst performing country.

In the absence of structural changes and/or changes in the existing patterns of governance and institutions, the relative risk of the SEMCs and the ease of access to credit for each of the SEMCs recorded in the base year are assumed to prevail throughout the period up to 2030. In the alternative scenarios, the adjustment of the interest rates has been based on the adoption of appropriate assumptions regarding governance, government deficits and trade balances of the respective countries. This methodology has followed the approaches employed by rating agencies (Fitch Ratings, Standard and Poor's), so as to model the sovereign risk of each country.

To simulate the governance-related risk premium, the projections provided by Colombo (2011) have been adopted. [19] The author provides projections of the values of a composite index representative of governance and institutional quality developed in each of the SEMCs under the assumptions of each scenario (Table 20). The composite index ranges in value between -2.5 to +2.5, with higher values associated with better governance and institutions.

Table 20. Values of the composite governance indicator assumed in scenarios QI–QIV*

	QI	QII	QIII	QIV
Algeria	-0.8	0.3	0.1	-1
Egypt	-0.4	0.3	0.1	-0.7
Israel	0.5	0.7	-0.2	-0.5
Lebanon	-0.6	0.4	0.3	-0.7
Libya	-1.1	-0.2	-0.2	-1.5
Morocco	-0.3	0.5	0.2	-0.5
Palestine	-0.4	0.4	-0.5	-1
Syria	-0.9	-0.5	-0.5	-1.8
Tunisia	-0.2	0.8	0.3	-0.1

* The index ranges in value between -2.5 to +2.5. The methodology follows the World Bank Governance Indicators.
Source: Colombo (2011).

Based on the values of the composite index provided by Colombo (2011), a risk parameter for each of the SEMCs is adjusted accordingly for governance developments in each of the alternative scenarios (Table 21). Higher values of the composite governance indicator are associated with relatively lower values of the risk parameter, while relatively lower values of the composite governance indicator are associated with relatively higher values of the risk parameter.

Cooperation of the SEMCs with the EU countries in scenario QII is assumed to lead to improved governance and institutional quality in the SEMC region. Governance improvements are expected to lead to increased confidence in the governance and institutional patterns in the SEMCs and to a reduction in the perceived risk. The cooperation between the SEMCs and the rest of the Middle East and Asian countries in scenario QIII affects governance and institutional quality developments in the SEMC region. Stability in the regional relationships is assumed to reduce the risks of the SEMC region. Accountability and the rule of law are expected to change, resembling more closely the situations observed in the rest of the Middle Eastern countries. In this scenario, the perceived risk of the SEMCs is assumed to improve compared with the reference scenario, although to a level that is lower than the QII scenario. In the QIV scenario, a worsening of the regional conflicts is assumed to

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[18] See the Euromoney website (http://www.euromoney.com/poll/10683/PollsAndAwards/Country-Risk.html).

[19] Derived from an unpublished MEDPRO mimeo, which the authors can make available upon request.

increase the perceived risks of the SEMCs. Deteriorating governance and a decoupling of institutional aspects associated with regulatory quality, the rule of law and political stability are expected to worsen the risks associated with the SEMCs.

Table 21. Risk parameters assumed in scenarios QII–QIV

	QII	QIII	QIV
Algeria	0.70	0.82	1.07
Egypt	0.81	0.89	1.10
Israel	0.95	0.97	1.37
Jordan	0.89	0.93	1.18
Lebanon	0.73	0.84	1.07
Libya	0.75	0.85	1.08
Morocco	0.78	0.87	1.09
Palestine	0.56	0.66	0.85
Syria	0.89	0.93	1.18
Tunisia	0.73	0.84	1.07
Turkey	0.85	0.87	1.23
EU-27	0.99	1.00	1.04
Emerging Asian economies	1.00	0.98	1.05
Rest of the Middle Eastern countries	1.00	0.98	1.10

Source: Authors' estimations based on governance indicators provided by Colombo (2011).

3.2.4 Trade liberalisation

With the exception of energy exports, the SEMC region continues to be among the least integrated in the world in terms of trade (Iqbal and Nabli, 2004). One of the main impediments to trade integration is the high level of protection, measured by tariff rates and the tariff equivalents of non-tariff barriers (NTBs).[20] Andriamananjara et al. (2003) and Andriamananjara et al. (2004) suggest modelling NTBs as tariff equivalents, since NTBs create a price wedge as export taxes, or as institutional frictions causing efficiency losses depending on the type of NTB. NTBs do not create an increase in government revenues (Ferrantino, 2006). NTBs have a cost-raising and trade-restrictive effect at the border ("protection effect" according to Fugazza and Maur, 2008) without creating direct tax revenues.

The modelling of NTBs in the present work adopts the efficiency approach described in Fugazza and Maur (2008) and in Andriamananjara et al. (2003). This approach implies that the price differential calculated by the ad valorem equivalents (AVEs) is entirely explained by the efficiency losses due to the presence of NTBs. The assumption adopted considers that AVEs and NTBs are unobserved costs in the GTAP database that can be removed in a scenario simulation, thus eliminating the pre-existing price wedge between observed domestic and world prices. As a result,

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[20] Iqbal and Nabli (2004) find that average NTB protection is higher in the SEMCs than in other lower middle-income countries. According to the World Bank report by Arvis et al. (2011), NTBs are assumed to be higher in agricultural and manufactured products than in the services sectors. A shallow trade integration policy has been in force through the Barcelona process in relation to Euro-Mediterranean cooperation, and through the GAFTA, in relation to South–South trade cooperation. However, as Ghoneim et al. (2012) indicate, the shallow integration process is not yet fully completed, with the exception of Turkey and Israel, thus leaving scope for further trade liberalisation. The World Bank report by Arvis et al. (2011) indicates that the removal of NTBs and the steps to further trade liberalisation will enable an opening of the southern Mediterranean economies to global trade and would potentially improve welfare.

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import prices are reduced as if there is an increase in productivity, without directly altering the revenues of the government.

In the alternative scenarios, the assumptions employed take into account NTBs,[21] transport costs and bilateral import-duty rates. In the QII scenario, NTBs are removed between the SEMCs and between the SEMCs and EU countries from 2015 onwards, assuming deeper trade integration.[22] In QIII, NTBs are removed between the SEMCs and between the SEMCs and the rest of the Middle East and certain Asian economies. Moreover, NTBs between the SEMCs and Brazil and the Russian Federation reduce, to a lesser extent, as improvements in the trade relationships are assumed to expand in this scenario. In QIV, NTBs are assumed to increase in the presence of regional tensions (particularly in the services sector) and are maintained up to 2030.

In addition to NTBs, trade integration has been modelled with the employment of the appropriate assumptions on the development of the transport costs in each of the SEMCs in the alternative scenarios. For the latter quantification, the Logistics Performance Index (LPI) has been used (Table 22). The base year values were extracted from the World Bank report by Arvis et al. (2011), whereas the quantification of the index for the alternative scenarios is based on Ghoneim et al. (2012). Countries with lower LPI values, like Libya, have been assumed to have a larger scope for improvements in their logistics. Hence, relative transport costs can be expected to decrease more in the alternative scenarios (as a percentage of reference costs) for these countries.

Table 22. LPI ranking for the SEMCs and other selected countries

	LPI	LPI Rank	Customs	Infra-structure	International shipments	Logistics competence	Tracking tracing	Timeliness
Algeria	2.36	130	1.97	2.06	2.7	2.24	2.26	2.81
China	3.49	27	3.16	3.54	3.31	3.49	3.55	3.91
Egypt	2.61	92	2.11	2.22	2.56	2.87	2.56	3.31
Germany	4.11	1	4	4.34	3.66	4.14	4.18	4.48
India	3.12	47	2.7	2.91	3.13	3.16	3.14	3.61
Israel	3.41	31	3.12	3.6	3.17	3.5	3.39	3.77
Jordan	2.74	81	2.31	2.69	3.11	2.49	2.33	3.39
Lebanon	3.34	33	3.27	3.05	2.87	3.73	3.16	3.97
Libya	2.33	132	2.15	2.18	2.28	2.28	2.08	2.98
Syria	2.74	80	2.37	2.45	2.87	2.59	2.63	3.45
Tunisia	2.84	61	2.43	2.56	3.36	2.36	2.56	3.57
Turkey	3.22	39	2.82	3.08	3.15	3.23	3.09	3.94
UAE	3.63	24	3.49	3.81	3.48	3.53	3.58	3.94
US	3.86	15	3.68	4.15	3.21	3.92	4.17	4.19

Source: World Bank (2011).

Additional assumptions have been employed with regard to import duties. In scenario QII, it is assumed that import duties are gradually eliminated by 2015 on products traded between the SEMCs and between the EU and SEMCs. In scenario QIII, import duties are assumed to be gradually eliminated by 2015 between the SEMCs as well as between the SEMCs and the rest of the Middle East and certain Asian economies. In the QIV scenario, a continuation of past trends in import duties is assumed to prevail among the SEMCs, the EU and the rest of the model regions.

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[21] The quantification of NTBs and historical trends were derived from Ghoneim et al. (2012).

[22] In scenario QII, electricity exports from the SEMCs to the EU are also assumed to take place.

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3.3 Summary of assumptions

The drivers of economic development above the reference scenario levels in the QII and QIII scenarios can be summarised as follows:

- an increase in labour mobility and changes in the active population;

- an upgrade and expansion of infrastructure, inducing productivity gains in many sectors;

- investment in human capital, which also allows for productivity gains and improvements in governance;

- geopolitical stability, better governance and structural reforms, which enable i) greater confidence and a reduction of risk premiums, ii) foreign direct investment and iii) trade integration; and

- trade liberalisation (abolition of tariff and non-tariff barriers, the creation of a single market), which induces lower trade costs.

Conversely, in the QIV scenario, a lack of stability and the exacerbation of tensions induce the opposite effects (Table 23).

Table 23. Total budget allocated to infrastructures investment in scenarios QI–QIV, cumulatively over 2015–30

	QI		QII		QIII		QIV	
	in %	in bn US $	in %	in bn US $	in %	in bn US $	in %	in bn US $
Algeria	3.69	131.79	7.64	272.94	5.23	186.83	3.46	123.44
Egypt	6.70	289.30	11.59	500.78	11.50	496.95	7.88	340.22
Israel	2.40	110.54	3.12	143.65	2.76	126.90	2.06	94.55
Jordan	8.20	45.41	11.33	62.69	10.77	59.64	11.00	60.90
Lebanon	4.18	26.81	6.75	43.30	5.95	38.18	4.42	28.36
Libya	5.90	116.84	10.89	215.48	9.69	191.78	3.99	78.87
Morocco	4.91	106.73	8.18	177.79	6.68	145.20	4.16	90.41
Syria	5.58	71.35	7.46	95.39	7.61	97.28	6.82	87.12
Tunisia	3.84	43.59	6.97	78.96	5.58	63.29	2.81	31.90
Turkey	2.04	425.68	4.05	842.86	3.17	660.82	1.66	346.39
Palestine	11.15	15.94	14.22	20.33	12.54	17.93	4.70	6.72
SEMCs	3.36	1383.97	5.96	2454.18	5.06	2084.81	3.13	1288.88

Source: Authors' estimations.

Investment in infrastructure is financed partly from abroad, in the form of FDI, and from additional public investment by the SEMCs, with costs recovered through additional indirect taxation. Infrastructure generates positive external effects on domestic production by increasing total factor productivity, according to a relationship with decreasing returns to scale; hence, output tends to increase. Infrastructure building also creates multiplier effects for the economy, although it increases imports.

In QII, it is assumed that the cooperation between the SEMCs and the EU increases. The main assumptions of this scenario can be summarised as follows:

i) The active population decreases in the SEMCs but the labour force increases due to the higher participation rate of females.

ii) The EU finances 34.2% ($361 bn) of the additional to QI investments ($1,065 bn). Total cumulative investments in the SEMCs amount to $2,454 bn (authors' calculations based on detailed investments by type of infrastructure presented in the previous section).

iii) Investment risk and hence interest rates decrease in the SEMCs.

iv) Tariff and non-tariff barriers between the SEMCs and the EU are abolished and the Logistics Performance Index for the SEMCs improves compared with QI.

In the QIII scenario, the assumptions can be summarised as follows:

i) Investment in SEMC infrastructure over the period 2015–30 is $2,084 bn, of which 36.5% is financed by Middle Eastern countries and emerging Asian economies (authors' estimations).

ii) Investment risk decreases.

iii) The SEMCs are assumed to cooperate with the rest of the Middle East, emerging Asian economies, Brazil and the Russian Federation. This leads to a removal of tariff and non-tariff barriers between the SEMCs, and between the SEMCs and the rest of the Middle East/emerging Asian economies. It also leads to the lowering of tariff and non-tariff barriers between the SEMCs and Brazil and the Russian Federation.

In the QIV scenario, regional conflicts are assumed to occur and intensify until 2030. This has direct negative implications for the population, risks and infrastructure. Table 24 summarises the main assumptions of the alternative scenarios.

Table 24. Overview of main scenario assumptions

	Population	**Infrastructure**	**Risk**	**Trade**
QI	Continuation of past trends			
QII	- Population marginally falls in the SEMCs - Labour force marginally increases in the SEMCs due to increased female participation - Labour force marginally increases in the EU due to migration from the SEMCs	- SEMCs invest in infrastructure and human capital (5.96% of GDP) - EU funds are directed at infrastructure and human capital investment in the SEMCs - Infrastructure investment affects total factor productivity, with an increase in demand for investment goods and an increase in the capital stock of specific sectors - Investment in human capital increases labour productivity	- Sovereign risks of the SEMCs decrease as governance is assumed to improve - Governance improvements lead to a lower risk parameter in the SEMCs than in QI	- Import duties and NTBs are removed between the SEMCs and the between SEMCs and the EU - Logistic performance is improved in the SEMCs, reducing transport costs between the SEMCs and the EU - Electricity exports from the SEMCs to the EU
QIII	- Population marginally increases in the SEMCs - Labour force marginally increases in the SEMCs due to increased female participation - Female labour participation rates are higher than in QI but lower than in QII	- SEMCs invest in infrastructure and human capital (5.06% of reference GDP) - Funds from the rest of the Middle East & emerging Asian economies directed at infrastructure and human capital investment in the SEMCs - Infrastructure investment affects total factor productivity, with an increase in demand for investment goods and an increase in the capital stock of specific sectors - Investment in human capital affects labour productivity	- Governance improvements lead to a lower risk parameter in the SEMCs - Risk parameters for the SEMCs are higher than in QII	- Import duties and NTBs are removed between the SEMCs and between the SEMCs and the rest of the Middle East & emerging Asian economies. NTBs are lowered with Brazil and Russia - Logistics are improved in the SEMCs, reducing transport costs between the SEMCs and Middle East & emerging Asian economies

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Table 24. Overview of main scenario assumptions (cont'd)

	Population	Infrastructure	Risk	Trade
QIV	- Population falls in the SEMCs - Largest population fall of all the alternative scenarios	- Capital destruction in the SEMCs in 2015 - Reduction in government investment in 2015 - Resumption of investment from 2020 onwards - Change in consumption patterns in the SEMCs	- Governance deterioration leads to higher risks in the SEMCs - Conflict worsens perceived risks for the SEMCs	- Increase of NTBs between the SEMCs and the EU - Reduced tourism and exports of the SEMCs - Logistic performance worsens in the SEMCs, increasing transport costs between the SEMCs and the EU, the rest of the Middle East & emerging Asian economies - Import duties remain in place

Source: Authors' notes.

4.   Simulation results[23]

4.1   Scenario QI

The reference scenario (QI) developed with the GEM-E3-MEDPRO model is consistent with the Ayadi and Sessa (2011) assumptions regarding Euro-Mediterranean policies, i.e. the Euro-Mediterranean state of affairs continues without any substantial change up to 2030. Assumptions on economic growth in the SEMC region are based on Coutinho (2011) and IMF (2011).[24] For the EU countries, the GDP projections provided in the European Commission's (2011) *2012 Ageing Report* have been adopted. Population projections are consistent with the S1 scenario of Groenewold et al. (2011). Table 25 presents the GDP projections as produced by the GEM-E3-MEDPRO model.

In the reference scenario, the EU economy is projected to grow at a relatively slow pace. In contrast, the SEMC economies are projected to record relatively high growth rates and to marginally increase the SEMCs' share of world GDP. Turkey is projected to remain the largest economy in the SEMC region in terms of GDP. Economic growth in the SEMCs is sustained by the growing population and the availability of relatively cheap labour and hydrocarbon resources in some of the countries. With no structural changes assumed, the GDP per capita projected for the SEMC region, with the exception of Israel, remains rather low up to 2030, as population trends are also significant.

The SEMC region remains below the world average GDP per capita in the QI scenario throughout the entire projection period. No leapfrogging is assumed for the SEMCs; thus, the gap between the EU member states and the SEMC region (excluding Israel) is projected to remain, indicating a lack of convergence between the EU and the SEMCs. The average GDP per capita for the SEMCs increases from $5,741 to $9,861 in 2030. However, the gap between these countries and the EU remains, because in 2030 the EU's GDP per capita is projected to reach $45,529.

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[23] The authors gratefully acknowledge constructive comments on development of the scenarios and analysis of simulation results provided by Rym Ayadi, Marek Dabrowski, Luc De wolf, and the participants of the MEDPRO scientific workshops. Any errors remain the responsibility of the authors.

[24] IMF projections take into consideration the effects of the Arab spring on the growth prospects of the SEMCs. Thus no additional adjustments are made by the authors in the growth projections for the region. The Arab spring is assumed not to alter the long-term growth prospects of the SEMCs.

Table 25. GDP and GDP per-capita projections in the reference scenario (QI)

Country	GDP			GDP/capita (US$ 2010)		% Share in world GDP	
	(bn US$) 2010	(bn US$) 2030	Annual growth rate 2010–30	2010	2030	2010	2030
Algeria	157.7	286.5	3.0	4,446.9	6,363.0	0.3	0.2
Egypt	151.6	379.1	4.7	1,868.5	3,458.6	0.3	0.3
Israel	187.0	412.1	4.0	25,212.4	41,144.1	0.3	0.4
Jordan	20.1	49.9	4.6	3,255.8	5,764.1	0.0	0.0
Lebanon	28.4	52.1	3.1	6,715.4	10,887.5	0.0	0.0
Libya	72.8	163.4	4.1	11,449.1	20,074.4	0.1	0.1
Morocco	84.4	186.9	4.1	2,642.4	4,879.8	0.1	0.2
Palestine	5.8	13.3	4.2	1,435.4	1,850.4	0.0	0.0
Syria	49.8	108.5	4.0	2,440.7	3,825.8	0.1	0.1
Tunisia	39.7	101.0	4.8	3,792.1	8,038.9	0.1	0.1
Turkey	812.4	1,777.2	4.1	11,167.1	20,393.9	1.3	1.5
SEMCs	1,609.8	3,530.1	4.0	5,741.1	9,860.5	2.7	3.0
Rest of the Arab world	1,349.4	3,023.2	4.2	11,192.0	19,798.8	2.2	2.6
EU-27	17,461.9	23,125.1	1.5	34,892.9	45,529.4	28.8	20.2
Emerging Asian economies	8,840.3	3,4920.2	7.1	2,854.8	9,540.5	14.6	29.5
Rest of the world	31,294.4	51,126.9	2.6	11,308.9	14,337.5	51.7	44.6
World	60,555.8	115,725.0	3.4	8,951.0	14,105.5	100.0	100.0

Source: GEM-E3-MEDPRO.

Table 26. Macroeconomic aggregates in reference scenario (QI), 2030 (in bn US$)

	SEMC	EU27	Rest of Arab World	Emerging Asian Economies	World
Gross domestic product	3,530	23,125	3,023	34,290	115,725
Investment	768	5,088	654	7,488	25,014
Public consumption	687	4,924	506	6,169	20,915
Private consumption	2,110	13,831	1,677	19,747	70,517
Exports	816	5,090	1,213	5,807	0
Imports	851	5,808	1,027	4,921	0

4.2 Individual economic impacts by type of structural change for alternative scenarios QII and QIII[25]

Before presenting the GEM-E3-MEDPRO results for scenarios QII–QIV, it is worth examining separately the different structural changes included in each scenario. For each alternative scenario, sensitivity analysis simulations were performed, focusing on the effects of the following categories of structural change (simulated individually): i) changes in the population, active population and labour force; ii) the development of investment in infrastructure (transport, energy, telecommunications, water and sanitation) and human capital; iii) changes in governance; and iv) trade integration.

4.2.1 Population

In the QII and QIII scenarios, it is assumed that the labour force in the SEMC region increases in 2030 compared with the reference case, by 18 and 5.8 million people respectively.[26] By considering only the effects of population changes, in the QII scenario GDP in the SEMCs increases by 0.4% above the reference cumulatively over 2015–30. In the QIII scenario, GDP in the SEMCs increases by 0.2% above the reference case (Table 27). The increase in labour supply leads to a decrease in the unit cost of labour and hence a decrease in unit production costs, inducing a lower price level and enabling gains from consumption, investment and trade. Thus, the SEMCs succeed in increasing exports and GDP, relative to the reference scenario.

Table 27. Effects of population changes in the SEMCs in scenarios QII–QIII

	QII	**QIII**
GDP (% change from QI scenario, 2015–30)	0.44	0.25
Change in labour force relative to QI (million persons)	18	5.8

Source: GEM-E3-MEDPRO.

4.2.2 Investment in infrastructure and human capital

Compared with the QI scenario, the additional funds required to upgrade and extend the infrastructure in the SEMCs are partly financed domestically (by an increase in indirect taxes) and by capital transfers from abroad. Over the period 2015–30, the additional capital flows from the EU in the QII scenario are assumed to reach $360.8 billion (which represent 0.41% of total EU investment), whereas the SEMCs raise indirect taxes to collect $705 billion during the same period.[27] The total amount of $1,065.8 billion invested in infrastructure represents 0.8% of the SEMCs' cumulative GDP for the same period. In the QIII scenario, the total budget invested is $698.9 billion, which represents 0.8% of the SEMCs' GDP. This amount is partly covered by the Middle East and the emerging Asian economies ($252 billion). Improving infrastructure implies higher domestic demand for goods and services along with higher total factor productivity (multiplier effect). As a result, there is a decrease in the unit cost of production and an increase in production activity. Increasing production exerts pressure on primary factor markets; hence, wages and rates of return on capital tend to increase (a rent-seeking effect). As public investment increases, some of the private investment (that would otherwise manifest) is cancelled (a crowding-out effect). Investment financing through taxation implies lower investment demand, which partly offsets a demand rise owing to productivity gains.

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[25] This discussion focuses on the assumptions employed for QII–QIII so as to enable the reader to benefit from the analysis of the non-straightforward effects expected in the QIV scenario.

[26] In the QII scenario, it is also assumed that there is an increase in the EU labour force by 0.4% due to increased migration flows from the SEMC region.

[27] For a detailed analysis and trends in FDI flows to the SEMCs, see Sekkat (2012).

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Table 28 summarises the investment amounts dedicated to infrastructure in the SEMCs, the shares of domestic and foreign financing, and the required tax rate increases.

Table 28. Investment in infrastructure in the SEMCs, additional to the QI scenario for 2015–30

	Investment (bn US$)		External financing (% of total)	VAT increase (%)	
	QII	QIII	QII, QIII	QII	QIII
Algeria	141.15	55.04	32.42	2.96	1.14
Egypt	211.48	207.65	50.2	1.76	1.73
Israel	33.11	16.36	5.43	1.15	0.55
Jordan	17.28	14.23	35.62	2.04	1.69
Lebanon	16.49	11.37	40	1.65	1.11
Libya	98.65	74.94	33.59	4.69	3.46
Morocco	71.07	38.48	54.8	1.05	0.55
Syria	24.03	25.93	34.72	1.27	1.37
Tunisia	35.37	19.7	50.26	1.47	0.81
Turkey	417.18	235.15	23.05	1.59	0.88
SEMCs	1,066	700			

Source: GEM-E3-MEDPRO.

According to model-based simulations, increasing the stock of infrastructure in a region exerts growth-enhancing effects. These positive effects on GDP stem not only from the direct impact on domestic activity of building the infrastructure, but also from indirect positive impacts on productivity in relevant sectors (which rely on more cost-effective transportation, communication, public services, etc.). It also has further implications, notably leading to increased attractiveness to FDI and access to broader markets, which enable productivity gains by raising the minimum efficiency scale of firms.

The multiplier effect is differentiated by country, depending on the stock of infrastructure already in place, the contribution of the domestic economy to the building of the infrastructure and the magnitude of adverse effects of the tax, which further depends on the degree of foreign exposure of the country's economy.

Depending on the type of infrastructure investment, different branches of the economy benefit from the increased demand for their products. Indications for sectors that are characterised by low domestic competition (being essentially non-traded sectors) reveal that increasing investment in infrastructure mainly benefits domestic activity. On the other hand, if the economy relies primarily on imports to meet domestic demand, the effect of infrastructure investment will be reduced. The net effect on GDP and on the balance of trade depends on the characteristics of each economy.

The total budget is split among the different types of infrastructure according to the inputs from the different Work Packages.[28] To quantify the effects on economic performance of upgrading the infrastructure in the SEMCs, two methodologies have been employed:

1) Static input–output analysis

The static analysis focuses on the primary effect that changes in the final demand for goods and services have on activity. It does not take into account potential structural changes in the economy, nor the effects of the accumulation of capital stock or improvements in total factor

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[28] See the previous section for a detailed analysis. Inputs have been extracted from the following works: transport from Carruthers (2013), human capital from Arbak (2012), ICT from Abbassi (2011), water from Varela et al. (2012) and energy from Fragkos et al. (2012).

productivity. The net effect on GDP is determined by the share of domestic production in the total demand of each country and the Leontief coefficient, which takes into account the back-and-forth interconnections between sectors, as well as the share of value to total output of each sector. The upgrading of infrastructure has two main effects in the static model. The first is the direct effect, which increases final demand for the goods/services of the sectors necessary for the investment plan to be undertaken. The second is the indirect effect, which increases the intermediate demand for goods in the economy. This approach helps to determine the initial impact of infrastructure investment in the SEMC economy.

2)   CGE

The general equilibrium simulation serves to quantify the net effect on GDP, consumption, investment and the current account, with the calculation being dynamic through capital accumulation and investment by sector. The general equilibrium analysis takes into account production factor substitutions, the impacts of factor prices, the closure of the economy and the interdependencies between sectors and regions (as captured by the input–output and the bilateral trade flows).

The following sections summarise the results when each type of infrastructure investment is simulated separately.

A. Transport

Investment in transport infrastructure entails additional demand for certain sectors of the economy. In the GEM-E3-MEDPRO model it was assumed that these sectors are mainly construction and services, followed by the equipment goods industry. Based on Carruthers (2013), the additional investment to QI was calculated for each alternative scenario (Table 29).

Table 29. Total budget for transport infrastructure, additional expenditure to QI, cumulatively over 2015–30

	QII		QIII		QIV	
	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)	(% of GDP)	(bn US$)
Algeria	2.40	85.72	0.69	24.75	-0.70	-25.00
Egypt	0.70	30.24	0.50	21.60	-0.60	-25.92
Israel	0.40	18.40	0.00	0.00	0.00	0.00
Jordan	1.10	6.09	0.50	2.77	-0.50	-2.77
Lebanon	0.80	5.13	0.00	0.00	0.00	0.00
Libya	3.00	59.37	2.70	53.44	0.40	7.92
Morocco	1.80	39.11	0.60	13.04	-0.70	-15.21
Syria	0.60	7.67	0.80	10.22	-0.50	-6.39
Tunisia	1.30	14.74	0.59	6.73	-0.70	-7.94
Turkey	1.20	249.83	0.40	83.28	-0.20	-41.64
Palestine	1.50	2.14	0.00	0.00	-0.10	-0.14
SEMCs	1.26	518.45	0.52	215.82	-0.28	-117.09

Source: GEM-E3-MEDPRO.

The results of the static model for the alternative scenarios are presented in Table 30. It is the economy of Jordan that has the smallest overall multiplier effect. This is due to the heavy import dependency of the sectors involved in the construction of transport infrastructure (excluding the

construction sector). Israel and Libya present the lower import-dependency coefficients for these sectors and hence have the highest multiplier effects.[29]

The multipliers obtained from the GEM-E3-MEDPRO model are significantly higher compared with those estimated using the static model. The multiplier effect of the investment in infrastructure in the QII scenario is calculated with the GEM-E3-MEDPRO model to be 1.31 for the SEMC region as measured in terms of additional real GDP, above the QI scenario levels.[30] This multiplier is different from the static model, as it corresponds to the net equilibrium effect in the sense that it includes all positive and negative implications:

- Some of the positive multiplier effects on GDP are offset by the negative impacts of tax increases on income and hence on domestic activity.

- The GEM-E3-MEDPRO model captures the potential leakage effect occurring when domestic prices tend to increase during infrastructure construction, inducing higher imports and lower exports.

- The GEM-E3-MEDPRO model takes into account the effects of capital accumulation and the productivity gains produced by the upgrade of infrastructure.

Table 30. Economic impacts of investment in transport infrastructure

	Multiplier effect		GDP change relative to QI (%)	
	Static IO model	**CGE model**	**QII**	**QIII**
Algeria	0.88	1.59	3.81	1.12
Egypt	0.78	1.67	1.17	0.86
Israel	1.08	1.3	0.52	0.07
Jordan	0.58	1.55	1.71	0.82
Lebanon	0.74	1.61	1.29	0.07
Libya	1.32	1.53	4.59	4.13
Morocco	0.86	1.56	2.81	1.00
Syria	0.91	1.62	0.97	1.27
Tunisia	0.84	1.55	2.02	0.97
Turkey	0.88	1.04	1.24	0.46
SEMCs	0.89	1.31	1.64	0.76

Source: GEM-E3-MEDPRO and static IO model.

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[29] Keho and Echui (2011) study the link between investment in transport infrastructure and economic growth and provide a thorough literature survey on the topic. The majority of the studies mentioned conclude that economic growth is positively related to the upgrade of transport infrastructure. The effect is found to be more intense in poor countries.

[30] This result is consistent with studies that calculate infrastructure multiplier effects in the range of 1 (Ramey, 2009) and 3.21 (Cohen et al., 2012). Carruthers (2013) estimates the road and rail investment impacts on the economic performance of the SEMCs. He also finds that Tunisia, Algeria, Egypt and Jordan would significantly benefit from transport infrastructure investment.

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Table 31. GDP impacts of investment in transport infrastructure: Change from QI scenario
cumulatively over 2015–30 (bn US$)

	QII	QIII
Algeria	135.95	39.97
Egypt	50.47	37.03
Israel	23.86	3.44
Jordan	9.45	4.55
Lebanon	8.26	0.46
Libya	90.8	81.69
Morocco	61.09	21.68
Palestine	0.01	0
Syria	12.39	16.24
Tunisia	22.91	11.03
Turkey	258.89	95.88
SEMCs	674.07	311.98

Source: GEM-E3-MEDPRO.

B. Telecommunications

Investment in telecommunications infrastructure in the SEMCs is mainly carried out by the private sector with very little public contribution. Public investment in telecommunications infrastructure undertaken in scenarios QII and QIII represents 0.04% of the SEMCs' GDP. The multipliers calculated from the static and the CGE models are presented in Table 32. The static model estimates multiplier values at much lower levels than the CGE model, since it takes into account only the share of imports in the total supply of communications equipment. The effect on the SEMCs' GDP in the period 2015–30 in the QII scenario is an increase of $17.4 billon (0.04% of GDP) and in QIII an increase of $12.2 billon (0.03% of GDP), compared with the reference scenario.[31]

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[31] The World Bank conducted an analysis to assess the impact of telecommunications penetration on economic growth at the country level (see Qiang and Rossotto, 2009). According to the analysis of 120 countries, for every increase of 10 percentage points in the penetration of mobile phones, there is an increase in economic growth of 0.81% in developing countries, versus 0.60% in developed countries. This was confirmed by a study by Lee et al. (2009) and Calderón and Servén (2008). Badran (2011) has performed a similar study in the context of the Arab world and her results also showed positive GDP growth correlation with enhanced penetration levels of telecom services. The studies also found that all information and communications technologies promote growth more effectively in developing countries than in developed ones. This is because telecommunications services help improve the functioning of the markets, reduce transaction costs and increase productivity through better management in both public and private sectors. Additionally, reliable broadband connectivity is a major prerequisite for export-oriented service industries, such as call centres, outsourcing and financial services. The telecommunications sector itself is a major job creator. Telecom operators create direct jobs and indirect jobs through their massive retail networks. In addition, the sector is a major tax generator for the governments (through income taxes, revenue sharing and sales taxes). It has also proven to be a sector that is quite malleable to major FDI flows. Increasing telecommunications infrastructure can have a significant GDP multiplier effect. This is because it increases productivity across all economic sectors and serves as a complementary investment to other infrastructure, such as electricity, transportation systems and health. Bruce (1989), Singh (1999) and Datta and Agarwal

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Table 32. Multiplier and GDP effects of investment in telecommunications infrastructure

	Multiplier effect		GDP change relative to QI (%)	
	Static IO model	**CGE model**	**QII**	**QIII**
Algeria	0.78	1.9	0.07	0.05
Egypt	0.72	1.79	0.14	0.09
Israel	1.03	1.27	0.01	0.01
Jordan	0.48	1.82	0.12	0.08
Lebanon	0.64	1.77	0.14	0.1
Libya	0.91	1.97	0.02	0.02
Morocco	0.85	2.04	0.05	0.04
Syria	0.86	1.78	0.13	0.09
Tunisia	0.86	1.98	0.05	0.04
Turkey	0.86	1.32	0.02	0.01
SEMCs	0.82	1.7	0.04	0.03

Source: GEM-E3-MEDPRO and static IO model.

C. Water supply and sanitation

Investment in water supply and sanitary services increases the factor productivity of the agricultural sector and decreases expenditures on health services. In the SEMC region, the agricultural sector represents 10% of total value added. The importance of this sector is different across countries as presented in Table 33.

Table 33. Share of agricultural value added, 2007 (% of total)

	Turkey	**Egypt**	**Morocco**	**Tunisia**	**Algeria**	**Libya**
Share	10.2	10.8	17.9	14	6.2	6

	Lebanon	**Israel**	**Syria**	**Jordan**	**Palestine**	**SEMCs**
Share	6.2	2.4	20.1	6.4	15.1	10

Source: GEM-E3-MEDPRO.

When only the total investment in water supply and sanitary services is modelled, GDP in the SEMCs increases by $49.7 billon (0.12% of GDP) over the period 2015–30 in the QII scenario and by $51.9 billon (0.13% of GDP) in the QIII scenario. Table 34 presents the GDP multiplier effects for this type of infrastructure. The multiplier effects are found to be smaller than for other types of infrastructure.

(2004) conclude that the telecommunications infrastructure has the greater potential to lead "leapfrogging" development in the developing countries. The model-based analysis has also found similar results.

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Table 34. Multiplier and GDP impacts of investment in water supply and sanitation infrastructure

	Multiplier effect		GDP change relative to QI (%)	
	Static IO model	**CGE model**	**QII**	**QIII**
Algeria	0.7	1.38	0.07	0.07
Egypt	0.67	0.49	0.55	0.51
Israel	1.24	0.39	0	0
Jordan	0.48	0.56	0.47	0.45
Lebanon	0.65	0.71	0.17	0.3
Libya	0.99	0.57	0.18	0.11
Morocco	0.8	1.08	0.11	0.11
Syria	0.84	0.9	0.09	0.12
Tunisia	0.81	1.81	0.04	0.04
Turkey	0.86	1.06	0.06	0.08
SEMCs	0.8	0.64	0.12	0.13

Source: GEM-E3-MEDPRO and static IO model.

D. Human capital

Investment in human capital has three main, direct implications: i) it increases labour productivity primarily in the high value-added sectors of the economy, i.e. the services sector; ii) it allows countries that are far from the technology frontier to catch up by mimicking/replicating patents produced abroad; and iii) it reduces the labour force, since the participation rate of the active population decreases (i.e. working time is replaced by time spent in education). In the GEM-E3-MEDPRO model, these effects are captured by appropriate increases in total factor and labour productivity. The impact on the SEMCs' GDP from investment in human capital alone in the QII scenario is $350.50 billion (0.85% of GDP) and $172.1 billion (0.42% of GDP) in the QIII scenario cumulatively over 2015–30 (Table 35).[32]

The results of the static IO model show that investment in human capital is found to have a multiplier effect close to 1. Higher multipliers were obtained using the general equilibrium model. Investment in human capital pays off, as it induces incremental GDP above initial spending. Investment in human capital yields the highest returns (as these are captured through the static IO multipliers) among all the different types of infrastructure. The static multiplier ranks high because upgrading human capital is mainly achieved through the use of domestic resources.

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[32] Sianesi and Van Reenen (2000) conclude that an overall 1% increase in school enrolment rates leads to an increase in GDP per-capita growth by 1-3%. Gemmell (1996) finds that an increase of 1% in initial tertiary human stock is associated with 1.1% in per-capita GDP growth, while a 1% increase in subsequent growth in tertiary education (flow) is associated with almost 6% output growth. On the same subject, Barro and Lee (1993) suggest that an extra year of male secondary schooling is associated with a 1.4% increase in GDP growth per worker, while an additional year of female schooling seemingly has a negative impact on a country's growth rate.

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Table 35. Multiplier and GDP impacts of investment in human capital

	Multiplier effect		GDP change relative to QI (%)	
	Static IO model	**CGE model**	**QII**	**QIII**
Algeria	0.99	1.65	0.81	0.38
Egypt	0.9	1.57	1.65	0.8
Israel	1.03	1.31	0.18	0.01
Jordan	0.71	1.38	0.6	0.31
Lebanon	0.98	1.75	1.75	0.82
Libya	1.17	1.54	1.32	0.62
Morocco	0.98	1.64	1.2	0.58
Syria	1	1.44	0.78	0.4
Tunisia	0.96	1.63	1.5	0.7
Turkey	0.97	1.36	0.71	0.38
SEMCs	0.97	1.48	0.85	0.42

Source: GEM-E3-MEDPRO and static IO model.

E. Electricity sector

In the QII and QIII scenarios, it is assumed that investment in the electricity sector modernises equipment and delivers a higher degree of power connection. This implies higher total factor productivity enabled by the wide diffusion of electricity using technologies at lower costs thanks to capital modernisation. The model results confirm significant gains in economic growth due to electricity sector investment (changes of 0.73% and 0.88% in GDP above the reference case cumulatively over 2015–30, see Table 36).[33]

Table 36. Multiplier and GDP impacts of investment in the electricity sector

	Multiplier effect		GDP change relative to QI (%)	
	Static IO model	**CGE model**	**QII**	**QIII**
Algeria	0.66	1.47	1.42	0.73
Egypt	0.61	1.38	2.7	3.65
Israel	1.23	1.39	0.24	0.47
Jordan	0.41	1.38	0.95	1.36
Lebanon	0.55	1.43	0.64	1.08
Libya	0.76	1.31	1.03	0.54
Morocco	0.77	1.48	0.9	0.97
Syria	0.81	1.45	0.81	1.07
Tunisia	0.77	1.4	1.19	0.84
Turkey	0.84	1.13	0.24	0.41
SEMCs	0.74	1.35	0.73	0.88

Source: GEM-E3-MEDPRO and static IO model.

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[33] Sanchez-Robles (1998) and Calderón and Servén (2008) find a small but positive impact of increasing the power sector infrastructure on economic growth.

F. All infrastructure

Table 37 summarises the multiplier effect on GDP of each type of infrastructure asset as estimated using the GEM-E3-MEDPRO model. The highest multiplier is found in telecommunications, followed by investment in human capital. Building infrastructure, including for energy, transport, agriculture and telecommunication services, increases domestic demand in relation to the construction sector (roughly 40% of the infrastructure investment budget is allocated to construction). This sector is characterised by low domestic competition (being essentially a non-traded sector), indicating that increasing investment in infrastructure will benefit mainly domestic activity and hence domestic employment.

Table 37. GDP and multiplier effects of infrastructure investment in the SEMCs

	Multiplier effect estimated using the GEM-E3	GDP change from QI, cumulatively over 2015–30	
		QII	QIII
Electricity	1.35	0.73	0.88
Human capital	1.48	0.85	0.42
Telecommunications	1.70	0.04	0.03
Transport	1.31	1.64	0.76
Water supply, health, environment and sanitary services	0.80	0.15	0.15
All	1.26	3.01	1.89

Source: GEM-E3-MEDPRO.

The positive employment effects of infrastructure investment are very significant in the equipment goods industry and in construction, mainly as a result of the multiplier effect of building the infrastructure (Table 38). Indirect effects, stemming from productivity improvement due to infrastructure, exert positive activity effects in the consumer goods industry. Crowding-out effects and rent-seeking effects (higher wage rates due to higher demand for labour) explain the slight decrease in employment found in certain sectors (agriculture, food industry and services).

Table 38. Employment effects of investment in all types of infrastructure in the SEMCs, changes from QI cumulatively over 2015–30 (%)*

	QII	QIII
Agriculture	-1.9	12.1
Energy	1.3	-0.8
Chemical products	7.6	26.8
Other energy-intensive	5.3	-4.0
Electric goods – Other equipment goods	8.3	-6.6
Transport equipment	2.6	-5.6
Consumer goods industries – Food	-3.1	0.9
Consumer goods industries – Rest	-1.8	-4.9
Textiles and clothing	3.1	-6.8
Construction	12.7	7.3
Transport	-0.8	-5.5
Communication	7.0	4.9
Services	1.0	-0.7

* For detailed sectoral results see the appendix see Table 79 and Table 80.
Source: GEM-E3-MEDPRO.

4.2.3 Risk and governance

The cooperation between the SEMC region and the EU is assumed to take place in a context of increasing geopolitical stability and improving governance. Hence it is assumed that business uncertainty decreases and financial stability favours reducing risk premiums associated with investment in the region. This is reflected in a reduction of interest rates by 2.4% in the region. If the SEMCs cooperate with the rest of the Middle East and emerging Asian economies, the interest rates are assumed to reduce by 1.3%. This leads to an increase of the SEMCs' GDP by $888.5 billion and $603.4 billion over the period 2015–30, respectively, in scenarios QII and QIII.

Lower interest rates imply higher consumption (because of the higher present value of expected income and the lower propensity to save), higher investment and a reduced cost of capital, which exert a positive effect on GDP (Table 39). Increased consumption drives increases in domestic production, which tends to increase the unit cost of capital and labour. In the short run, the unit cost of capital will increase due to higher demand, but in the long run it will decrease due to the larger accumulation of capital stock in the economy (as lower interest rates increase investment). Additional demand for labour increases wages. The total effect is an increase in the unit cost of production, which leads to an increase in net imports (leakage effect).

Table 39. Interest rate and GDP effects of a change in risk perception in the SEMCs*

	QII	QIII
Decrease of interest rates	2.4%	1.3%
Change in GDP relative to QI (cumulatively over 2015–30, bn US$)	888.5	603.4

* For detailed GDP effects per SEMC, see the appendix, Table 74.
Source: GEM-E3-MEDPRO.

4.2.4 Trade liberalisation

In scenario QI, the existing trade links and patterns of the SEMCs are assumed to continue up to 2030. Hence in 2030, the main bulk of SEMC exports (46% of total) are directed at the EU (which represents roughly 6.5% of EU imports). A further 16.93% of SEMC exports are directed at the emerging Asian economies (EAEs) and the rest of the Middle Eastern (ME) countries (which represents 2.4% of their imports), and 10.8% of SEMC exports relate to trade in the internal market of the SEMCs (see Table 40 and Table 41). Exports of the SEMCs to the EU mainly consist of energy products, textiles, other consumer goods and agricultural products. The SEMCs import from the EU the main bulk of their equipment and manufacturing products (see Table 42 and Table 43).[34]

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[34] Konan and Maskus (2006) analyse the effects of preferential liberalisation *vis-à-vis* the EU for Egypt. They find that total welfare gains (in terms of equivalent variation) account for 0.2% of GDP, the export prices of Egyptian goods increase by 1% on average and by 8% in the agricultural and clothing sector. The welfare gains rise to 1.8% of GDP in the case in which the reduced administrative costs occurring from the liberalisation of trade with the EU are applied to all trade partners. A study by Baier and Bergstrand (2001) analyses the factors that account for the growth of trade. Their results show that income growth, tariff rate reductions and lower transport costs have contributed to the growth of world trade. According to these authors, income growth explains 67%, tariff reductions 25% and transport cost reductions 8% of the growth of trade. The EU has recently completed an impact assessment study on trade liberalisation in Libya, which shows net economic benefits for Libya. The abolition of tariff and non-tariff barriers enables more efficient transportation of goods and services and a reduction of trade costs. In the QII scenario, market integration is assumed to occur between the SEMCs and the EU, and in the QIII scenario between the SEMCs, the rest of the Middle East and emerging Asian economies, alongside improved cooperation with Brazil and Russia.

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Table 40. Destination of SEMC exports in the QI scenario, shares in 2030 (% of total)

	Israel	Turkey	Algeria	Egypt	Morocco	Tunisia	Libya	Lebanon	Syria	Jordan	Palestine	SEMCs
EU-27	29.54	52.43	50.07	31.62	51.07	69.65	73.12	14.11	39.25	9.87	0.00	46.03
EAEs	21.33	5.23	2.54	23.49	16.48	6.61	3.24	6.99	13.86	11.00	0.00	10.54
RAW	1.00	8.31	0.91	7.33	3.36	2.80	1.19	29.88	10.61	19.71	4.34	6.09
ROW	40.06	25.53	29.93	28.32	25.59	13.41	6.57	38.83	17.50	32.59	0.00	26.51
SEMCs	8.08	8.49	16.54	9.23	3.50	7.54	15.88	10.19	18.78	26.83	95.66	10.84

Source: GEM-E3-MEDPRO.

Table 41. Origin of SEMC imports in the QI scenario, shares in 2030 (% of total)

	Israel	Turkey	Algeria	Egypt	Morocco	Tunisia	Libya	Lebanon	Syria	Jordan	Palestine	SEMCs
EU-27	23.03	23.52	27.39	20.81	33.79	47.02	18.43	18.88	10.56	10.02	0.00	23.77
EAEs	29.16	30.77	13.41	32.60	20.51	17.51	15.91	17.85	13.94	30.67	0.00	26.96
RAW	0.56	4.02	2.41	7.99	7.73	2.53	15.78	9.41	14.54	14.58	11.96	5.04
ROW	38.46	33.06	29.89	33.22	28.39	19.70	36.20	34.18	38.59	26.25	0.00	33.02
SEMCs	8.80	8.63	26.90	5.37	9.59	13.25	13.68	19.68	22.37	18.48	88.04	11.22

Source: GEM-E3-MEDPRO.

Table 42. SEMC exports to the EU, ME and EAEs in the QI scenario, shares in 2030 (% of total)

	EU				ME, EAEs*			
	Agriculture	Energy	Industry	Services	Agriculture	Energy	Industry	Services
Algeria	0.14	77.37	21.26	1.23	2.7	83.3	6.44	7.57
Egypt	3.03	16.15	68.5	12.32	14.38	25.47	44.62	15.53
Israel	5.87	6.61	58.8	28.72	5.39	0.41	44	50.19
Jordan	0.49	8.85	24.29	66.37	5.13	24.72	49.09	21.07
Lebanon	3.66	1.24	16.6	78.49	12.07	0.23	23.42	64.28
Libya	0.05	89.98	7.23	2.75	4.37	63.73	17.7	14.2
Morocco	5.12	1.37	84.78	8.73	3.21	0.4	65.29	31.1
Syria	2.87	67.85	10.06	19.21	71.47	0.13	15.97	12.44
Tunisia	0.45	8.16	88.25	3.13	6.58	1.27	56.35	35.8
Turkey	0.97	0.91	95.33	2.79	6.83	2.35	80.69	10.13

* ME: Rest of the Middle East countries; EAEs: emerging Asian economies

Source: GEM-E3-MEDPRO.

Table 43. SEMC imports from the EU, ME and EAEs in the QI scenario, shares in 2030 (% of total)

	EU				ME, EAEs*			
	Agriculture	Energy	Industry	Services	Agriculture	Energy	Industry	Services
Algeria	16.34	5.15	78.30	0.22	0.96	0.20	98.51	0.34
Egypt	3.57	1.15	65.28	29.99	0.14	10.66	85.99	3.22
Israel	0.92	2.83	67.38	28.87	0.02	0.28	94.73	4.97
Jordan	5.28	0.71	92.98	1.03	1.87	2.40	93.09	2.64
Lebanon	3.58	21.31	71.40	3.71	1.86	7.11	85.10	5.93
Libya	3.81	0.69	91.32	4.18	0.38	0.14	70.31	29.17
Morocco	15.41	14.16	62.72	7.70	0.24	18.59	79.02	2.16
Syria	4.90	4.94	79.88	10.29	12.16	0.60	78.75	8.49
Tunisia	7.77	10.21	76.40	5.62	0.28	1.24	95.24	3.24
Turkey	3.06	3.00	84.61	9.34	0.48	6.66	90.73	2.13

* ME: Rest of the Middle Eastern countries; EAEs: emerging Asian economies
Source: GEM-E3-MEDPRO.

According to Ghoneim et al. (2012), agricultural and consumer goods are the most protected sectors in the SEMCs (i.e. high non-tariff barriers and duty rates). Table 44 presents the duty rates by country that are assumed to hold in the QI scenario. In the alternative scenarios QII and QIII, these duty rates are assumed to be lowered or removed, and thus the agricultural sector of the SEMCs is left exposed (more than the industrial sector) to international competition. The effects on the energy sector of the removal or lowering of the duty rates are expected to be small.

Table 44. SEMC average duty rates in the QI scenario, 2030 (%)

	Agriculture	Energy	Industry
Algeria	8.37	0.72	7.41
Egypt	6.38	3.35	11.50
Israel	15.01	0.15	0.27
Jordan	18.78	0.00	6.74
Lebanon	30.63	5.54	13.64
Libya	50.65	21.83	8.37
Morocco	21.78	0.90	11.18
Syria	28.39	29.95	3.78
Tunisia	66.06	0.00	6.97
Turkey	18.63	1.26	0.43

Source: GEM-E3-MEDPRO.

In scenario QII, trade integration between the EU and the SEMCs increases the GDP of the SEMCs by 0.7% over the period 2015–30 (Table 45). The switch to a regime of market integration increases activity and hence employment as a result of efficiency gains enabled by trade liberalisation. This effect counterbalances the negative effects stemming from sectors that may suffer from higher exposure to foreign competition, such as textiles and some consumer goods in certain SEMCs. The model results show a marginal increase in total employment in the SEMCs, 0.1% above reference.

According to the model results, the impacts on the EU's GDP are negligible, as changes in trade flows compensate each other; however, a welfare gain for the EU is found.

Table 45. GDP and employment effects of trade liberalisation, cumulatively over 2015–30*

	QII		QIII	
	SEMCs	**EU**	**SEMCs**	**ME, EAEs****
GDP, absolute change from reference	291.5	-29.3	235.6	-92.0
GDP, % change from reference	0.7	-0.0	0.5	-0.0
Equivalent variation	148.3	22.4	251.3	-47.6
Employment (%)	0.1	0.0	0.5	0.00

* For detailed effects per SEMC, see the appendix, Table 75.

** ME: Rest of the Middle Eastern countries; EAEs: emerging Asian economies

Source: GEM-E3-MEDPRO.

Trade integration with the EU increases welfare bilaterally through the following channels:

- EU exports become more competitive in the SEMC markets as non-tariff barriers and duties are removed (exports of the EU to the SEMCs increase);

- trade between the SEMCs increases mainly in the textiles and chemical product sectors;

- final consumers in the SEMCs benefit from cheaper imports and hence welfare increases; and

- cheaper imports drive production costs down, making SEMC products more competitive in international markets. The exports of the SEMCs increase. The biggest part of this increase relates to the trade among the SEMCs and between the SEMCs and the rest of the Middle East and emerging Asian economies.

The impact is not uniform across countries (see Figure 3 and Figure 4 at the end of this sub-section). The countries mainly favoured by the enlargement of the market are those that have already established strong trade relationships with the EU in the reference case. Economies that were already open and EU-oriented, like Tunisia's, profit the most from the creation of the single market, experiencing GDP gains of up to 3.2% above the reference case. Countries with extensive domestic markets, like Israel, experience positive effects but these are below the SEMC average. Government revenues are altered by trade integration: revenues from duties decrease by $296 billion over the period (Table 46) but revenues from indirect taxes increase by $62 billion.[35] The net effect on the public budget is negative and accounts for $234.9 billion over the 2015–30 period.[36]

Table 46. Change in revenues from duties under trade liberalisation assumptions, cumulatively over 2015–30

	QII		QIII	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
SEMCs	-296	-47.3%	-271.9	-43.1%

Source: GEM-E3-MEDPRO.

To examine the effects of changes on the public budget, an additional simulation was performed. In this simulation, trade liberalisation occurs as described above but the government raises a VAT-type

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[35] Reported figures are GEM-E3-MEDPRO model results.

[36] Same as above.

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of tax to collect the income lost from the removal of duties. In particular, the government raises a tax so that its surplus or deficit as a percentage of GDP remains the same as in the QI scenario. Table 47 presents the impact on GDP and employment when the public budget is fixed. Qualitatively, the results and conclusions drawn are the same when comparing the impact of trade liberalisation in QII and QIII. As expected, activity and welfare are found to be at lower levels than in the case where no restrictions on government borrowing are imposed.

Table 47. GDP and employment effects of trade liberalisation without changes in the public budget, changes from QI, cumulatively over 2015–30*

2015–30	QII		QIII	
	SEMCs	**EU**	**SEMCs**	**ME, EAEs****
GDP change (bn US$)	265.8	-28.2	211	-94.5
GDP % change	0.64	-0.01	0.51	-0.03
Equivalent variation of welfare (bn US$)	69.6	30	183.01	-39.84
Employment (% change)	0.04	0.00	0.47	0.00

* For detailed effects per SEMC, see the appendix, Table 76.
** ME: Rest of the Middle Eastern countries; EAEs: emerging Asian economies
Source: GEM-E3-MEDPRO.

The abolition of tariff barriers has a marginal impact on the energy trade flows due to the low duty rates on energy and the absence of non-tariff barriers. Trade is intensified in protected sectors, such as textiles, consumer goods, chemicals and agriculture. Table 48 summarises the changes in production by sector of activity. What is noticeable is the increase in the services sector. In the SEMCs, employment is higher in the services and agricultural sectors. The changes in employment in the context of the QII scenario follow the changes in sectoral production. Compared with the QI scenario, employment increases in services and in most industrial sectors (Table 49).

Table 48. Sectoral production effects of trade liberalisation in the SEMCs, changes from QI cumulatively over 2015–30 (%)*

	QII	QIII
Agriculture	-0.5	11.2
Energy	0.0	-0.9
Chemical products	5.8	19.0
Other energy-intensive	0.2	-7.3
Electric goods – Other equipment goods	-0.9	-11.6
Transport equipment	0.6	-7.8
Consumer goods industries – Food	1.3	2.1
Consumer goods industries – Rest	-3.1	-4.9
Textiles and clothing	10.3	8.3
Construction	0.5	0.6
Transport	-0.3	-2.5
Communication	0.8	1.7
Services	0.3	0.1

* For detailed results on sectoral production and employment in the SEMCs, see the appendix, Table 77 to Table 78.
Source: GEM-E3-MEDPRO.

Table 49. Employment effects of trade liberalisation in the SEMCs, changes from QI cumulatively over 2015–30 (%)

	QII	QIII
Agriculture	-1.1	14.4
Energy	0.4	-1.3
Chemical products	2.7	23.4
Other energy-intensive	0.2	-7.4
Electric goods – Other equipment goods	0.6	-12.1
Transport equipment	1.9	-8.3
Consumer goods industries – Food	2.6	1.0
Consumer goods industries – Rest	-5.9	-7.3
Textiles and clothing	3.4	7.3
Construction	0.5	0.2
Transport	-0.5	-4.6
Communication	1.0	1.5
Services	0.3	-0.8

Source: GEM-E3-MEDPRO.

In the QIII scenario, the results show a decrease in SEMC exports to the EU and an increase in intra-SEMC trade. The net trade position of the SEMCs with emerging Asian economies and the rest of the Middle East deteriorates (net exports decrease by 1% over the period 2015–30). The increase in imports overcompensates for the increase in exports. As trade relations between certain SEMCs and the rest of the Middle East are rather weak, the overall implications are small in magnitude.

Figure 3 and Figure 4 summarise the effects on the SEMCs' GDP and employment respectively in the QII and QIII scenarios in the case where only trade liberalisation is simulated. The effect in QII on GDP is more intense due to the characteristics of trade: the trade with the EU is complementary, while the trade with the emerging Asian economies can be characterised as more competitive. In particular, the 11 SEMCs import from the EU intermediate goods and technology goods, while the Middle East and mainly the Asian economies are low-cost producers of textiles and consumer goods, which compete with the same goods produced and exported by the SEMCs.[37]

In terms of GDP increase, the QII scenario was found to be more favourable than scenario QIII when looking at the aggregate of the SEMCs. This results from the impact of trade liberalisation on some of the biggest SEMC economies, like Turkey and Egypt. For Tunisia, trade liberalisation with the EU is also preferable, as Tunisia has already established strong trade links with a number of EU countries.[38] For Jordan and Algeria, the results show that a single market with the rest of the Middle

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[37] Notable also is the case of Turkey in the QIII scenario. Its GDP is reduced compared with QII over the period 2015–30. This decrease is mainly driven by Turkey's increased imports from Asian economies. The sector that presents a considerable increase in its imports and decrease in its exports is electrical and other equipment goods.

[38] "[The] EU is Tunisia's first trading partner accounting in 2010 for 66.9% of Tunisian imports and 74.1% of Tunisian exports".… Tunisia's main exports to the EU in 2011 were manufactured products 78.5% (of which 24.7% Clothing and 33.6% Machinery and transport equipment), then Energy (16.3%) and Agricultural products (4.7%). Major imports from the EU were Machinery and transport equipment (35.8%), Energy (13.6%) and Chemicals (10.0%)" (European Commission, DG Trade).

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East and the BRICs may be preferable. This result is attributed to the structure of trade and tariffs with the rest of the Middle Eastern and Asian countries.[39]

Figure 3. GDP impacts of trade liberalisation in the QII and QIII scenarios, changes from QI, cumulatively over 2015–30 (%)
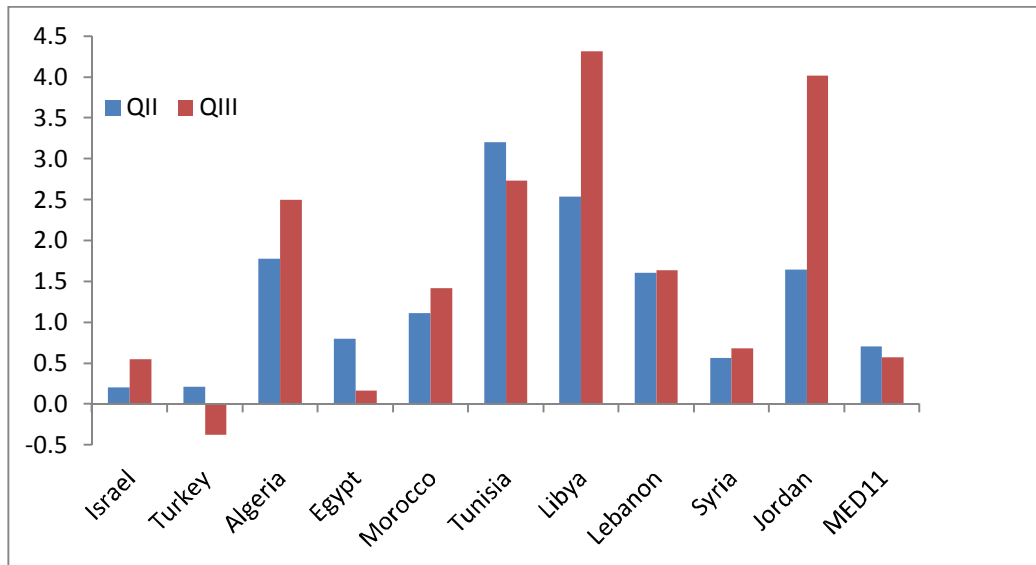
Source: GEM-E3-MEDPRO.

Figure 4. Employment impacts of trade liberalisation in the QII and QIII scenarios, changes from QI, cumulative manpower over 2015–30 (%)
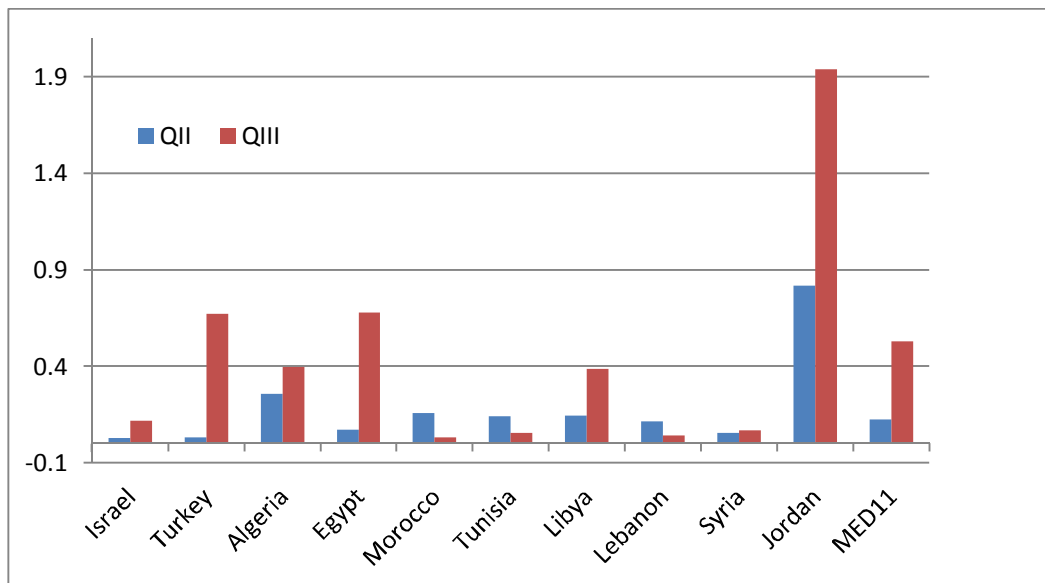
Source: GEM-E3-MEDPRO.

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[39] In particular, Jordan's economy can be characterised as one of the most open economies to trade among the SEMCs, as it has signed free trade agreements with the EU, the US, Canada, Syria, Algeria, Tunisia, Singapore, Malaysia and Libya. The major exporting commodities of Jordan are fertilizers, potash, phosphates, pharmaceuticals and clothing, which are exported mainly to the rest of the Middle Eastern and Asian countries: India (16.2% of exports), Iraq (16.1%), Saudi Arabia (6.9%) and the UAE (4.6%). Hence, Jordan is mostly favoured when tariff and non-tariff barriers are abolished with its main exporting partners.

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4.3 Economic impacts of the alternative scenarios QII, QIII and QIV

In the context of the cooperation scenarios QII and QIII, the changes occur simultaneously in all the areas analysed in the previous section, i.e. in infrastructure, trade, human capital, population and interest rates. Using the general equilibrium model, the net economic impacts can be estimated (Table 50), taking into account possible conflicts among the individual changes: for example, building infrastructure requires labour and hence influences the labour market, which is in turn affected by different shares of the active population and labour force.

Table 50. GDP and employment impacts of all structural changes in the SEMCs, changes from the QI scenario, cumulatively over 2015–30*

	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	(bn US$)	(%)
All measures	7.03	2895.61	2.02	4.62	1905.07	1.35
Infrastructure	3.26	1344.42	0.04	2.12	873.89	0.01
Trade liberalisation	0.71	291.49	0.12	0.57	235.64	0.53
Population	0.49	200.16	1.03	0.25	101.87	0.35
Risk premium	2.16	888.49	0.80	1.46	603.45	0.51

* For detailed GDP and employment impacts in the SEMCs, see the appendix, Table 81 and Table 82.
Source: GEM-E3-MEDPRO.

Similarly, expenditure on infrastructure and also investment in productive capital triggered by lower interest rates compete with each other on the capital markets. Raising taxation to finance infrastructure tends to increase domestic prices. This undermines competitiveness in some sectors, which at the same time are exposed to foreign competition as a result of trade liberalisation. All these potential conflicts are simultaneously taken into account through the model. The results show that the net effects on GDP are not equal to summing up the GDP effects of individual changes.

The model results show significant economic development gains in the SEMCs from the changes assumed in scenarios QII and QIII. The gains due to infrastructure and to economic stability (lower interest rates) are clearly higher than those due to trade liberalisation and to demographic changes. In terms of employment, demographic changes are recorded to have the highest positive impact in scenario QII, while trade liberalisation is found to have the highest impact in scenario QIII. Trade liberalisation has small positive effects on the GDP of the SEMCs due to the significant increase in imports driven by the removal of NTBs.

The removal of trade barriers leads to a decrease in the share of SEMC exports being directed at the EU by 0.1% compared with QI for the 2015–30 period. For the same period, SEMC exports directed at its internal market (i.e. the bilateral trade among the SEMCs) increases by 5.5% relative to QI. These results are in line with the findings of Ghoneim et al. (2012), which indicate that trade liberalisation in the SEMCs can lead to greater changes in SEMC imports originating from the EU rather than in exports directed at the EU.

In both the QII and QIII scenarios, the main driver of economic growth is related to increased investment (Table 51 and Table 52). The reduction of investment risk and the higher demand for investment goods due to the upgrade of infrastructure increase investment by sector activity above QI levels by 11% and 7% on average in the QII and QIII scenarios, respectively (for the period 2015–30). Private consumption is found to increase in both the QII and QIII scenarios relative to QI. Both exports and imports increase relative to QI, with the latter increasing more than the former in volume terms. Nevertheless, current account effects relative to QI are very limited thanks to a readjustment of terms of trade, which is beneficial to the SEMC region.

Table 51. Macroeconomic impacts of scenario QII, change from QI cumulatively over 2015–30*

	SEMCs		EU-27		Rest of the ME countries		EAEs		World	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
GDP	2,896	7.03	1,321	0.42	-7	-0.02	-48	-0.01	4,131	0.29
Investment	997	10.94	242	0.35	0	0.00	-1	0.00	1,230	0.39
Public expenditure	848	11.19	0	0.00	0	0.00	0	0.00	848	0.34
Private consumption	1,414	5.65	775	0.42	2	0.01	-20	-0.01	2,128	0.25
Exports	1,344	13.45	943	1.34	-15	-0.10	-75	-0.12	-	-
Imports	1,708	16.28	639	0.81	-6	-0.05	-48	-0.09	-	-
Employment	-	2.02	-	0.59	-	-0.04	-	0.00	-	0.09
Real wages	-	4.78	-	-0.62	-	-0.11	-	-0.02	-	0.01

* For detailed country results, see the appendix, Table 71.
Source: GEM-E3-MEDPRO.

The economic impacts on the EU are generally small: they are clearly positive in the case of the QII scenario but slightly negative in the QIII scenario. The economic impacts on the rest of the world's regions are negligible in QII, but slightly positive for the Middle Eastern countries and for the emerging Asian economies in QIII, as expected.

Table 52. Macroeconomic impacts of scenario QIII, change from QI cumulatively over 2015–30[40]

	SEMCs		EU-27		Rest of the ME countries		EAEs		World	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
GDP	1,905	4.62	-119	-0.04	115	0.32	356	0.10	2,350	0.17
Investment	675	7.41	-24	-0.03	16	0.20	26	0.03	662	0.21
Public expenditure	555	7.32	0	0	0.00	0	0.00	0.00	555	0.22
Private consumption	1,527	6.10	-322	-0.17	99	0.54	125	0.06	1,177	0.14
Exports	1,425	14.27	-94	-0.13	159	1.07	1,072	1.69	-	-
Imports	2,278	21.70	-321	-0.41	160	1.33	867	1.61	-	-
Employment	-	1.35	-	0.00	-	1.22	-	0.00	-	0.07
Real wages	-	7.15	-	-0.13	-	-1.90	-	0.07	-	0.07

Source: GEM-E3-MEDPRO.

Both scenarios (QII and QIII) are found to improve welfare, measured by Hicksian equivalent variation (Table 53). Lower unemployment rates and higher wages induced mainly by projects to upgrade the infrastructure lead to an increase in household income. In the presence of lower interest

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[40] Same as above.

rates, households prefer to use their income for consumption rather than savings. Hence, in the period 2015–30, consumption increases above QI levels by 5.65% and 6.10% in the QII and QIII scenarios, respectively.

Table 53. Hicksian equivalent variation of welfare (bn US$)

	QII				QIII			
	2015	**2020**	**2025**	**2030**	**2015**	**2020**	**2025**	**2030**
Israel	0.19	0.61	0.99	1.41	0.19	1.05	2.08	3.64
Turkey	-0.02	3.89	8.74	15.73	0.73	6.07	11.64	18.87
Algeria	1.76	4.45	7.55	11.42	0.70	2.21	3.81	5.83
Egypt	0.76	3.21	5.71	9.07	0.75	3.29	5.95	9.55
Morocco	0.89	2.12	3.19	4.54	0.47	1.43	2.19	3.25
Tunisia	0.71	2.57	3.91	5.73	0.28	1.34	2.17	3.46
Libya	-0.26	1.43	3.09	5.02	-0.18	1.39	2.63	4.01
Lebanon	0.29	0.97	1.50	2.11	0.23	0.77	1.25	1.90
Syria	0.32	0.84	1.35	2.02	0.20	0.73	1.21	1.83
Jordan	0.22	0.75	1.09	1.48	0.45	1.69	2.19	2.74
Palestine	1.29	0.91	1.04	1.27	0.77	0.90	1.06	1.27

Source: GEM-E3-MEDPRO.

GDP per capita in the SEMCs increases in both the QII and QIII scenarios (Table 54). Despite the significant increases in GDP per capita, many of the SEMCs are projected to lag considerably behind the global average.

Table 54. GDP per capita in scenarios QII and QII, changes relative to QI in 2030 (%)

	QII	**QIII**
Israel	2.54	3.57
Turkey	6.38	3.42
Algeria	27.26	14.40
Egypt	14.65	10.94
Morocco	12.82	7.96
Tunisia	18.32	11.03
Libya	24.60	19.69
Lebanon	13.52	10.87
Syria	7.79	6.26
Jordan	10.98	10.79
Palestine	21.18	16.51

Source: GEM-E3-MEDPRO.

Production increases mainly in the sectors producing the investment goods and the services for upgrading infrastructure and in sectors that are favoured by trade liberalisation. In QII, the increase in production is found to be higher in equipment and basic manufacturing goods, as well as in construction and services. The textile sector benefits from trade liberalisation in the context of the QII scenario. This contrasts with the QIII context, where trade liberalisation with Asian and Middle

Eastern economies induces lower production levels in the equipment goods industry and in some of the consumer goods industry, obviously because of fiercer competition (Table 55).

Table 55. Sectoral production effects in QII and QIII, cumulative changes from QI over 2015–30*

	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	131	3.02	541	12.46
Energy	409	1.96	-13	-0.06
Chemical products	568	17.42	881	27.01
Other energy-intensive	565	8.99	-136	-2.16
Electric goods – Other equipment goods	413	8.89	-248	-5.34
Transport equipment	180	9.12	-37	-1.89
Consumer goods industries – Food	293	5.72	258	5.04
Consumer goods industries – Rest	52	6.93	8	1.06
Textiles and clothing	1,165	28.48	731	17.86
Construction	1,112	15.42	745	10.34
Transport	182	2.74	-14	-0.21
Communication	173	11.21	122	7.87
Services	1,201	3.86	738	2.37

* For detailed sectoral results for the SEMCs, see the appendix, Table 82 and Table 83.
Source: GEM-E3-MEDPRO.

Employment increases by 2.02% and 1.35% in QII and QIII, respectively, relative to the QI scenario. The effects on sectoral employment follow the same pattern as production by sector. Job creation is particularly more intense in construction, services and those sectors providing inputs related to investment, all of which are favoured by infrastructure investment (Table 56).[41]

Table 56. Sectoral employment effects in QII and QIII, changes from QI cumulatively, 2015–30 (%)

	QII	QIII
Agriculture	-1.9	12.1
Energy	1.3	-0.8
Chemical products	7.4	26.7
Other energy-intensive	5.2	-4.0
Electric goods – Other equipment goods	8.1	-6.7
Transport equipment	2.5	-4.7
Consumer goods industries – Food	-3.1	0.5
Consumer goods industries – Rest	-1.8	-4.9
Textiles and clothing	3.0	-6.8
Construction	12.7	7.2
Transport	-0.8	-5.5
Communication	7.0	4.9
Services	1.0	0.7

Source: GEM-E3-MEDPRO.

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[41] Same as above.

Scenario QIV describes a gloomy future for the Euro-Mediterranean area. The QIV scenario design involves continual threats in the region during 2015–30, which undermine investment, trade and demographic developments. The lack of political stability further provokes higher risk factors and higher interest rates. The quantification of scenario QIV confirms a decreasing trend in the economic activity and welfare of the region, for both the SEMCs and the EU, ensuing from persisting tensions, which destroy the existing capital and increase the investment risk of the region. The increase of trade barriers that impede trade integration in the SEMC region further decreases activity and welfare.

The destruction of capital due to conflicts in the southern Mediterranean region along with the reduction of government investment results in a 12.71% reduction of GDP in the SEMCs compared with the QI case (over the 2015–30 period). GDP in the SEMC region is also reduced because of increased barriers to trade, which reduce demand for exports and thus regional economic activity. Increased import prices reduce household purchasing power and higher interest rates postpone consumption, hence reducing final demand.

Production costs increase compared with the reference case due to trade restrictions, leading to higher import prices, capital scarcity and a reduction of the active population, which increases real wages.

Table 57 summarises the key macroeconomic results of the QIV scenario. As a result of the slackened final demand and increased unit production costs, private consumption and exports decrease compared with the QI scenario by 13.26% and 20.76% respectively over the period 2015–30. Increased business uncertainty and financial instability increases the investment risk associated with the region. Investment is reduced compared with QI by 13.42% over the period 2015–30. Under increased threats and regional conflicts, the labour participation and school enrolment rates decrease, making skilled labour scarce. Following the reductions in overall activity and in the active population, employment reduces by 1.54% compared with the QI scenario.

Table 57. Macroeconomic impacts of scenario QIV: Change from the QI scenario, cumulatively over 2015–30*

	SEMCs		EU-27		Rest of the ME countries		EAEs		World	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
GDP	-5,239	-12.71	-21	-0.01	-1	0.00	115	0.03	-5,010	-0.35
Investment	-1,223	-13.42	-35	-0.05	0	-0.01	0	0.00	-1,271	-0.40
Private consumption	-3,317	-13.26	-398	-0.21	-23	-0.13	-155	-0.08	-4,323	-0.51
Exports	-2,074	-20.76	42	0.06	2	0.01	235	0.37	-	-
Imports	-1,375	-13.10	-370	-0.47	-21	-0.17	-35	-0.06	-	-
Employment	-	-1.54	-	0.02	-	-0.01	-	0.01	-	-0.03
Real wages	-	-12.86	-	-0.12	-	-0.11	-	-0.03	-	-0.36

* For detailed sectoral results for the SEMCs, see the appendix, Table 71.

Source: GEM-E3-MEDPRO.

Table 58 presents the impact on GDP for all the SEMCs. Countries where the financial sector is important in terms of value added, such as Israel, present the highest reductions in GDP compared with the QI scenario. For Jordan and Tunisia, consumption is the main driver of the reduction in GDP. The export-driven economy of Libya is severely affected by trade restrictions.

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Table 58. GDP impacts by SEMC of scenario QIV: Change from QI cumulatively over 2015–30 (%)

	Israel	Turkey	Algeria	Egypt	Morocco	Tunisia	Libya	Lebanon	Syria	Jordan	Palestine	SEMCs
GDP	-16.6	-11.8	-11.7	-12.2	-13.8	-15.0	-12.4	-13.8	-11.2	-16.6	-19.2	-12.7
Investment	-21.1	-15.5	-7.2	-10.1	-10.2	-10.9	-6.6	-9.8	-13.1	-16.3	22.4	-13.4
Private consumption	-16.3	-13.0	-12.4	-12.3	-13.7	-15.7	-10.4	-15.7	-12.2	-19.9	32.1	-13.3

Source: GEM-E3-MEDPRO.

Production by sector of activity decreases significantly in QIV compared with the other scenarios (Table 59).[42]

Table 59. Sectoral production in QIV for the SEMC region, change from QI cumulatively over 2015–30*

	(bn US$)	(%)
Agriculture	-237	-5.45
Energy	-1444	-6.91
Chemical products	-640	-19.62
Other energy-intensive	-728	-11.59
Electric goods – Other equipment goods	-984	-21.18
Transport equipment	-352	-17.80
Consumer goods industries – Food	-457	-8.95
Consumer goods industries – Rest	-98	-13.00
Textiles and clothing	-778	-19.02
Construction	-893	-12.40
Transport	-809	-12.15
Communication	-158	-10.25
Services	-2486	-7.99

* For detailed sectoral results, see the appendix, Table 82 and Table 83.
Source: GEM-E3-MEDPRO.

Household consumption patterns change due to the presence of conflicts, reduced welfare and insecurity. Demand for medical care and health services increases by 14%, while demand for recreational and other services falls by 17% in 2030 compared with the reference scenario. Figure 5 summarises the quantified results for GDP for the QI scenario and the alternative scenarios. The results show positive effects on the GDP of the SEMCs in both the QII and QIII scenarios. GDP and welfare benefits are higher in QII than in QIII for most of the SEMCs (Table 60). Both QII and QIII have negative effects on the current accounts of the SEMCs. The EU enjoys benefits in QII but bears small negative impacts in QIII. The QIV projection shows significant negative impacts on GDP in all the SEMCs.

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[42] It was assumed that over the 2015–30 period, there would be no reconstruction initiatives; hence the activity in all sectors decrease compared with the QI scenario.

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Figure 5. GDP projections for the QI–QIV scenarios
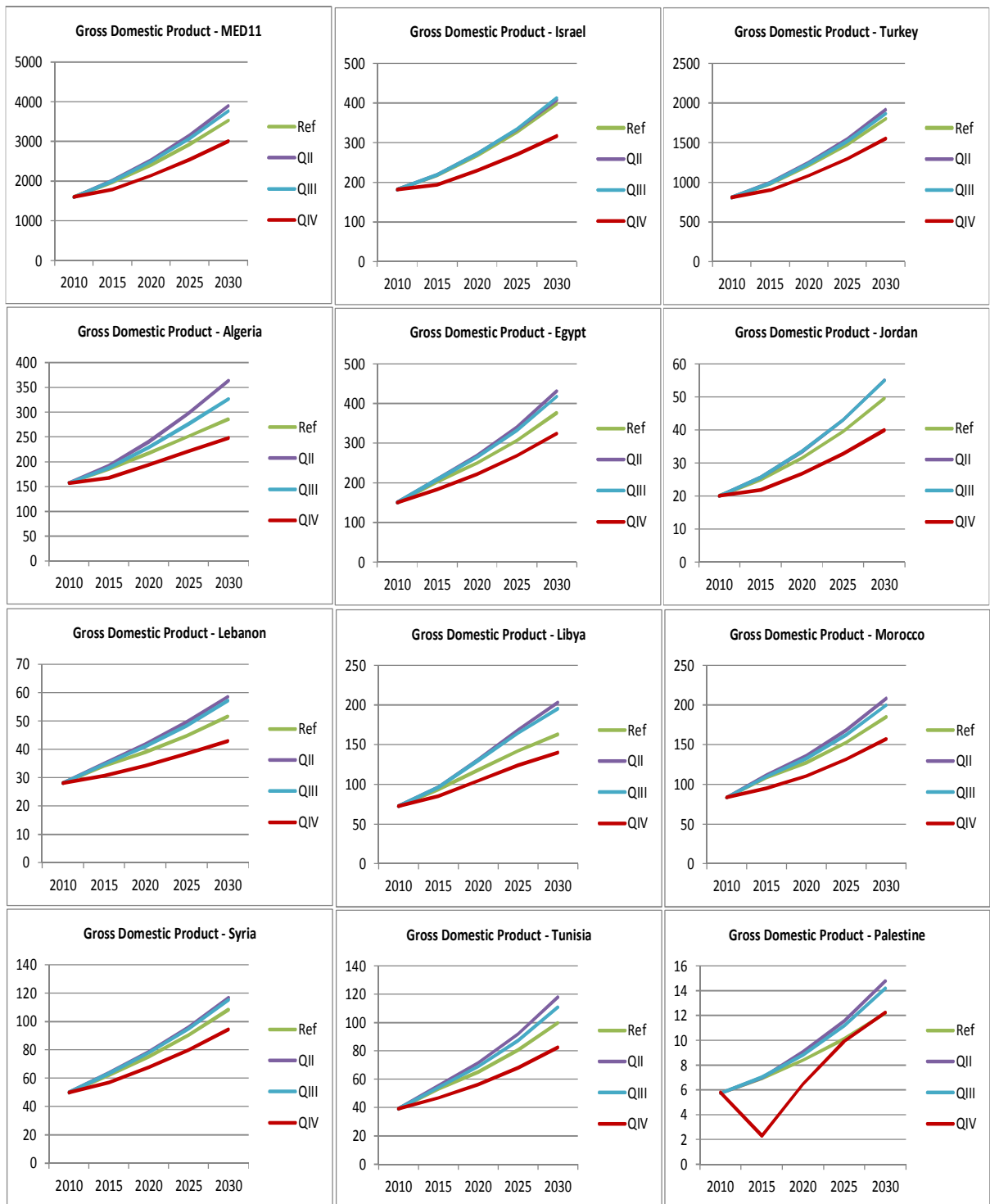
Source: GEM-E3-MEDPRO.

Table 60. Summary of impacts on GDP, welfare and the current account, changes from QI cumulatively over 2015–30

	QII			QIII		
	GDP (% change from QI)	Equivalent variation of welfare (bn US$)	Current account as % of GDP (in p.p. difference from QI)	GDP (% change from QI)	Equivalent variation of welfare (bn US$)	Current account as % of GDP (in p.p. difference from QI)
Algeria	16.77	97.8	-0.72	8.71	49.0	-0.87
Egypt	9.99	73.3	-0.02	7.73	76.3	1.18
Israel	2.01	12.6	0.19	2.30	27.0	0.61
Jordan	8.15	14.1	2.19	8.17	28.5	7.25
Lebanon	9.45	19.3	-2.35	7.11	16.3	-0.69
Libya	16.26	37.1	1.22	13.83	31.8	2.00
Morocco	9.14	42.0	-1.61	5.57	28.8	-0.60
Syria	5.66	17.7	0.19	4.52	15.6	0.04
Tunisia	13.02	51.0	-2.98	7.74	28.5	-1.43
Turkey	4.36	110.3	-0.17	2.45	146.6	-0.32
Palestine	12.72	16.1	-1.21	9.60	15.2	0.00
SEMCs	7.03	491.2	-0.15	4.62	463.5	0.06
EU-27	0.42	218.9	0.04	-0.04	-60.0	0.01
Rest of ME countries	-0.02	1.0	0.01	0.32	43.2	0.14
Emerging Asian economies	-0.01	-3.5	-0.01	0.10	25.4	-0.06

Source: GEM-E3-MEDPRO.

5. Sensitivity analysis

5.1 Fixed current account

In the simulations examined so far, the SEMCs have been allowed to change their current accounts in order to adjust to the structural changes imposed. As a result, most of the countries increased their borrowing from abroad in QII and QIII compared with QI, deteriorating in this way their current accounts. To examine a more plausible, sustainable growth path for the SEMCs, additional simulations have been performed assuming restrictions on current account deficits. Thus, the QII and QIII scenarios have been simulated so that the current account deficit or surplus (as a percentage of GDP) of each SEMC is the same as in QI. The balancing instrument chosen was the real interest rate.[43]

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[43] For a detailed discussion on current account liberalisation and vulnerability in the countries of the southern Mediterranean, see Mouley (2012).

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Table 61 presents the main macroeconomic aggregate results for the SEMCs for both the standard scenarios (A) and the sensitivity scenario (S). The overall activity level in the SEMCs was found to be virtually the same as in the standard scenarios. However this was achieved through a different adjustment process: the SEMCs increased their interest rates in order to avoid current account deterioration. Essentially, they performed a domestic devaluation leading to lower consumption, higher exports and lower imports.

Table 61. Main macroeconomic aggregates for the SEMCs, change from QI, cumulatively over 2015–30*

	QII		QIII	
	S	**A**	**S**	**A**
GDP	7.00	7.03	4.58	4.62
Investment	10.80	10.94	7.41	7.41
Public consumption	11.19	11.19	7.32	7.32
Private consumption	5.09	5.65	6.23	6.10
Exports	14.22	13.45	13.68	14.27
Imports	15.65	16.28	21.60	21.70
Current account (% of GDP, in p.p. differences)	-	-0.15	-	0.06
Employment (in b man hours)	2.12	2.02	1.30	1.35
Real interest rate (average p.p. difference)	-0.96	-0.99	-0.69	-0.69
Terms of trade	5.07	4.85	11.22	11.29
Real wage (man hour)	4.41	4.78	6.98	7.15

* For detailed results, see the appendix, Table 72.

A: Main scenario results; S: Sensitivity scenario results

Source: GEM-E3-MEDPRO.

In particular, the direct effect of the higher real interest rates is a lower level of consumption and investment (at higher interest rates, households prefer to save). In both the QII and QIII scenarios, real wages decrease (countries adjust through domestic depreciation) compared with the case where the current account is not balanced (Tables 61-63).

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Table 62. Macroeconomic impacts of scenario QII: Changes from the QI scenario, cumulatively over 2015–30 (%)

	Israel		Turkey		Algeria		Egypt		Morocco		Tunisia		Libya		Lebanon		Syria		
	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S
GDP	1.93	2.01	4.35	4.36	16.62	16.77	9.96	9.99	9.60	9.14	13.42	13.02	15.70	16.26	9.44	9.45	5.64	5.66	8.38
Investment	2.79	2.80	7.90	7.93	20.44	21.04	13.08	13.15	14.83	15.02	22.32	22.81	15.23	15.00	22.66	22.92	7.24	7.24	8.91
Public consumption	4.21	4.21	8.63	8.63	21.09	21.09	19.62	19.62	12.16	12.16	13.16	13.16	29.58	29.58	7.41	7.41	12.03	12.03	9.38
Private consumption	1.52	1.30	3.02	3.38	9.78	11.75	8.85	8.98	7.26	9.80	13.04	18.67	13.64	9.19	7.23	11.51	5.85	5.55	14.39
Exports	3.52	4.08	6.84	5.93	27.34	25.94	17.64	17.55	26.78	21.32	37.39	30.82	19.39	23.64	19.95	15.67	8.17	8.64	9.84
Imports	4.54	4.49	9.68	10.06	29.70	31.60	22.09	22.23	22.86	24.96	39.01	41.62	39.53	34.98	18.48	20.70	13.40	13.34	17.53
Current account (% of GDP, in p.p. differences)	-	0.19	-	-0.17	-	-0.72	-	-0.02	-	-1.61	-	-2.98	-	1.22	-	-2.35	-	0.19	-
Employment (in b man hours)	0.76	0.87	1.05	1.04	7.15	6.97	1.12	1.10	2.59	1.91	2.82	2.32	1.56	1.84	2.14	1.55	2.46	2.51	3.61
Real interest rate (average p.p. difference)	-0.17	-0.16	-0.69	-0.70	-2.63	-2.79	-1.23	-1.24	-1.21	-1.31	-1.72	-1.91	-1.72	-1.63	-1.68	-1.82	-0.73	-0.71	-0.89
Terms of trade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.29	10.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00

A: Main scenario results; S: Sensitivity scenario results

Source: GEM-E3-MEDPRO.

Table 63. Macroeconomic impacts of scenario QIII: Changes from the QI scenario, cumulatively over 2015–30 (%)

	Israel		Turkey		Algeria		Egypt		Morocco		Tunisia		Libya		Lebanon		Syria		Jordan	
	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
GDP	2.08	2.30	2.44	2.45	8.82	8.71	7.63	7.73	5.74	5.57	7.92	7.74	13.11	13.83	7.08	7.11	4.51	4.52	8.71	8.17
Investment	2.55	2.35	6.50	6.55	10.78	11.29	8.17	8.02	8.58	8.65	11.92	12.17	10.00	9.39	13.04	13.14	4.47	4.49	8.19	6.94
Public consumption	2.18	2.18	4.87	4.87	8.22	8.22	19.35	19.35	6.58	6.58	7.33	7.33	22.53	22.53	5.09	5.09	13.18	13.18	7.78	7.78
Private consumption	3.66	2.85	4.31	4.95	4.38	6.52	11.65	9.59	5.81	6.75	7.51	10.10	14.86	7.78	7.60	8.95	5.64	5.56	38.72	22.67
Exports	6.65	8.83	7.20	5.51	23.38	21.06	18.70	22.21	24.84	22.77	24.83	21.66	22.04	28.53	17.78	16.47	9.33	9.49	5.85	28.52
Imports	9.38	9.27	18.57	19.29	27.80	29.53	32.80	30.92	21.92	22.64	24.54	25.60	57.41	50.04	16.58	17.27	17.72	17.73	43.98	37.04
Current account (% of GDP, in p.p. differences)	-	0.61	-	-0.32	-	-0.87	-	1.18	-	-0.60	-	-1.43	-	2.00	-	-0.69	-	0.04	-	7.25
Employment (in b man hours)	0.99	1.41	1.26	1.22	2.95	2.70	0.92	1.15	1.02	0.77	1.14	0.91	0.46	0.88	2.42	2.23	0.75	0.75	1.78	2.91
Real interest rate (average p.p. difference)	-0.11	-0.10	-0.59	-0.61	-1.51	-1.67	-0.81	-0.74	-0.74	-0.78	-1.04	-1.15	-1.22	-0.98	-1.04	-1.09	-0.43	-0.43	-0.92	-0.45
Terms of trade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.78	6.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

A: Main scenario results; S: Sensitivity scenario results
Source: GEM-E3-MEDPRO.

Table 64. Hicksian equivalent variation of welfare in scenarios QII and QIII, cumulatively over 2015–30 (bn US$)

	Israel		Turkey		Algeria		Egypt		Morocco		Tunisia		Libya		Lebanon		Syria		Jordan	
	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A	S	A
QII	14.95	12.62	99.36	110.29	79.13	97.76	72.37	73.32	28.87	41.96	35.16	51.01	54.26	37.13	11.29	19.27	18.72	17.65	19.78	14.11
QIII	35.73	26.97	125.72	146.65	28.94	48.99	94.13	76.34	23.87	28.76	20.70	28.50	62.84	31.75	13.81	16.30	15.84	15.58	47.03	28.52

A: Main scenario results; S: Sensitivity scenario results
Source: GEM-E3-MEDPRO.

5.2   Best policy scenario Q*

To explore the growth path that provides the best welfare, employment and GDP prospects for the SEMCs, an additional scenario (Q*) has been designed and quantified using the GEM-E3-MEDPRO model. This scenario draws from the QII and QIII scenario assumptions and represents the optimal policy mix in terms of GDP growth and employment creation. The main assumptions of the scenario are presented in Table 65.[44]

Table 65. Assumptions for best policy scenario (Q)*

Population	Infrastructure	Risk	Trade
- Population projection used in QII - Labour force increases in the SEMCs due to increased female participation	- SEMCs invest in infrastructure and human capital (5.25% of GDP) - Funds from the EU, Middle East and BRICs are directed at infrastructure and human capital investment in the SEMCs - Infrastructure investment affects total factor productivity, increasing demand for investment goods and increasing the capital stock of specific sectors - Investment in human capital increases labour productivity	- Governance improvements lead to a lower risk parameter in the SEMCs (lower than in the QII and QIII scenarios)	- Import duties and NTBs removed between the SEMCs and the rest of the world - Logistics performance improved in the SEMCs, reducing transport costs between the SEMCs and the rest of the world

Source: Authors' assumptions.

GDP in the optimal policy case increases by $3,368 billion compared with QI (Table 66). This is higher by $472 billion and $1,436 billion than QII and QIII respectively. Trade is intensified, leading to higher exports and imports along with employment increases by 2.55% above the reference case. This has a direct positive effect on welfare as measured by the Hicksian equivalent variation (increases by $963.2 billion).

Table 66. Best policy scenario – Main macroeconomics aggregates, change from QI, cumulatively over 2015–30*

	11 SEMCs		EU-27		Rest of Arab countries		EAEs		World	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
GDP	3,368	8.17	1,493	0.48	20	0.06	169	0.05	5,184	0.37
Investment	1,381	15.15	220	0.32	2	0.02	-1	0.00	1,618	0.51
Private consumption	3,011	12.04	502	0.27	29	0.16	-55	-0.03	3,380	0.39
Exports	2,595	25.97	1,005	1.43	54	0.36	308	0.49	-	-
Imports	4,468	42.57	234	0.30	65	0.54	82	0.15	-	-
Employment	-	2.55	-	0.59	-	0.08	-	0.01	-	0.12
Real wages	-	11.47	-	-0.73	-	0.30	-	0.00	-	0.18
Equivalent variation	963.20	-	167.48	-	7.49	-	-16.58	-	1,104.97	-

* For detailed results, see the appendix, Table 73.
Source: GEM-E3-MEDPRO.

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[44] This scenario merges the assumptions of scenarios QII and QIII.

6. Conclusions and policy implications

This report summarises the work completed for Work Package 8 on "Scenario building and impact assessment" of the MEDPRO project. Alternative scenarios of Euro-Mediterranean policies up to 2030 have been quantified using GEM-E3-MEDPRO, a computable general equilibrium model specially built for the purposes of the MEDPRO project. The aim has been to assess the economic impacts of alternative approaches to cooperation policy in the region.

The alternative scenarios assess the implementation of policies associated with Euro-Mediterranean cooperation (QII), the development of a global outlook by the southern Mediterranean countries (QIII) and the escalation of regional conflicts (QIV) as defined in Ayadi and Sessa (2011). The scenario projections have been compared with the QI reference scenario, which assumes a continuation of current Euro-Mediterranean policies. The scenarios involve explicitly different assumptions about infrastructure and human capital investment, interest rates, trade liberalisation and demographic changes.

The model-based results suggest that Euro-Mediterranean cooperation policies can benefit economic growth in the region. Trade integration between the SEMCs and EU countries along with investment in infrastructure and human capital can have growth-enhancing effects. In the presence of strong trade relationships between the SEMCs and the EU, the creation of a single market can boost economic growth and employment. This effect is more pronounced for the economies that are already EU-oriented.

Increasing the stock of infrastructure and human capital in the region also exert growth-enhancing effects. These positive effects on GDP accrue not only through the direct impacts of increasing capital stock and factor productivity, but also through indirect effects (for instance, enhanced attractiveness to flows of FDI). The simulations have confirmed that such policies can be pursued without creating imbalances in public finances or the current accounts of the SEMCs.

The scenario involving an opening of the SEMC economies mainly towards the rest of the Middle East and Asian economies, and less towards the EU, was also found to increase GDP and activity. The magnitude of economic gains, however, is smaller than in the scenario that involves mainly cooperation with the EU. This stems from the higher exposure of the SEMC region to global trade and from the relatively lower amounts of foreign investment realised in the SEMCs.

Investment in the SEMCs, in infrastructure and in production sectors has greater potential in the context of cooperation with the EU than in the context of global opening. That is because the complementarities between the SEMCs and the EU are clearly higher than when considering the SEMC region in relation to the rest of the Middle East and the emerging Asian economies. The structural effects on the economy are also different in the two cooperation cases: the SEMC sectors of production all benefit from EU cooperation, whereas some sectors bear adverse effects from the global opening. The EU economy is found to bear small negative effects in the scenario of the SEMCs focusing on global cooperation.

The benefits for the EU, stemming from SEMC–EU cooperation, have been found to be clearly positive, albeit small in magnitude. At the same time, cooperation can also be seen from the perspective of ensuring stability in the region and hence avoiding negative effects for the EU, as found in the results of a scenario that assumes instability in the region.

The simulation results suggest that the Euro-Mediterranean countries should push forward on cooperation policies of regional trade integration and investment, and that the EU has an interest in pursuing economic integration with the SEMCs. The establishment of a single market, investment in infrastructure and reduction of the risk associated with the possible escalation of regional conflicts can boost economic growth and welfare in the region, particularly in the context of SEMC–EU cooperation.

References

Abbassi, J. (2011), *Information and Communications Technology in the Middle East: Situation as of 2010 and Prospective Scenarios for 2030*, CASE Network Report No. 105, CASE, Warsaw, October

Andriamananjara, S., J.M. Dean, R. Feinberg, M.J. Ferrantino, R. Ludema and M.E. Tsigas (2004), *The effects of non-tariff measures on prices, trade and welfare: CGE implementation of policy-based price comparisons*, Working Paper, US International Trade Commission, Office of Economics, Washington, D.C.

Andriamananjara, S., M.J. Ferrantino and M.E. Tsigas (2003), *Alternative approaches in estimating the economic effects of non-tariff measures: Results from newly quantified measures*, Working Paper, US International Trade Commission, Office of Economics, Washington, D.C.

Arbak, E. (2012), *Measuring returns to education and human capital in the Southern Mediterranean*, MEDPRO Technical Report No. 17, CEPS, Brussels.

Arrow, K. and M. Kurz (1970), *Public investment, the rate of return and optimal fiscal policy*, Baltimore, MD: Johns Hopkins University Press.

Arvis, J.-F., M.A. Mustra, J. Panzer, L. Ojala and T. Naula (2011), *Connecting to compete: Trade logistics in the global economy*, International Bank for Reconstruction and Development, World Bank, Washington, D.C.

Aschauer, D. (1989), "Is public expenditure productive?", *Journal of Monetary Economics*, Vol. 23, No. 2, March, pp. 177-200.

Aschauer, D.A. (2000), "Do states optimize? Public capital and economic growth", *Annals of Regional Science*, Vol. 34, No. 3, pp. 343-363.

Ayadi, R. and C. Sessa (2011), *What scenarios for the Euro-Mediterranean in 2030 in the wake of the post-Arab spring*, MEDPRO Policy Paper No, 2, CEPS, Brussels, October.

Ayadi, R. and S. Gadi (2013), *The Euro-Mediterranean partnership and development assistance: Past trends and future scenarios*, MEDPRO Technical Paper No. 32, CEPS, Brussels.

Badran, M. (2011), *The impact of broadband infrastructure on economic growth in Egypt and some Arab and emerging countries*, Faculty of Economics and Political Science, Cairo University.

Baier, S.L. and J.H. Bergstrand (2001), "The growth of world trade: Tariffs, transport costs and income similarity", *Journal of International Economics*, Vol. 53, No. 1, pp. 1-27.

Barro, R. J. (1990), *Government spending in a simple model of endogenous growth*, Working Paper, National Bureau of Economic Research, Cambridge, MA.

Barro, R.J. and J.-W. Lee (1993), "International comparisons of educational attainment", *Journal of Monetary Economics*, Vol. 32, No. 3, pp. 363-394.

Baxter, M. and R.G. King (1993), "Fiscal policy in general equilibrium", *American Economic Review*, Vol. 83, No. 3, pp. 315-334.

Benassy-Quere, A., M. Coupet and T. Mayer (2007), "Institutional determinants of foreign direct investment", *World Economy*, Vol. 30, No. 5, pp. 764-782.

Bruce, N. (1989), "The Impact of Tax Reform on International Capital Flows and Investment", in J. Mintz and J. Whalley (eds), *The Economic Impact of Tax Reform* (Vols. 3, Part B, pp. 193-217), Canadian Tax Foundation, Toronto.

Cadot, O., L.-H. Roller and A. Stephan (2006), "Contribution to productivity or pork barrel? The two faces of infrastructure investment", *Journal of Public Economics*, Vol. 90, pp. 1133-1153.

Calderon, C. (2009), *Infrastructure and growth in Africa*, Policy Research Working Paper Series, World Bank, Washington, D.C.

Calderon, C. and L. Serven (2008), "Infrastructure and Economic Development in Sub-Saharan Africa", *Journal of African Economies*, Vol. 19, Supplement 1, i13-i87.

Canning, D. and M. Fay (1993), *The Effects of Transportation Networks on Economic Growth*, Working Paper, Department of Economics, Columbia University, New York, NY.

Canning, D., M. Fay and R. Perotti (1992), Dotazioni ifrastrutturali e crescita economica, *Revista d Politica Economica*, LXXXII, 117-154.

Canning, D., M. Fay and R. Perotti (1994), "Infrastructure and Growth", in M. Baldassarr, L. Paganetto and E. Phelps (eds), *International Differences in Growth Rates*, Basingstoke: Macmillan Press Ltd.

Carruthers, R. (2013), *What prospects for transport infrastructure and impacts on growth in southern and eastern Mediterranean countries?*, MEDPRO Report No. 3 (interim version), CEPS, Brussels.

Clark, T., M. Elsby and S. Love (2001), "Twenty-five years of falling investment? Trends in public spending on capital investment", Briefing Note, Institute for Fiscal Studies, London.

Cohen, I., T. Freiling and E. Robinson (2012), *The Economic Impact and Financing of Infrastructure Spending*, College of William & Mary, Williamsburg, VA.

Cohen, J.P. and C.J. Paul (2004), "Public Infrastructure Investment, Interstate Spatial Spillovers and Manufacturing Costs", *Review of Economics and Statistics*, Vol. 86, No. 2, pp. 551-560.

Colombo, S. (2011), "Governance indicators for alternative scenarios", Memo, MEDPRO Project.

Cosset, J.C. and J. Roy (1991), "The determinants of country risk ratings", *Journal of International Business Studies*, Vol. 22, No. 1, pp. 135-142.

Coutinho, L (2011), **"**Long-term growth projections for the MED-region", Mimeo, MEDPRO Project, March.

Datta, A. and S. Agarwal (2004), "Telecommunications and economic growth: A panel data approach", *Applied Economics*, Vol. 36, No. 15, pp. 1649-1654.

Demetriades, P.O. and T.P. Mamuneas (2000), "Intertemporal output and employment effects of public infrastructure capital: Evidence from 12 OECD economies", *Economic Journal*, Vol. 110, No. 465, pp. 687-712.

Easterly, W. and S. Rebelo (1993), "Fiscal policy and economic growth", *Journal of Monetary Economics*, Vol. 32, No. 3, pp. 417-458.

European Commission (2011), *The 2012 Ageing Report: Underlying Assumptions and Projection Methodologies*, Directorate-General for Economic and Financial Affairs, Brussels.

Ferrantino, M. (2006), *Quantifying the trade and economic effects of non-tariff measures*, OECD Trade Policy Working Paper No. 28, OECD, Paris.

Fragkos, P., N. Kouvaritakis and P. Capros (2012), *Prospects for Energy Supply and Demand in the Southern Mediterranean*, MEDPRO Technical Report No. 22 (interim version), CEPS, Brussels.

Fugazza, M. and C. Maur (2008), "Non-tariff barriers in CGE models: How useful for policy?", *Journal of Policy Modeling*, Vol. 30, No. 3, pp. 475-490.

Gemmell, N. (1996), "Evaluating the impacts of human capital stocks and accumulation on economic growth: Some new evidence", *Oxford Bulletin of Economics and Statistics*, Vol. 58, No. 1, pp. 9-28.

Ghoneim, A.F., J.L. Gonzalez, M.M. Parra and N. Peridy (2012), *Shallow versus deep integration in the Southern Mediterranean region: Scenarios for the region up to 2030*, MEDPRO Technical Report No. 13, CEPS, Brussels, March.

Globerman, S. and D. Shapiro (2002), "Global foreign direct investment flows: The role of governance infrastructure", *World Development*, Vol. 30, No. 11, pp. 1899-1919.

Glomm, G. and B. Ravikumar (1994), "Public investment in infrastructure in a simple growth model", *Journal of Economic Dynamics and Control*, Vol. 18, No. 6, pp. 1173-1187.

Gramlich, E.M. (1994), "Infrastructure investment: A review essay", *Journal of Economic Literature*, Vol. 32, No. 3, pp. 1176-1196.

Groenewold, G., C. Huisman and J. Beer (2011), *Population scenarios for South Mediterranean Countries 2010-2050*, MEDPRO Report No. 2, CEPS, Brussels.

Hirschman, A.O. (1958), *The strategy of Economic Development*, New Haven, CT: Yale University Press.

Hulten, C.R. (1996), *Quality change in capital goods and its impact on economic growth*, Working Paper, National Bureau of Economic Research, Cambridge, MA.

Infrastructure Consortium for Africa (ICA) (2011), *Annual Report 2010: Financial Commitments and Disbursements for Infrastructure for Africa in 2010*, African Development Bank, Tunis (http://www.icafrica.org/fileadmin/documents/Publications/ICA_AR_2010_final_optimised.pdf).

Iqbal, F. and M.K. Nabli (2004), "Trade, foreign direct investment and development in Middle East and North Africa", in M.K. Nabli (ed.), *Breaking the Barriers to Higher Economic Growth: Better Governance and Deeper Reforms in the Middle East and North Africa*, World Bank, Washington, D.C.

Jimenez, E. (1995), "Human and physical infrastructure: Public investment and pricing policies in developing countries", chapter 43 in J. Behrman and T.N. Srinivasan (eds), *Handbook of Development Economics*, Vol. 3, Part B, pp. 2773-2843.

Judd, K.L. (1987), "The welfare cost of factor taxation in a perfect-foresight model", *Journal of Political Economy*, Vol. 95, No. 4, pp. 675-709.

Keho, J. and A.D. Echui (2011), "Transport infrastructure investment and sustainable economic growth in Côte d'Ivoire: A cointegration and causality analysis", *Journal of Sustainable Development*, Vol. 4, No. 6, pp. 23-35.

Kessides, C. (1996), "A Review of Infrastructure's Impact on Economic Development", in D.F. Batten and C. Karlsson (eds), *Infrastructure and the Complexity of Economic Development*, Berlin: Springer Verlag.

King, R.G. and S. Rebelo (1990), "Public policy and economic growth: Developing neoclassical implications" *Journal of Political Economy*, Vol. 98, No. 5, pp. S126-S150.

Konan, D.E. and K.E. Maskus (2006), "Quantifying the impact of services liberalization in a developing country", *Journal of Development Economics*, Vol. 81, No. 1, pp. 142-162.

Lee, S.H., J. Levendis and L. Gutierrez (2012), "Telecommunications and economic growth: An empirical analysis of sub-Saharan Africa", *Applied Economics*, Vol. 44, No. 4, pp. 461-469.

Loayza, N.V. and R. Odawara (2010), *Infrastructure and economic growth in Egypt*, Policy Research Working Paper No. 5177, World Bank, Washington, D.C.

Mouley, S. (2012), *Challenges arising from capital account liberalization in the countries of the South Mediterranean*, MEDPRO Technical Report No. 11, CEPS, Brussels, March.

Paroussos, L., S. Tsani and Z. Vrontisi (2013a), *Economic and structural database for the MEDPRO project*, MEDPRO Report No. 5, CEPS, Brussels.

MEDPRO
MEDITERRANEAN PROSPECTS

Paroussos, L, K. Fragkiadakis, I. Charalampidis, S. Tsani and P. Capros (2013b), *Quantitative reference scenario for the MEDPRO project*, MEDPRO Report No. 6, CEPS, Brussels.

Qiang, C.Z.-W. and C.M. Rossotto (2009), "Economic Impacts of Broadband", chapter 3 in World Bank, *Extending Reach and Increasing Impact*, World Bank, Washington, D.C.

Ramey, V.A. (2009), "Identifying Government Spending Shocks: It's all in the Timing", *Quarterly Journal of Economics*, Vol. 126, No. 1, pp. 1-50.

Romp, W. and J. De Haan (2005), "Public Capital and Economic Growth: A Critical Survey", *Perspektiven der Wirtschaftspolitik*, 8 (S1), pp. 6-52.

Sanchez-Robles, B. (1998), "Infrastructure investment and growth: Some empirical evidence", *Contemporary Economic Policy*, Vol. 16, No. 1, pp. 98-108.

Schwab, K. (ed.) (2011), *Global Competitiveness Report 2011-2012*, World Economic Forum, Geneva.

Sekkat, K. (2012), *Manufactured Exports and FDI in Southern Mediterranean Countries: Evolution, determinants and prospects*, MEDPRO Technical Report No 14, CEPS, Brussels, April.

Sianesi, B. and J.V. Van Reenen (2000), *The returns to education: A review of the macroeconomic literature*, London School of Economics and Political Science.

Singh, J.P. (1999), *Leapfrogging Development*, Albany: State University of New York Press.

Teruel, R.G. and Y. Kuroda (2005), "Public infrastructure and productivity growth in Philippine agriculture", *Journal of Asian Economics*, Vol. 16, No. 3, pp. 555-576.

Tsani, S., L. Paroussos, C. Fragiadakis, I. Charalambidis and P. Capros (2012), *Female Labour Force Participation and Economic Development in Southern Mediterranean Countries: What scenarios for 2030?,* MEDPRO Technical Report No. 19, CEPS, Brussels.

Uppenberg, K., K. Strauss and R. Wagenvoort (2011), *Financing infrastructure: A review of the EIB Conference in Economics and Finance*, European Investment Bank, Luxembourg.

Varela-Ortega, C., I. Blanco, G. Carmona and P. Esteve (2012), "Cost of water infrastructures to reduce water shortage to 2030 for every MEDPRO scenario and MED-11 country", Memo, MEDPRO Project.

World Bank (1994), "Executive Summary" in *World Development Report: Infrastructure for development*, World Bank, Washington, D.C.

Databases and additional sources

Global Trade Analysis project (https://www.gtap.agecon.purdue.edu/)

International Labour Organisation (ILO) (http://www.ilo.org/global/lang--en/index.htm).

International Monetary Fund (IMF) (2011), World Economic Outlook Database

World Bank (2011), World Bank DataBank, World Bank, Washington, D.C. (http://databank.worldbank.org/ddp/home.do).

Appendix

Table 67. Investment in infrastructure in QI by SEMC (% of total)

	Transport	Human capital	Water & sanitation	Telecommunications	Electricity	Total
Algeria	56.92	8.23	0.00	3.33	31.51	100.00
Egypt	23.89	9.60	43.60	1.65	21.26	100.00
Israel	8.32	38.47	24.97	0.13	28.11	100.00
Jordan	18.28	3.28	49.00	2.34	27.10	100.00
Lebanon	9.58	14.72	32.08	3.83	39.80	100.00
Libya	22.02	8.87	50.31	0.35	18.45	100.00
Morocco	40.72	9.06	26.47	0.76	22.99	100.00
Syria	34.03	6.06	2.69	3.77	53.45	100.00
Tunisia	46.81	14.78	3.12	1.24	34.05	100.00
Turkey	44.02	15.67	0.00	0.67	39.65	100.00
Palestine	13.45	2.58	67.18	3.40	13.39	100.00
SEMCs	33.79	13.33	20.64	1.39	30.86	100.00

Source: Authors' estimations.

Table 68. Investment in infrastructure in QII by SEMC (% of total)

	Transport	Human capital	Water & sanitation	Telecommunications	Electricity	Total
Algeria	58.89	10.40	0.71	2.12	27.88	100.00
Egypt	19.84	14.59	34.78	1.61	29.18	100.00
Israel	19.21	33.91	19.40	0.33	27.14	100.00
Jordan	22.95	6.17	42.91	2.27	25.70	100.00
Lebanon	17.79	23.97	23.48	3.55	31.22	100.00
Libya	39.49	12.71	30.25	0.30	17.24	100.00
Morocco	46.44	14.42	17.11	0.76	21.27	100.00
Syria	33.49	11.84	3.38	3.78	47.51	100.00
Tunisia	44.51	21.36	2.01	1.06	31.06	100.00
Turkey	51.87	20.85	1.33	0.62	25.33	100.00
Palestine	21.10	5.49	53.73	3.65	16.04	100.00
SEMCs	40.18	17.21	14.82	1.21	26.58	100.00

Source: Authors' estimations.

Table 69. Investment in infrastructure in QIII by SEMC (% of total)

	Transport	Human capital	Water & sanitation	Telecommunications	Electricity	Total
Algeria	53.40	10.93	1.03	2.86	31.78	100.00
Egypt	18.25	10.54	34.42	1.41	35.37	100.00
Israel	7.25	33.51	21.96	0.38	36.89	100.00
Jordan	18.56	4.68	44.77	2.20	29.79	100.00
Lebanon	6.72	19.49	29.58	3.61	40.59	100.00
Libya	41.28	10.21	32.69	0.30	15.52	100.00
Morocco	38.91	12.60	20.95	0.82	26.73	100.00
Syria	35.47	8.36	3.78	3.41	48.97	100.00
Tunisia	42.88	19.16	2.51	1.17	34.27	100.00
Turkey	40.96	19.05	2.27	0.68	37.05	100.00
Palestine	11.96	4.38	60.32	3.79	19.55	100.00
SEMCs	32.78	14.89	17.41	1.27	33.65	100.00

Source: Authors' estimations.

Table 70. Investment in infrastructure in QIV by SEMC (% of total)

	Transport	Human capital	Water & sanitation	Telecommunications	Electricity	Total
Algeria	40.51	3.45	17.07	2.58	36.38	100.00
Egypt	12.70	3.10	49.64	0.56	34.00	100.00
Israel	9.73	21.26	36.97	0.15	31.89	100.00
Jordan	9.09	1.00	67.26	1.22	21.44	100.00
Lebanon	9.05	5.30	46.39	2.04	37.21	100.00
Libya	42.66	4.85	25.34	0.24	26.90	100.00
Morocco	31.24	3.85	37.97	0.38	26.56	100.00
Syria	20.54	1.99	25.82	2.17	49.49	100.00
Tunisia	39.09	7.90	8.53	0.88	43.60	100.00
Turkey	42.07	7.25	0.00	0.22	50.46	100.00
Palestine	29.79	1.84	26.17	5.47	36.73	100.00
SEMCs	27.19	5.73	27.96	0.80	38.32	100.00

Source: Authors' estimations.

Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results

SEMC	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	7.0	2896	4.6	1905	-12.7	-5239	1.8	5.0	7.7	10.3	1.2	3.4	5.1	6.7	-9.7	-11.4	-13.1	-14.8
Investment	10.9	997	7.4	675	-13.4	-1223	7.2	9.4	11.5	13.4	4.8	6.4	7.8	9.1	-9.2	-11.6	-14.0	-16.3
Public Consumption	11.2	849	7.3	555	0.0	0	12.2	11.6	11.1	10.5	8.0	7.6	7.3	6.9	0.0	0.0	0.0	0.0
Private Consumption	5.7	1414	6.1	1527	-13.3	-3317	0.9	4.1	6.3	8.3	1.1	4.8	6.9	8.5	-9.5	-11.6	-13.9	-15.8
Exports	13.5	1344	14.3	1425	-20.8	-2074	0.3	9.4	15.5	21.1	1.7	11.5	16.1	20.3	-12.3	-16.9	-21.9	-27.4
Imports	16.3	1708	21.7	2278	-13.1	-1375	9.1	15.4	17.5	18.7	8.6	19.8	23.8	26.8	-5.6	-9.6	-14.4	-18.8
Terms of Trade	4.9	-	11.3	-	-5.3	-	1.8	3.6	3.5	3.1	2.2	7.2	8.8	9.7	-2.9	-3.2	-3.5	-4.6
Employment	2.0	-	1.4	-	-1.5	-	1.4	1.8	2.1	2.4	0.5	1.2	1.5	1.7	-0.3	-1.1	-1.8	-2.3
Equivalent Variation of Welfare	-	491	-	464	-	-1126												

EU - 27 Countries	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.4	1321	0.0	-119	0.0	-21	0.4	0.4	0.4	0.5	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Investment	0.4	242	0.0	-24	-0.1	-35	0.2	0.3	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	775	-0.2	-322	-0.2	-398	0.3	0.4	0.4	0.5	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3
Exports	1.3	943	-0.1	-94	0.1	42	1.1	1.3	1.4	1.5	0.0	-0.1	-0.2	-0.2	0.1	0.1	0.1	0.0
Imports	0.8	639	-0.4	-321	-0.5	-370	0.4	0.7	0.9	1.0	-0.2	-0.4	-0.4	-0.5	-0.3	-0.4	-0.5	-0.7
Terms of Trade	0.0	-	0.0	-	-0.4	-	-0.1	0.0	0.1	0.1	-0.2	-0.4	-0.5	-0.5	-0.3	-0.4	-0.5	-0.6
Employment	0.6	-	0.0	-	0.0	-	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	219	-	-60	-	-77												

South EU member states	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.3	390	0.0	-59	0.0	-39	0.3	0.3	0.3	0.4	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0
Investment	0.3	85	-0.1	-17	-0.1	-23	0.2	0.3	0.3	0.3	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	307	-0.3	-194	-0.3	-235	0.2	0.4	0.4	0.5	-0.1	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4
Exports	1.7	377	-0.2	-41	-0.1	-16	1.3	1.6	1.7	1.8	0.0	-0.1	-0.2	-0.3	0.1	0.0	-0.1	-0.2
Imports	1.3	379	-0.7	-193	-0.8	-235	0.6	1.2	1.4	1.7	-0.3	-0.7	-0.7	-0.8	-0.5	-0.7	-0.9	-1.1
Terms of Trade	0.0	-	0.0	-	-0.7	-	-0.2	0.1	0.2	0.3	-0.3	-0.8	-0.9	-0.9	-0.7	-0.7	-0.9	-1.1
Employment	0.6	-	0.0	-	0.0	-	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	75	-	-35	-	-43	0	0	0	0	0	0	0	0	0	0	0	0

Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

EU - 15 Countries	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.5	878	0.0	-51	0.0	16	0.4	0.5	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.4	143	0.0	-5	0.0	-9	0.3	0.4	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	417	-0.1	-108	-0.1	-142	0.3	0.4	0.5	0.5	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
Exports	1.3	511	-0.1	-45	0.1	50	1.1	1.3	1.3	1.4	0.0	-0.1	-0.1	-0.2	0.1	0.1	0.1	0.1
Imports	0.5	193	-0.3	-108	-0.3	-116	0.3	0.5	0.5	0.6	-0.1	-0.3	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4
Terms of Trade	0.0	-	0.0	-	-0.2	-	-0.1	-0.1	0.0	0.0	-0.1	-0.2	-0.3	-0.3	-0.1	-0.2	-0.3	-0.4
Employment	0.7	-	0.0	-	0.0	-	0.7	0.7	0.7	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	130	-	-21	-	-29	0	0	0	0	0	0	0	0	0	0	0	0

New EU member states	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.2	53	0.0	-9	0.0	2	0.2	0.2	0.2	0.3	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Investment	0.2	13	0.0	-2	0.0	-2	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.3	52	-0.1	-20	-0.1	-21	0.2	0.3	0.4	0.4	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
Exports	0.7	55	-0.1	-8	0.1	7	0.5	0.6	0.7	0.8	0.0	-0.1	-0.1	-0.2	0.1	0.1	0.1	0.1
Imports	0.7	67	-0.2	-20	-0.2	-18	0.4	0.6	0.7	0.8	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.2	-0.3
Terms of Trade	0.0	-	0.0	-	-0.1	-	0.1	0.3	0.3	0.4	-0.1	-0.1	-0.1	-0.2	0.0	0.0	-0.1	-0.2
Employment	0.3	-	0.0	-	0.0	-	0.3	0.3	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	14	-	-4	-	-5	0	0	0	0	0	0	0	0	0	0	0	0

Israel	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	2.0	92	2.3	106	-16.6	-764	1.0	1.7	2.1	2.5	0.6	1.5	2.5	3.6	-10.8	-14.1	-17.4	-20.4
Investment	2.8	26	2.4	21	-21.1	-193	1.9	2.4	2.9	3.4	1.2	1.9	2.5	3.2	-14.4	-18.2	-22.0	-25.6
Public Consumption	4.2	42	2.2	22	0.0	0	3.9	4.1	4.3	4.5	2.0	2.1	2.2	2.3	0.0	0.0	0.0	0.0
Private Consumption	1.3	37	2.8	80	-16.3	-460	-0.1	0.9	1.5	1.9	0.5	2.1	3.1	4.1	-10.2	-13.7	-17.1	-20.2
Exports	4.1	61	8.8	133	-24.5	-368	1.8	3.7	4.5	5.1	2.5	7.2	9.8	12.4	-13.3	-19.6	-26.5	-32.8
Imports	4.5	73	9.3	150	-15.8	-257	2.2	4.1	4.9	5.3	3.3	8.4	10.2	11.6	-7.6	-12.2	-17.4	-21.7
Terms of Trade	0.0	-	0.0	-	2.3	-	0.3	1.0	1.2	1.3	1.1	3.1	3.3	3.3	3.2	3.0	2.3	2.3
Employment	0.9	-	1.4	-	-6.9	-	0.7	0.8	0.9	0.9	0.2	0.7	1.6	2.7	-0.8	-4.6	-8.1	-11.3
Equivalent Variation of Welfare	-	13	-	27	-	-164												

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Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

| Turkey | Cumulative 2015 - 2030, changes from QI Scenario | | | | | | % changes from QI | | | | | | | | | | | |
| | QII | | QIII | | QIV | | QII | | | | QIII | | | | QIV | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	4.4	909	2.4	509	-11.8	-2461	1.1	3.1	4.8	6.4	0.7	1.9	2.7	3.4	-8.6	-10.5	-12.3	-13.9
Investment	7.9	357	6.6	295	-15.5	-698	4.9	6.6	8.3	10.0	4.3	5.6	6.9	8.0	-10.9	-13.5	-16.1	-18.6
Public Consumption	8.6	325	4.9	184	0.0	0	10.0	9.2	8.5	7.9	5.6	5.2	4.8	4.5	0.0	0.0	0.0	0.0
Private Consumption	3.4	454	5.0	665	-13.0	-1741	0.0	2.2	3.9	5.4	0.6	3.9	5.7	6.9	-9.3	-11.5	-13.5	-15.4
Exports	5.9	200	5.5	186	-21.5	-726	-1.5	3.8	6.9	10.0	0.6	5.5	5.9	6.8	-12.0	-16.6	-22.5	-29.6
Imports	10.1	428	19.3	820	-16.6	-704	5.6	9.4	10.9	11.7	7.3	17.5	21.3	23.7	-9.4	-13.1	-17.4	-22.7
Terms of Trade	0.0	-	0.0	-	0.3	-	0.3	0.6	0.2	-0.4	1.9	11.0	15.3	16.4	-0.3	-0.1	0.3	1.2
Employment	1.0	-	1.2	-	-1.0	-	0.9	1.0	1.1	1.1	0.5	1.2	1.4	1.3	-0.1	-0.8	-1.2	-1.4
Equivalent Variation of Welfare	-	110	-	147	-	-464												

| Algeria | Cumulative 2015 - 2030, changes from QI Scenario | | | | | | % changes from QI | | | | | | | | | | | |
| | QII | | QIII | | QIV | | QII | | | | QIII | | | | QIV | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	16.8	599	8.7	311	-11.7	-417	3.9	10.7	18.6	27.3	1.4	5.4	9.9	14.4	-9.5	-10.8	-12.0	-13.2
Investment	21.0	198	11.3	106	-7.2	-67	14.7	18.5	22.2	25.8	7.8	9.9	11.9	13.8	-5.6	-6.5	-7.5	-8.4
Public Consumption	21.1	113	8.2	44	0.0	0	21.8	21.4	20.9	20.6	8.5	8.4	8.2	8.0	0.0	0.0	0.0	0.0
Private Consumption	11.7	179	6.5	99	-12.4	-189	2.4	7.8	12.9	18.3	1.4	4.6	7.2	9.9	-10.5	-11.5	-12.6	-13.9
Exports	25.9	326	21.1	264	-14.3	-179	-1.2	13.4	30.7	49.8	-0.6	12.3	25.3	37.8	-8.7	-12.1	-15.4	-18.4
Imports	31.6	217	29.5	203	-2.7	-19	18.2	28.3	34.4	39.0	11.0	24.9	33.3	39.9	1.4	-0.9	-3.4	-6.4
Terms of Trade	0.0	-	0.0	-	-7.3	-	2.4	4.7	5.5	5.8	1.5	4.1	5.2	6.0	-1.6	-2.0	-2.5	-3.0
Employment	7.0	-	2.7	-	-2.1	-	4.8	6.1	7.4	8.6	1.3	2.2	3.0	3.7	-1.1	-1.7	-2.3	-2.8
Equivalent Variation of Welfare	-	98	-	49	-	-113												

| Egypt | Cumulative 2015 - 2030, changes from QI Scenario | | | | | | % changes from QI | | | | | | | | | | | |
| | QII | | QIII | | QIV | | QII | | | | QIII | | | | QIV | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	10.0	432	7.7	334	-12.2	-527	2.5	7.1	10.9	14.7	2.5	5.7	8.4	10.9	-9.8	-11.2	-12.5	-13.8
Investment	13.2	122	8.0	75	-10.1	-94	7.8	10.8	13.8	16.8	4.5	6.6	8.5	10.3	-6.7	-8.7	-10.5	-12.2
Public Consumption	19.6	161	19.4	159	0.0	0	23.8	21.3	19.2	17.5	23.5	21.0	18.9	17.3	0.0	0.0	0.0	0.0
Private Consumption	9.0	252	9.6	269	-12.3	-344	1.8	6.8	10.0	13.1	1.9	7.1	10.7	14.1	-9.7	-11.2	-12.6	-14.1
Exports	17.6	193	22.2	244	-21.9	-240	-0.6	12.7	19.8	26.9	3.7	18.0	24.6	30.8	-14.3	-18.1	-22.6	-28.1
Imports	22.2	296	30.9	412	-11.3	-150	12.2	21.3	23.7	25.3	13.5	27.6	33.4	38.4	-6.6	-8.9	-11.7	-15.3
Terms of Trade	0.0	-	0.0	-	-3.9	-	2.3	5.1	5.2	4.9	3.3	10.7	14.6	18.2	-2.1	-2.3	-2.7	-3.3
Employment	1.1	-	1.2	-	-1.1	-	0.7	1.0	1.2	1.3	0.3	0.9	1.3	1.6	-0.3	-0.9	-1.3	-1.6
Equivalent Variation of Welfare	-	73	-	76	-	-114												

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Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

Morocco

Macroeconomic Aggregates (in b.$ 2007)	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	9.1	199	5.6	121	-13.8	-301	3.0	7.0	10.0	12.8	1.6	4.2	6.1	8.0	-12.2	-13.1	-14.0	-15.0
Investment	15.0	86	8.7	49	-10.2	-58	10.8	13.5	15.8	17.9	6.0	7.8	9.1	10.4	-8.2	-9.4	-10.5	-11.6
Public Consumption	12.2	54	6.6	29	0.0	0	12.4	12.2	12.1	12.0	6.7	6.6	6.6	6.5	0.0	0.0	0.0	0.0
Private Consumption	9.8	136	6.7	94	-13.7	-190	3.4	8.2	10.7	12.9	2.0	5.6	7.3	9.1	-11.8	-12.9	-13.9	-15.0
Exports	21.3	117	22.8	124	-28.6	-156	4.6	19.3	23.7	27.7	3.9	19.7	25.0	31.7	-19.8	-24.1	-29.6	-36.6
Imports	25.0	193	22.6	176	-13.4	-104	15.3	25.1	26.5	27.0	9.7	21.2	24.2	28.4	-7.5	-10.5	-14.2	-18.9
Terms of Trade	0.0	-	0.0	-	3.9	-	0.7	1.0	0.4	-0.5	1.0	1.7	1.3	0.9	3.1	3.5	4.3	5.5
Employment	1.9	-	0.8	-	-1.2	-	1.3	1.7	2.0	2.3	0.3	0.6	0.9	1.1	-0.2	-0.8	-1.4	-2.0
Equivalent Variation of Welfare	-	42	-	29	-	-66												

Tunisia

Macroeconomic Aggregates (in b.$ 2007)	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	13.0	148	7.7	88	-15.0	-170	3.6	9.7	14.2	18.3	1.8	5.8	8.4	11.0	-12.0	-13.6	-15.3	-17.2
Investment	22.8	58	12.2	31	-10.9	-28	13.3	19.2	24.1	28.8	7.1	10.3	12.8	15.4	-7.2	-9.3	-11.4	-13.5
Public Consumption	13.2	28	7.3	16	0.0	0	14.5	13.7	13.0	12.4	8.1	7.6	7.3	6.9	0.0	0.0	0.0	0.0
Private Consumption	18.7	133	10.1	72	-15.7	-112	5.1	16.5	20.5	23.6	2.0	8.4	11.0	13.8	-13.1	-14.6	-16.0	-17.5
Exports	30.8	150	21.7	106	-26.1	-127	6.8	26.4	34.2	41.3	3.2	18.4	23.8	30.2	-17.1	-21.5	-27.0	-34.1
Imports	41.6	222	25.6	136	-18.2	-97	16.4	39.6	45.2	49.6	7.9	23.4	27.6	32.9	-11.9	-15.1	-18.9	-23.5
Terms of Trade	0.0	-	0.0	-	-4.5	-	4.1	9.2	8.6	7.7	2.0	5.7	5.7	5.7	-2.8	-3.2	-3.6	-4.2
Employment	2.3	-	0.9	-	-1.6	-	1.7	2.2	2.5	2.6	0.5	0.8	1.0	1.0	-0.3	-1.1	-1.8	-2.4
Equivalent Variation of Welfare	-	51	-	29	-	-53												

Libya

Macroeconomic Aggregates (in b.$ 2007)	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	16.3	322	13.8	274	-12.4	-246	3.1	11.0	18.3	24.6	2.6	10.3	15.7	19.7	-9.5	-11.3	-12.9	-14.1
Investment	15.0	70	9.4	44	-6.6	-31	9.3	12.7	16.0	19.0	5.2	7.9	10.1	12.2	-4.4	-5.7	-7.1	-8.2
Public Consumption	29.6	79	22.5	60	0.0	0	32.1	30.5	29.2	28.2	24.4	23.2	22.3	21.5	0.0	0.0	0.0	0.0
Private Consumption	9.2	62	7.8	53	-10.4	-70	-0.7	5.0	10.1	15.5	-0.4	4.8	8.6	12.4	-7.5	-9.2	-10.7	-12.0
Exports	23.6	182	28.5	220	-14.9	-115	0.7	15.1	28.2	38.5	1.7	22.5	33.9	40.7	-8.3	-13.0	-16.4	-18.0
Imports	35.0	72	50.0	103	14.4	30	27.1	35.8	36.9	34.8	19.6	50.0	55.8	56.1	20.1	15.3	12.8	12.9
Terms of Trade	0.0	-	0.0	-	9.3	-	2.9	4.5	5.0	5.2	2.4	8.0	9.1	9.5	3.0	2.6	2.4	2.6
Employment	1.8	-	0.9	-	-2.4	-	0.9	1.4	2.0	2.5	0.4	1.0	1.1	0.7	0.5	-1.3	-2.9	-4.1
Equivalent Variation of Welfare	-	37	-	32	-	-62												

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Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

Lebanon	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	9.5	61	7.1	46	-13.8	-88	2.3	7.3	10.7	13.5	1.6	5.1	7.9	10.9	-10.2	-12.2	-14.3	-16.6
Investment	22.9	33	13.1	19	-9.8	-14	13.0	18.7	24.1	29.0	7.2	10.5	13.7	17.0	-5.7	-7.9	-10.3	-12.7
Public Consumption	7.4	13	5.1	9	0.0	0	6.8	7.1	7.5	8.0	4.7	4.9	5.2	5.5	0.0	0.0	0.0	0.0
Private Consumption	11.5	49	9.0	38	-15.7	-66	3.1	9.7	13.1	15.7	2.5	7.3	10.0	12.7	-12.1	-14.1	-16.3	-18.8
Exports	15.7	39	16.5	41	-18.6	-46	1.6	13.8	17.9	20.6	3.1	13.7	18.2	22.8	-12.4	-15.7	-19.4	-23.5
Imports	20.7	73	17.3	61	-10.7	-38	8.9	18.9	22.5	25.7	7.3	15.6	18.7	21.9	-6.8	-8.8	-11.3	-14.3
Terms of Trade	0.0	-	0.0	-	-1.8	-	3.4	6.0	6.4	6.6	3.0	5.2	5.4	5.4	-1.3	-1.3	-1.6	-2.2
Employment	1.6	-	2.2	-	-3.8	-	0.7	1.4	1.8	1.8	0.2	1.3	2.6	4.0	-0.2	-2.4	-4.5	-6.6
Equivalent Variation of Welfare	-	19	-	16	-	-33												

Syria	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	5.7	72	4.5	58	-11.2	-144	2.1	4.4	6.2	7.8	1.7	3.5	4.9	6.3	-8.4	-10.1	-11.7	-13.0
Investment	7.2	13	4.5	8	-13.1	-24	4.2	5.9	7.5	9.1	2.4	3.5	4.7	5.8	-8.5	-11.0	-13.5	-15.9
Public Consumption	12.0	20	13.2	21	0.0	0	14.8	12.9	11.7	10.8	16.2	14.1	12.9	11.8	0.0	0.0	0.0	0.0
Private Consumption	5.5	43	5.6	43	-12.2	-95	1.4	4.3	6.2	7.8	1.4	4.5	6.1	7.7	-8.9	-10.7	-12.7	-14.6
Exports	8.6	44	9.5	49	-13.4	-69	2.5	7.3	9.7	11.4	3.3	8.4	10.4	12.1	-9.2	-11.7	-14.0	-16.2
Imports	13.3	48	17.7	64	-12.3	-44	6.6	12.9	14.3	14.8	9.4	17.5	18.8	19.5	-7.6	-9.9	-12.7	-15.9
Terms of Trade	0.0	-	0.0	-	-7.3	-	1.7	3.4	4.1	4.6	2.1	4.6	5.7	6.7	-2.1	-2.6	-3.4	-4.6
Employment	2.5	-	0.7	-	-2.2	-	2.2	2.4	2.6	2.7	0.5	0.7	0.8	0.8	-0.7	-1.7	-2.5	-3.0
Equivalent Variation of Welfare	-	18	-	16	-	-40												

Jordan	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	8.2	45	8.2	45	-16.6	-92	2.9	6.3	8.8	11.0	2.8	6.5	8.9	10.8	-12.3	-14.7	-17.1	-19.5
Investment	8.5	14	6.9	11	-16.3	-26	5.1	7.2	9.0	10.7	3.4	6.0	7.4	8.8	-11.4	-14.2	-16.9	-19.6
Public Consumption	9.4	14	7.8	12	0.0	0	8.8	9.1	9.5	9.8	7.3	7.6	7.8	8.1	0.0	0.0	0.0	0.0
Private Consumption	10.2	38	22.7	85	-19.9	-75	2.7	9.0	11.3	12.9	6.5	22.6	24.9	25.8	-14.8	-17.5	-20.5	-23.8
Exports	15.7	27	28.5	48	-19.6	-33	3.3	13.3	17.2	19.6	9.3	26.6	30.7	33.1	-11.3	-16.1	-20.3	-24.4
Imports	15.8	47	37.0	111	-14.0	-42	6.8	15.1	17.2	18.1	12.9	37.2	40.4	41.7	-8.5	-11.4	-14.7	-18.4
Terms of Trade	0.0	-	0.0	-	-2.8	-	3.3	8.0	8.8	11.3	9.3	28.6	30.0	33.8	-2.1	-2.3	-2.4	-1.4
Employment	4.0	-	2.9	-	-4.4	-	2.9	3.7	4.2	4.4	1.3	2.7	3.2	3.4	-1.3	-3.3	-4.9	-6.2
Equivalent Variation of Welfare	-	14	-	29	-	-33												

Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

Palestine	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	12.7	18	9.6	14	-19.2	-29	0.0	7.7	14.2	21.2	1.0	5.3	10.6	16.5	-68.1	-27.1	-8.5	-7.4
Investment	42.7	20	32.2	15	22.4	10	36.3	37.8	43.6	50.3	24.6	28.7	33.4	38.4	30.1	29.7	18.1	15.9
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	33.5	31	32.0	30	32.1	26	43.9	29.6	32.2	35.8	24.2	29.4	33.1	35.8	98.6	75.1	6.3	-3.5
Exports	23.0	5	46.2	10	-75.5	-15	-80.4	0.2	32.1	49.1	-30.0	28.0	53.4	65.8	-99.9	-99.8	-77.1	-50.5
Imports	50.8	38	55.3	42	65.5	50	53.8	43.8	51.3	57.7	33.2	49.1	59.8	66.4	212.2	123.0	13.0	3.4
Terms of Trade	0.0	-	0.0	-	13.3	-	23.3	8.7	6.4	4.8	10.5	8.5	7.4	6.1	-15.1	14.7	13.3	5.6
Employment	9.5	-	8.1	-	6.0	-	5.4	7.1	10.0	13.8	3.5	6.1	8.8	12.0	8.4	9.3	4.4	3.0
Equivalent Variation of Welfare	-	16	-	15	-	17												

Emerging Asian Economies	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-48	0.1	356	0.0	115	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Investment	0.0	-1	0.0	26	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	-20	0.1	125	-0.1	-155	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1
Exports	-0.1	-75	1.7	1072	0.4	235	0.1	0.0	-0.1	-0.3	0.7	1.7	1.8	1.8	0.2	0.3	0.4	0.5
Imports	-0.1	-48	1.6	867	-0.1	-35	0.0	-0.1	-0.1	-0.1	0.6	1.7	1.8	1.7	0.0	0.0	-0.1	-0.1
Terms of Trade	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0	0.0
Employment	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	-4	-	25	-	-46												

Rest of Middle East Countries	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-7	0.3	115	0.0	-1	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.0	0.0	0.0	0.0
Investment	0.0	0	0.2	16	0.0	0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	2	0.5	99	-0.1	-23	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.6	-0.1	-0.1	-0.1	-0.2
Exports	-0.1	-15	1.1	159	0.0	2	0.0	-0.1	-0.1	-0.1	0.7	1.1	1.1	1.1	0.1	0.0	0.0	0.0
Imports	-0.1	-6	1.3	160	-0.2	-21	-0.1	-0.1	0.0	0.0	0.6	1.3	1.4	1.5	0.0	-0.1	-0.2	-0.3
Terms of Trade	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.3	0.5	0.5	0.6	0.0	0.0	0.0	0.0
Employment	0.0	-	1.2	-	0.0	-	0.0	0.0	0.0	0.0	1.3	1.3	1.2	1.1	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	1	-	43	-	-7												

Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

Rest of OECD	Cumulative 2011 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2011	2020	2025	2030	2011	2020	2025	2030	2011	2020	2025	2030
Gross Domestic Product	0.0	-28	0.0	54	0.0	105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	-7	0.0	-41	0.0	-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	-28	-0.1	-255	-0.1	-294	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Exports	0.0	-16	-0.1	-29	0.4	219	0.2	0.1	-0.1	-0.2	0.1	0.0	-0.1	-0.2	0.4	0.4	0.4	0.5
Imports	0.0	-23	-0.6	-379	-0.3	-188	-0.1	-0.1	0.0	0.0	-0.3	-0.6	-0.6	-0.7	-0.2	-0.3	-0.3	-0.4
Terms of Trade	0.0	-	0.0	-	-0.1	-	-0.1	-0.1	-0.1	-0.1	-0.1	-0.4	-0.6	-0.7	-0.1	-0.1	-0.1	-0.2
Employment	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	-4	-	-45	-	-51												

Rest of Emerging Economies	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	2	0.0	39	0.0	24	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	0	0.0	11	0.0	-5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	-9	0.1	59	-0.1	-91	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	-0.1	-0.1	-0.1	-0.1
Exports	0.0	-12	0.9	212	0.2	40	0.1	0.0	-0.1	-0.1	0.5	0.9	0.9	1.1	0.2	0.2	0.2	0.1
Imports	-0.1	-23	1.1	244	-0.4	-81	-0.1	-0.2	-0.1	0.0	0.5	1.0	1.2	1.5	-0.2	-0.3	-0.4	-0.5
Terms of Trade	0.0	-	0.0	-	0.1	-	0.0	-0.1	-0.1	-0.1	0.2	0.4	0.4	0.5	0.1	0.1	0.1	0.1
Employment	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	-1	-	12	-	-20												

Rest of World	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI												
	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-5	0.0	1	0.0	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	0	0.0	-2	0.0	-1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	-7	-0.1	-55	-0.1	-44	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Exports	-0.1	-10	0.0	-6	0.2	33	0.1	0.0	-0.1	-0.1	0.0	0.0	-0.1	-0.1	0.2	0.2	0.2	0.2
Imports	-0.1	-12	-0.4	-65	-0.1	-20	0.0	-0.1	-0.1	-0.1	-0.2	-0.4	-0.5	-0.5	-0.1	-0.1	-0.1	-0.2
Terms of Trade	0.0	-	0.0	-	0.0	-	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	0.0	0.0	0.0	0.0
Employment	0.0	-	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	-1	-	-10	-	-9												

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Table 71. Summary of macroeconomic aggregates with a flexible current account, GEM-E3-MEDPRO results (cont'd)

	Cumulative 2015 - 2030, changes from QI Scenario						% changes from QI											
WORLD	QII		QIII		QIV		QII				QIII				QIV			
Macroeconomic Aggregates (in b.$ 2007)	**%**	**bn$**	**%**	**bn$**	**%**	**bn$**	2015	2020	2025	2030	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.3	4131	0.2	2350	-0.4	-5010	0.1	0.2	0.3	0.4	0.0	0.1	0.2	0.2	-0.3	-0.3	-0.4	-0.4
Investment	0.4	1230	0.2	662	-0.4	-1271	0.3	0.3	0.4	0.5	0.1	0.2	0.2	0.3	-0.3	-0.3	-0.4	-0.5
Public Consumption	0.3	849	0.2	555	0.0	0	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0
Private Consumption	0.2	2128	0.1	1177	-0.5	-4323	0.1	0.2	0.3	0.4	0.0	0.1	0.2	0.2	-0.4	-0.4	-0.5	-0.6
Employment	0.1	-	0.1	-	0.0	-	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	-0.1
Equivalent Variation of Welfare	-	702	-	429	-	-1337												

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results

SEMC	Cumulative 2015 – 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	**%**	**bn$**	**%**	**bn$**	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	7.0	2884	4.6	1887	1.9	5.0	7.7	10.2	1.2	3.4	5.1	6.6
Investment	10.8	984	7.4	675	6.9	9.2	11.4	13.4	4.8	6.3	7.8	9.2
Public Consumption	11.2	849	7.3	555	12.2	11.6	11.1	10.5	8.0	7.6	7.3	6.9
Private Consumption	5.1	1273	6.2	1558	-0.9	3.0	6.0	8.7	0.4	4.5	7.1	9.3
Exports	14.2	1420	13.7	1367	3.4	11.5	15.9	19.7	3.3	11.7	15.1	18.4
Imports	15.6	1642	21.6	2267	7.2	14.4	17.0	18.9	8.4	19.3	23.7	27.1
Terms of Trade	5.1	-	11.2	-	1.7	3.7	3.7	3.5	1.8	7.2	8.8	9.8
Employment	2.1	-	1.3	-	1.7	2.1	2.2	2.3	0.7	1.2	1.4	1.5
Equivalent Variation of Welfare	-	438	-	483								

EU – 27 Countries	Cumulative 2015 – 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	**%**	**bn$**	**%**	**bn$**	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.4	1325	0.0	-117	0.4	0.4	0.4	0.5	0.0	0.0	0.0	0.0
Investment	0.4	243	0.0	-24	0.3	0.3	0.4	0.4	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	802	-0.2	-335	0.3	0.4	0.5	0.5	-0.1	-0.2	-0.2	-0.2
Exports	1.3	924	-0.1	-88	1.0	1.2	1.4	1.5	0.0	-0.1	-0.1	-0.2
Imports	0.8	644	-0.4	-330	0.5	0.8	0.9	1.0	-0.2	-0.4	-0.5	-0.5
Terms of Trade	0.0	-	0.0	-	0.0	0.0	0.0	0.1	-0.1	-0.4	-0.5	-0.6
Employment	0.6	-	0.0	-	0.5	0.6	0.6	0.6	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	224	-	-63								

South EU member states	Cumulative 2015 – 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	**%**	**bn$**	**%**	**bn$**	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.3	393	0.0	-60	0.3	0.3	0.3	0.4	0.0	0.0	-0.1	-0.1
Investment	0.3	86	-0.1	-17	0.2	0.3	0.3	0.3	0.0	-0.1	-0.1	-0.1
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	318	-0.3	-202	0.3	0.4	0.4	0.5	-0.1	-0.3	-0.3	-0.3
Exports	1.6	372	-0.2	-39	1.1	1.6	1.7	1.9	0.0	-0.2	-0.2	-0.2
Imports	1.3	383	-0.7	-199	0.7	1.3	1.4	1.6	-0.3	-0.7	-0.8	-0.8
Terms of Trade	0.0	-	0.0	-	0.0	0.1	0.1	0.2	-0.2	-0.8	-1.0	-1.0
Employment	0.6	-	0.0	-	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	77	-	-36	0	0	0	0	0	0	0	0

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

EU - 15 Countries	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.5	878	0.0	-48	0.4	0.5	0.6	0.6	0.0	0.0	0.0	0.0
Investment	0.4	144	0.0	-5	0.3	0.4	0.5	0.5	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.4	431	-0.1	-113	0.3	0.4	0.5	0.5	-0.1	-0.1	-0.1	-0.1
Exports	1.3	498	-0.1	-41	1.0	1.2	1.3	1.4	0.0	-0.1	-0.1	-0.1
Imports	0.5	194	-0.3	-111	0.3	0.5	0.5	0.6	-0.1	-0.3	-0.3	-0.3
Terms of Trade	0.0	-	0.0	-	-0.1	0.0	-0.1	-0.1	-0.1	-0.2	-0.3	-0.3
Employment	0.7	-	0.0	-	0.7	0.7	0.7	0.8	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	132	-	-22	0	0	0	0	0	0	0	0

New EU member states	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.2	53	0.0	-9	0.2	0.2	0.2	0.3	0.0	0.0	0.0	0.0
Investment	0.2	13	0.0	-2	0.1	0.2	0.2	0.3	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.3	54	-0.1	-20	0.2	0.3	0.4	0.4	-0.1	-0.1	-0.1	-0.2
Exports	0.7	54	-0.1	-7	0.5	0.6	0.7	0.8	0.0	-0.1	-0.1	-0.1
Imports	0.7	68	-0.2	-20	0.4	0.6	0.7	0.8	-0.1	-0.2	-0.2	-0.2
Terms of Trade	0.0	-	0.0	-	0.1	0.3	0.3	0.4	-0.1	-0.1	-0.1	-0.2
Employment	0.3	-	0.0	-	0.3	0.3	0.3	0.4	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	14	-	-4	0	0	0	0	0	0	0	0

Israel	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	1.9	89	2.1	96	1.0	1.6	2.1	2.4	0.5	1.4	2.2	3.3
Investment	2.8	25	2.5	23	1.8	2.4	2.9	3.4	1.5	2.0	2.7	3.4
Public Consumption	4.2	42	2.2	22	3.9	4.1	4.3	4.5	2.0	2.1	2.2	2.3
Private Consumption	1.5	43	3.7	103	-0.1	1.1	1.7	2.2	0.9	2.7	3.9	5.2
Exports	3.5	53	6.6	100	2.0	3.2	3.8	4.2	2.1	5.7	7.3	8.9
Imports	4.5	74	9.4	152	2.3	4.2	4.9	5.4	4.1	8.4	10.2	11.7
Terms of Trade	0.0	-	0.0	-	0.2	1.1	1.3	1.4	2.0	3.4	3.8	3.9
Employment	0.8	-	1.0	-	0.8	0.7	0.8	0.8	-0.1	0.4	1.1	2.1
Equivalent Variation of Welfare	-	15	-	36								

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

| Turkey | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	4.4	906	2.4	508	1.1	3.1	4.8	6.3	0.7	1.9	2.7	3.4
Investment	7.9	356	6.5	293	4.8	6.6	8.3	10.0	4.2	5.6	6.8	8.0
Public Consumption	8.6	325	4.9	184	10.0	9.2	8.5	7.9	5.6	5.2	4.8	4.5
Private Consumption	3.0	406	4.3	578	-1.2	1.5	3.7	5.6	-0.4	3.1	5.2	6.4
Exports	6.8	231	7.2	243	1.6	5.7	7.6	9.3	3.4	7.5	7.4	8.1
Imports	9.7	411	18.6	789	4.4	8.7	10.6	11.9	6.2	16.7	20.7	23.1
Terms of Trade	0.0	-	0.0	-	0.1	0.3	0.1	-0.5	1.6	10.7	15.0	16.1
Employment	1.0	-	1.3	-	0.9	1.0	1.1	1.1	0.5	1.3	1.4	1.3
Equivalent Variation of Welfare	-	99	-	126								

| Algeria | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	16.6	594	8.8	315	4.3	10.9	18.5	26.5	1.6	5.6	10.0	14.3
Investment	20.4	192	10.8	101	13.7	17.7	21.7	25.6	7.2	9.3	11.5	13.5
Public Consumption	21.1	113	8.2	44	21.8	21.4	20.9	20.6	8.5	8.4	8.2	8.0
Private Consumption	9.8	149	4.4	67	-3.7	3.9	11.5	19.4	-2.4	1.6	5.3	9.1
Exports	27.3	343	23.4	293	3.6	17.2	31.8	46.6	2.5	15.4	27.6	38.6
Imports	29.7	204	27.8	191	12.3	25.0	33.2	39.8	7.5	22.5	31.9	39.5
Terms of Trade	0.0	-	0.0	-	2.1	4.6	5.4	5.8	1.4	4.1	5.2	6.0
Employment	7.2	-	2.9	-	5.6	6.6	7.5	8.2	1.8	2.6	3.2	3.7
Equivalent Variation of Welfare	-	79	-	29								

| Egypt | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	10.0	430	7.6	330	2.5	7.2	10.9	14.5	2.5	5.7	8.3	10.7
Investment	13.1	122	8.2	76	7.6	10.7	13.7	16.8	4.5	6.6	8.6	10.7
Public Consumption	19.6	161	19.4	159	23.8	21.3	19.2	17.5	23.5	21.0	18.9	17.3
Private Consumption	8.9	248	11.7	327	0.3	5.3	10.1	14.9	1.2	7.6	13.2	18.6
Exports	17.6	194	18.7	205	2.2	15.5	19.6	23.2	5.0	17.2	20.4	23.3
Imports	22.1	295	32.8	437	10.8	20.1	23.8	26.7	12.9	28.1	35.7	42.5
Terms of Trade	0.0	-	0.0	-	2.4	5.1	5.2	4.9	3.4	10.7	14.5	18.0
Employment	1.1	-	0.9	-	0.9	1.2	1.2	1.1	0.4	0.9	1.0	1.1
Equivalent Variation of Welfare	-	72	-	94								

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

Morocco	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	9.6	209	5.7	125	3.6	7.6	10.4	13.1	1.8	4.4	6.2	8.1
Investment	14.8	85	8.6	49	10.6	13.3	15.6	17.8	6.0	7.7	9.0	10.3
Public Consumption	12.2	54	6.6	29	12.4	12.2	12.1	12.0	6.7	6.6	6.6	6.5
Private Consumption	7.3	101	5.8	81	0.2	4.7	8.3	11.5	0.7	4.4	6.6	8.4
Exports	26.8	146	24.8	136	11.2	26.8	28.9	30.6	6.7	22.3	26.6	33.4
Imports	22.9	177	21.9	170	13.1	22.5	24.5	25.6	8.8	20.3	23.6	27.7
Terms of Trade	0.0	-	0.0	-	0.1	0.3	-0.1	-0.7	0.8	1.4	1.2	0.7
Employment	2.6	-	1.0	-	2.2	2.7	2.6	2.6	0.7	0.9	1.1	1.3
Equivalent Variation of Welfare	-	29	-	24								

Tunisia	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	13.4	152	7.9	90	3.8	10.1	14.7	18.8	1.8	6.0	8.6	11.3
Investment	22.3	56	11.9	30	13.1	18.7	23.6	28.2	7.0	10.0	12.6	15.1
Public Consumption	13.2	28	7.3	16	14.5	13.7	13.0	12.4	8.1	7.6	7.3	6.9
Private Consumption	13.0	93	7.5	54	1.5	10.3	14.7	18.2	0.4	5.8	8.6	10.6
Exports	37.4	183	24.8	121	11.0	33.5	41.0	47.9	5.2	21.5	26.7	34.3
Imports	39.0	208	24.5	131	15.2	37.0	42.5	46.5	7.4	22.5	26.6	31.3
Terms of Trade	0.0	-	0.0	-	4.2	9.1	8.4	7.5	2.1	5.7	5.7	5.7
Employment	2.8	-	1.1	-	2.1	2.8	3.0	3.0	0.7	1.1	1.2	1.3
Equivalent Variation of Welfare	-	35	-	21								

Libya	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI							
	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	15.7	311	13.1	259	3.1	10.8	17.7	23.6	2.6	9.7	14.8	18.7
Investment	15.2	71	10.0	47	8.8	12.7	16.4	19.8	5.1	8.3	10.8	13.2
Public Consumption	29.6	79	22.5	60	32.1	30.5	29.2	28.2	24.4	23.2	22.3	21.5
Private Consumption	13.6	93	14.9	101	-5.4	6.0	15.6	25.1	-2.0	9.9	16.7	23.0
Exports	19.4	150	22.0	170	2.5	14.2	23.0	28.5	2.3	18.4	26.1	29.8
Imports	39.5	82	57.4	118	20.7	37.3	43.4	45.6	17.6	55.8	64.7	67.6
Terms of Trade	0.0	-	0.0	-	2.2	4.7	5.5	6.0	2.2	8.5	9.7	10.2
Employment	1.6	-	0.5	-	1.2	1.3	1.6	1.9	0.5	0.6	0.6	0.2
Equivalent Variation of Welfare	-	54	-	63								

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
Lebanon	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	9.4	61	7.1	45	2.3	7.3	10.7	13.6	1.6	5.1	7.9	10.8
Investment	22.7	33	13.0	19	12.9	18.5	23.8	28.7	7.1	10.4	13.6	16.9
Public Consumption	7.4	13	5.1	9	6.8	7.1	7.5	8.0	4.7	4.9	5.2	5.5
Private Consumption	7.2	31	7.6	32	-0.2	5.4	8.8	10.9	0.8	5.5	8.8	11.9
Exports	20.0	49	17.8	44	5.1	18.2	22.0	25.2	5.0	15.5	19.3	23.6
Imports	18.5	65	16.6	59	7.2	16.6	20.3	23.3	6.4	14.6	18.1	21.5
Terms of Trade	0.0	-	0.0	-	2.7	5.1	5.5	5.7	2.6	4.8	5.1	5.2
Employment	2.1	-	2.4	-	1.3	2.1	2.3	2.4	0.5	1.6	2.7	4.1
Equivalent Variation of Welfare	-	11	-	14								

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
Syria	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	5.6	72	4.5	58	2.1	4.4	6.1	7.7	1.7	3.5	4.9	6.2
Investment	7.2	13	4.5	8	4.2	5.9	7.5	9.1	2.4	3.5	4.7	5.8
Public Consumption	12.0	20	13.2	21	14.8	12.9	11.7	10.8	16.2	14.1	12.9	11.8
Private Consumption	5.9	45	5.6	44	1.5	4.2	6.5	8.6	1.3	3.9	6.3	8.5
Exports	8.2	42	9.3	48	2.3	7.4	9.1	10.2	3.4	9.0	10.1	11.1
Imports	13.4	48	17.7	64	6.8	12.8	14.4	15.1	9.3	17.0	18.8	20.0
Terms of Trade	0.0	-	0.0	-	1.6	3.4	4.0	4.4	2.1	4.8	5.8	6.6
Employment	2.5	-	0.7	-	2.1	2.4	2.5	2.5	0.6	0.8	0.8	0.7
Equivalent Variation of Welfare	-	19	-	16								

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
Jordan	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	8.4	46	8.7	48	2.9	6.5	9.1	11.3	3.0	6.9	9.5	11.5
Investment	8.9	14	8.2	13	5.1	7.5	9.4	11.3	3.8	7.1	8.7	10.3
Public Consumption	9.4	14	7.8	12	8.8	9.1	9.5	9.8	7.3	7.6	7.8	8.1
Private Consumption	14.4	54	38.7	145	3.2	12.4	16.2	18.4	11.9	39.5	42.4	42.9
Exports	9.8	17	5.9	10	2.5	8.3	10.6	12.5	1.1	1.1	6.5	11.0
Imports	17.5	52	44.0	131	7.0	16.6	19.2	20.4	15.3	44.6	48.0	48.9
Terms of Trade	0.0	-	0.0	-	3.4	8.7	9.7	12.5	10.3	31.5	32.7	36.3
Employment	3.6	-	1.8	-	2.8	3.4	3.8	4.0	0.9	1.5	2.0	2.2
Equivalent Variation of Welfare	-	20	-	47								

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

| Palestine | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	10.3	15	9.5	14	1.4	5.4	11.4	18.0	-8.3	7.3	11.6	15.8
Investment	33.9	16	33.2	16	17.2	30.6	36.1	42.2	37.4	29.7	32.6	36.6
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	12.4	11	28.6	27	-28.1	13.7	16.3	19.1	85.7	22.9	22.3	24.0
Exports	59.1	13	-17.5	-4	134.9	27.6	56.5	71.9	-99.1	-39.9	-9.6	5.5
Imports	34.6	26	32.9	25	2.0	31.9	39.6	45.2	108.3	22.0	23.6	26.3
Terms of Trade	0.0	-	0.0	-	-5.5	6.0	4.5	3.1	33.7	7.8	4.4	2.7
Employment	7.7	-	7.6	-	2.4	5.8	8.5	11.9	6.5	5.6	7.7	10.5
Equivalent Variation of Welfare	-	5	-	14								

| Emerging Asian Economies | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-59	0.1	358	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Investment	0.0	-1	0.0	25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	2	0.1	112	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Exports	-0.2	-108	1.7	1067	-0.1	-0.1	-0.2	-0.2	0.6	1.6	1.8	1.9
Imports	-0.1	-47	1.6	847	0.0	-0.1	-0.1	-0.1	0.6	1.6	1.7	1.6
Terms of Trade	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0
Employment	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	2	-	22								

| Rest of Middle East Countries | Cumulative 2015 - 2030, changes from QI Scenario | | | | % changes from QI | | | | | | | | |
| | QII | | QIII | | QII | | | | QIII | | | |
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-7	0.3	114	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3
Investment	0.0	0	0.2	16	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	4	0.5	98	0.0	0.0	0.0	0.0	0.3	0.5	0.6	0.6
Exports	-0.1	-16	1.1	159	-0.1	-0.1	-0.1	-0.1	0.6	1.1	1.1	1.1
Imports	0.0	-5	1.3	159	-0.1	-0.1	0.0	0.0	0.6	1.3	1.4	1.5
Terms of Trade	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.3	0.5	0.5	0.6
Employment	0.0	-	1.2	-	0.0	0.0	0.0	0.0	1.3	1.3	1.2	1.1
Equivalent Variation of Welfare	-	2	-	43								

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Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

	Cumulative 2011 - 2030, changes from QI Scenario				% changes from QI								
Rest of OECD	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2011	2020	2025	2030	2011	2020	2025	2030
Gross Domestic Product	0.0	-40	0.0	60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	-7	0.0	-40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-0.1
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	24	-0.1	-262	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1
Exports	-0.1	-62	0.0	-21	-0.1	-0.1	-0.1	-0.2	0.0	0.0	-0.1	-0.1
Imports	0.0	-4	-0.6	-383	0.0	0.0	0.0	0.0	-0.3	-0.6	-0.7	-0.7
Terms of Trade	0.0	-	0.0	-	0.0	-0.1	-0.1	-0.1	-0.1	-0.4	-0.6	-0.7
Employment	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	5	-	-46								

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
Rest of Emerging Economies	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	2	0.0	41	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	0	0.0	12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	3	0.1	57	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Exports	-0.1	-20	0.9	218	-0.1	-0.1	-0.1	-0.1	0.4	0.9	1.0	1.1
Imports	-0.1	-19	1.1	246	-0.1	-0.1	-0.1	0.0	0.5	1.1	1.2	1.5
Terms of Trade	0.0	-	0.0	-	0.0	-0.1	-0.1	-0.1	0.2	0.4	0.4	0.6
Employment	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	1	-	11								

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
Rest of World	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.0	-5	0.0	1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Investment	0.0	0	0.0	-2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Private Consumption	0.0	-1	-0.1	-57	0.0	0.0	0.0	0.0	-0.1	-0.1	-0.1	-0.2
Exports	-0.1	-15	0.0	-5	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0	0.0
Imports	-0.1	-11	-0.4	-66	0.0	-0.1	-0.1	-0.1	-0.2	-0.4	-0.5	-0.5
Terms of Trade	0.0	-	0.0	-	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4
Employment	0.0	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Equivalent Variation of Welfare	-	0	-	-10								

Table 72. Summary of macroeconomic aggregates with a fixed current account, GEM-E3-MEDPRO model results (cont'd)

	Cumulative 2015 - 2030, changes from QI Scenario				% changes from QI								
WORLD	QII		QIII		QII				QIII			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	%	bn$	2015	2020	2025	2030	2015	2020	2025	2030
Gross Domestic Product	0.3	4099	0.2	2344	0.1	0.2	0.3	0.4	0.0	0.1	0.2	0.2
Investment	0.4	1219	0.2	662	0.2	0.3	0.4	0.5	0.1	0.2	0.2	0.3
Public Consumption	0.3	849	0.2	555	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Private Consumption	0.2	2108	0.1	1171	0.1	0.2	0.3	0.4	0.0	0.1	0.2	0.2
Employment	0.1	-	0.1	-	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
Equivalent Variation of Welfare	-	673	-	440								

Table 73. Macroeconomic aggregates by country (Q* scenario), GEM-E3-MEDPRO model results

	SEMCs						EU 27						South EU member states					
	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	8.2	3368	2.1	5.7	9.0	12.1	0.5	1493	0.4	0.4	0.5	0.5	0.3	401	0.3	0.3	0.3	0.4
Investment	15.2	1381	10.1	13.0	15.9	18.6	0.3	220	0.2	0.3	0.3	0.4	0.2	73	0.2	0.2	0.3	0.3
Public Consumption	11.2	849	12.2	11.6	11.1	10.5	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Private Consumption	12.0	3011	6.2	9.8	12.9	15.6	0.3	502	0.2	0.2	0.3	0.4	0.2	153	0.1	0.2	0.2	0.3
Exports	26.0	2595	11.0	20.2	28.5	35.7	1.4	1005	1.3	1.4	1.5	1.6	1.5	343	1.4	1.5	1.5	1.6
Imports	42.6	4468	32.2	39.5	44.5	48.1	0.3	234	0.2	0.3	0.3	0.4	0.6	168	0.4	0.5	0.6	0.7
Terms of Trade	14.1	-	8.5	9.7	9.8	9.2	0.0	-	-0.3	-0.4	-0.4	-0.4	0.0	-	-0.5	-0.5	-0.5	-0.4
Employment	2.6	-	1.8	2.3	2.7	3.0	0.6	-	0.6	0.6	0.6	0.6	0.6	-	0.6	0.6	0.6	0.6
Equivalent Variation of Welfare	-	963					-	167					-	48	0	0	0	0

	EU10						New EU member states						Israel					
	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	0.6	1011	0.5	0.6	0.6	0.7	0.3	81	0.2	0.3	0.3	0.4	3.1	141	1.6	2.5	3.3	3.9
Investment	0.4	137	0.3	0.4	0.4	0.5	0.2	10	0.1	0.1	0.2	0.2	6.4	59	4.4	5.6	6.7	7.8
Public Consumption	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	4.2	42	3.9	4.1	4.3	4.5
Private Consumption	0.3	318	0.2	0.3	0.4	0.4	0.2	30	0.1	0.2	0.2	0.3	5.4	153	3.7	4.9	5.7	6.2
Exports	1.5	585	1.3	1.4	1.5	1.6	1.0	77	0.8	0.9	1.0	1.2	9.1	137	5.7	8.3	9.8	10.6
Imports	0.1	29	0.0	0.1	0.1	0.1	0.4	37	0.3	0.3	0.4	0.4	15.4	250	11.2	14.5	16.2	17.1
Terms of Trade	0.0	-	-0.3	-0.3	-0.4	-0.4	0.0	-	0.0	0.0	0.0	0.0	0.0	-	4.0	5.1	5.5	5.6
Employment	0.7	-	0.7	0.7	0.7	0.8	0.3	-	0.3	0.3	0.3	0.4	1.1	-	0.8	1.0	1.2	1.3
Equivalent Variation of Welfare	-	111	0	0	0	0	-	9	0	0	0	0	-	41				

	Turkey						Algeria						Egypt					
	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	5.3	1096	1.4	3.7	5.8	7.6	17.9	640	3.9	11.3	19.9	29.5	11.2	486	3.1	7.9	12.2	16.6
Investment	11.5	518	7.2	9.7	12.1	14.4	26.4	248	18.8	23.2	27.8	32.2	17.5	163	10.4	14.4	18.4	22.4
Public Consumption	8.6	325	10.0	9.2	8.5	7.9	21.1	113	21.8	21.4	20.9	20.6	19.6	161	23.8	21.3	19.2	17.5
Private Consumption	8.1	1091	3.5	6.4	8.9	11.1	21.2	324	11.0	16.7	22.6	28.7	16.1	452	7.9	13.1	17.4	21.3
Exports	13.4	451	5.1	10.6	14.6	18.1	35.8	449	6.2	21.6	41.1	62.5	35.6	391	17.5	28.4	38.1	47.4
Imports	30.4	1290	22.0	27.7	31.8	35.2	72.0	494	52.3	65.6	76.3	84.4	51.1	682	39.2	47.3	53.3	57.4
Terms of Trade	0.0	-	3.3	3.6	3.3	2.5	0.0	-	10.0	12.7	13.7	13.7	0.0	-	10.5	11.9	12.2	11.6
Employment	1.4	-	1.1	1.3	1.5	1.5	7.8	-	5.4	6.9	8.3	9.6	1.4	-	0.9	1.2	1.5	1.6
Equivalent Variation of Welfare	-	254					-	165					-	127				

Table 73. Macroeconomic aggregates by country (Q* scenario), GEM-E3-MEDPRO model results (cont'd)

Morocco	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Tunisia Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Libya Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	7.8	169	0.3	4.7	8.8	12.7	15.2	173	5.4	11.3	16.5	21.3	23.7	468	5.3	16.4	26.7	35.0
Investment	20.7	118	15.1	18.6	21.7	24.6	28.2	71	17.3	23.5	29.7	35.7	20.0	94	12.5	16.9	21.4	25.5
Public Consumption	12.2	54	12.4	12.2	12.1	12.0	13.2	28	14.5	13.7	13.0	12.4	29.6	79	32.1	30.5	29.2	28.2
Private Consumption	18.4	255	11.8	16.1	19.3	22.1	27.0	192	15.9	23.0	28.6	33.3	21.1	143	8.7	15.5	22.2	29.3
Exports	48.4	265	33.2	43.3	51.0	57.7	45.4	222	26.6	38.5	48.4	57.2	48.4	373	11.6	34.8	56.2	71.2
Imports	67.5	523	58.2	65.0	69.4	72.3	63.9	340	46.1	57.8	66.9	74.5	106.9	221	78.1	101.4	114.3	116.8
Terms of Trade	0.0	-	10.2	9.0	7.9	6.5	0.0	-	10.8	11.4	11.1	10.4	0.0	-	9.1	12.3	13.9	14.5
Employment	2.3	-	1.6	2.1	2.5	2.9	2.6	-	1.8	2.4	2.8	2.9	2.8	-	1.2	2.2	3.0	3.8
Equivalent Variation of Welfare	-	74					-	71					-	86				

Lebanon	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Syria Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Jordan Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	11.8	76	3.8	9.1	13.2	16.6	7.1	91	3.2	5.6	7.7	9.5	12.4	68	5.5	9.6	13.2	16.4
Investment	29.4	42	16.7	23.9	30.9	37.6	10.6	20	6.3	8.6	11.0	13.3	15.0	24	9.5	12.7	15.7	18.7
Public Consumption	7.4	13	6.8	7.1	7.5	8.0	12.0	20	14.8	12.9	11.7	10.8	9.4	14	8.8	9.1	9.5	9.8
Private Consumption	25.8	109	15.5	22.5	27.8	32.0	12.7	99	8.3	11.2	13.4	15.2	30.7	115	21.8	28.2	32.3	34.8
Exports	35.5	88	21.5	31.2	38.1	42.7	16.9	87	10.5	15.2	18.0	19.9	29.3	50	17.7	25.7	30.9	34.1
Imports	50.0	177	35.9	45.0	52.6	59.1	37.1	134	32.0	36.7	38.1	37.9	44.9	134	34.5	42.5	47.0	49.1
Terms of Trade	0.0	-	15.5	17.6	19.2	20.7	0.0	-	6.5	7.9	8.6	9.1	0.0	-	20.1	22.7	23.9	26.8
Employment	1.9	-	0.9	1.7	2.1	2.3	3.0	-	2.6	2.9	3.1	3.1	5.9	-	4.5	5.5	6.1	6.5
Equivalent Variation of Welfare	-	41					-	36					-	38				

Palestine	Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Emerging Asian Economies Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI				Rest of Middle East Countries Cumulative 2015 - 2030. changes from QI Scenario		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	-27.1	-39	-38.0	-37.4	-28.0	-9.9	0.0	169	0.1	0.1	0.0	0.0	0.1	20	0.1	0.1	0.1	0.1
Investment	50.8	24	35.0	44.0	53.2	62.8	0.0	-1	0.0	0.0	0.0	0.0	0.0	2	0.0	0.0	0.0	0.0
Public Consumption	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0
Private Consumption	84.0	78	49.5	73.2	89.3	99.8	0.0	-55	-0.1	0.0	0.0	0.0	0.2	29	0.1	0.1	0.2	0.2
Exports	367.9	82	279.0	336.8	374.2	400.8	0.5	308	0.6	0.5	0.5	0.4	0.4	54	0.3	0.4	0.4	0.4
Imports	296.7	223	183.9	261.9	320.8	356.1	0.2	82	0.2	0.1	0.1	0.2	0.5	65	0.4	0.5	0.6	0.6
Terms of Trade	0.0	-	27.3	30.3	28.5	24.1	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.2	0.2	0.2	0.3
Employment	22.8	-	10.3	17.5	24.7	32.8	0.0	-	0.0	0.0	0.0	0.0	0.1	-	0.1	0.1	0.1	0.1
Equivalent Variation of Welfare	-	32					-	-17					-	7				

Table 73. Macroeconomic aggregates by country (Q scenario), GEM-E3-MEDPRO model results (cont'd)*

Rest of OECD	Rest of OECD (Cumulative 2015 - 2030, changes from QI Scenario)		% changes from QI				Rest of Emerging Economies (Cumulative 2015 - 2030, changes from QI Scenario)		% changes from QI				Rest of World (Cumulative 2015 - 2030, changes from QI Scenario)		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2011	2020	2025	2030	%	bn$	2015	2020	2025	2030	%	bn$	2015	2020	2025	2030
Gross Domestic Product	0,0	114	0,0	0,0	0,0	0,0	0,0	46	0,0	0,0	0,0	0,0	0,0	-26	0,0	0,0	0,0	-0,1
Investment	0,0	8	0,0	0,0	0,0	0,0	0,0	8	0,0	0,0	0,0	0,0	0,0	0	0,0	0,0	0,0	0,0
Public Consumption	0,0	0	0,0	0,0	0,0	0,0	0,0	0	0,0	0,0	0,0	0,0	0,0	0	0,0	0,0	0,0	0,0
Private Consumption	0,0	-143	-0,1	-0,1	0,0	0,0	0,0	17	0,0	0,0	0,0	0,1	0,0	19	0,0	0,0	0,0	0,1
Exports	0,5	251	0,8	0,6	0,4	0,4	0,6	147	0,6	0,6	0,6	0,6	0,1	12	0,3	0,1	0,1	0,0
Imports	0,0	1	-0,1	0,0	0,0	0,0	0,6	126	0,4	0,5	0,6	0,7	0,4	57	0,2	0,3	0,4	0,5
Terms of Trade	0,0	-	0,1	0,1	0,1	0,0	0,0	-	0,4	0,4	0,4	0,3	0,0	-	0,6	0,8	0,9	1,0
Employment	0,0	-	0,0	0,0	0,0	0,0	0,0	-	0,0	0,0	0,0	0,0	0,0	-	0,0	0,0	0,0	0,0
Equivalent Variation of Welfare	-	-22					-	3					-	2				

WORLD	WORLD (Cumulative 2015 - 2030, changes from QI Scenario)		% changes from QI			
Macroeconomic Aggregates (in b.$ 2007)	%	bn$	2015	2020	2025	2030
Gross Domestic Product	0,4	5184	0,2	0,3	0,4	0,5
Investment	0,5	1618	0,3	0,4	0,5	0,7
Public Consumption	0,3	849	0,3	0,3	0,3	0,3
Private Consumption	0,4	3380	0,2	0,3	0,4	0,5
Employment	0,1	-	0,1	0,1	0,1	0,1
Equivalent Variation of Welfare	-	1105				

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Table 74. GDP change when only the risk perception change is simulated in scenarios QII–QIII

GDP change from QI, cumulatively over 2015–30

	QII		QIII	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Algeria	165.37	4.63	90.61	2.54
Egypt	115.24	2.67	65.53	1.52
Israel	18.19	0.40	10.87	0.24
Jordan	9.90	1.79	5.75	1.04
Lebanon	22.25	3.47	12.33	1.92
Libya	91.33	4.61	50.62	2.56
Morocco	47.12	2.17	26.73	1.23
Palestine	15.60	10.22	11.84	7.76
Syria	15.10	1.18	8.84	0.69
Tunisia	42.61	3.76	23.65	2.09
Turkey	345.77	1.66	296.69	1.43
SEMCs	888.49	2.16	603.45	1.46

Source: GEM-E3-MEDPRO.

Table 75. Employment and GDP effects when only trade liberalisation is simulated in scenarios QII–QIII

	QII										
	Algeria	**Egypt**	**Israel**	**Jordan**	**Lebanon**	**Libya**	**Morocco**	**Syria**	**Tunisia**	**Turkey**	**Palestine**
GDP, bn$ absolute change from reference	63.36	34.35	9.30	9.12	10.28	50.26	24.16	7.25	36.28	43.14	4.00
GDP, % change from reference	1.77	0.80	0.20	1.65	1.60	2.54	1.11	0.57	3.20	0.21	2.80
Employment (%)	0.26	0.07	0.03	0.82	0.11	0.14	0.16	0.05	0.14	0.03	2.77
	QIII										
GDP, bn$ absolute change from reference	89.19	7.20	25.30	22.21	10.49	85.31	30.71	8.68	30.98	-78.97	4.54
GDP, % change from reference	2.50	0.17	0.55	4.01	1.63	4.31	1.41	0.68	2.73	-0.38	3.18
Employment (%)	0.40	0.68	0.12	1.94	0.04	0.39	0.03	0.07	0.05	0.67	3.94

Source: GEM-E3-MEDPRO.

Table 76. GDP and employment effects when only trade liberalisation is simulated in scenarios QII–QIII without changes in the public budget, cumulatively over 2015–30

	QII										
	Algeria	**Egypt**	**Israel**	**Jordan**	**Lebanon**	**Libya**	**Morocco**	**Syria**	**Tunisia**	**Turkey**	**Palestine**
GDP, bn$ absolute change from reference	60.18	29.47	8.66	8.44	6.71	48.81	21.39	5.65	32.46	41.56	2.44
GDP, % change from reference	1.68	0.68	0.19	1.52	1.05	2.47	0.98	0.44	2.86	0.20	1.71
Employment (%)	0.14	-0.02	0.02	0.73	-0.01	0.10	0.07	0.01	-0.17	0.02	0.78
	QIII										
GDP, bn$ absolute change from reference	88.40	3.17	24.14	25.81	8.25	85.12	29.79	6.22	29.18	-93.35	4.24
GDP, % change from reference	2.47	0.07	0.52	4.66	1.29	4.30	1.37	0.49	2.57	-0.45	2.97
Employment (%)	0.32	0.62	0.12	2.32	-0.04	0.40	-0.01	0.01	-0.10	0.62	2.92

Source: GEM-E3-MEDPRO.

Table 77. Sectoral employment when only changes in trade are simulated in scenarios QII–QIII

	Algeria		Egypt		Israel		Jordan		Lebanon		Libya		Morocco		Syria		Tunisia		Turkey		Palestine	
Employment, changes from QI, (%), cumulatively over 2015–30																								
	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII
Agriculture	-3.3	1.1	0.0	6.6	2.9	-0.5	13.2	-18.5	3.4	4.9	-3.2	-1.9	-2.3	-4.4	-1.1	-0.6	-9.0	-10.6	-1.1	26.2	-6.0	-8.8
Energy	-1.0	-2.5	1.1	-2.5	0.8	2.0	-4.6	6.8	-0.4	0.0	0.4	0.2	0.1	1.3	0.2	0.1	-1.0	0.7	-0.1	-3.8	-3.9	-4.7
Chemical products	22.8	7.0	3.0	-4.2	0.8	27.0	-14.9	186.8	20.0	29.6	46.9	80.4	0.8	32.2	8.8	16.2	-3.5	60.2	-1.3	-5.6	0.0	0.0
Other energy-intensive	-3.9	-9.6	1.3	-10.3	-1.0	0.3	-2.9	-2.7	9.8	10.1	0.0	-9.2	-2.2	-1.7	4.8	0.4	-10.3	-2.7	1.3	-9.9	3.0	-5.5
Electric goods – Other equipment goods	-6.5	-11.7	2.8	-20.0	-2.8	-7.6	7.8	-50.3	18.5	38.3	-25.0	-50.2	5.3	-5.7	3.1	-0.6	-8.3	-9.7	-1.3	-14.9	-0.2	-0.3
Transport equipment	2.2	4.3	-1.0	3.1	-3.9	-13.8	-11.8	-37.8	-11.2	-9.4	-4.4	-2.0	-4.3	-8.0	-1.3	-4.1	-11.5	-4.3	1.6	-12.8	-34.8	-46.3
Consumer goods industries – Food	4.3	10.4	-9.6	2.2	1.1	2.3	-1.6	-21.8	-9.8	-1.0	-3.2	-6.8	-1.7	-1.7	7.7	1.4	78.4	1.0	0.6	0.0	52.4	66.4
Consumer goods industries – Rest	-4.4	-0.5	-2.7	-12.1	-2.1	-8.3	252.6	288.1	11.8	13.2	-13.1	-12.0	-15.8	-7.9	1.0	10.8	-9.3	-2.2	0.0	-9.0	0.0	0.0
Textiles and clothing	7.6	1.4	-2.5	-19.4	59.5	59.5	59.5	-36.9	5.4	-6.2	-12.1	50.1	6.0	4.2	26.4	26.0	4.9	5.1	0.9	-11.9	-25.5	-32.0
Construction	0.4	0.5	0.1	-1.5	0.1	0.3	0.2	1.0	2.1	2.3	0.5	1.1	0.4	0.7	0.4	0.7	2.1	1.3	0.1	-1.2	6.1	9.0
Transport	0.1	-0.6	2.9	-7.9	-1.0	-2.3	-8.8	-25.1	1.1	0.0	-3.5	-9.6	0.7	-0.7	-1.7	-0.7	-7.5	-5.2	-0.6	-4.5	1.0	2.1
Communication	1.7	1.6	1.1	1.5	0.2	0.7	4.2	12.7	1.0	2.7	1.8	4.1	0.4	0.3	1.0	1.5	1.3	0.7	0.2	-0.2	-0.2	-0.3
Services	0.5	0.7	0.5	-2.5	-0.3	-0.9	-0.4	-1.1	-0.2	-1.0	0.1	0.1	0.6	0.4	-0.1	0.1	1.5	0.7	0.1	-0.3	1.5	2.2

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII

Algeria	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-8.3	-2.0	7.1	1.7
Energy	-36.6	-0.6	-106.6	-1.7
Chemical products	50.2	24.5	17.3	8.5
Other energy-intensive	-25.2	-3.1	-72.6	-8.8
Electric goods – Other equipment goods	-13.4	-5.9	-25.5	-11.3
Transport equipment	4.2	3.1	7.5	5.5
Consumer goods industries – Food	12.4	5.1	27.9	11.6
Consumer goods industries – Rest	-6.8	-3.6	0.9	0.5
Textiles and clothing	3.1	0.7	5.8	1.4
Construction	6.5	0.7	9.7	1.0
Transport	0.4	0.2	-0.9	-0.4
Communication	2.7	2.2	2.8	2.3
Services	17.8	0.8	24.8	1.2

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Egypt	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	3.4	0.5	147.5	23.2
Energy	54.7	1.3	-111.7	-2.6
Chemical products	10.9	3.4	-8.6	-2.7
Other energy-intensive	11.9	1.6	-70.1	-9.2
Electric goods – Other equipment goods	7.9	3.1	-47.4	-18.8
Transport equipment	-1.0	-0.5	11.8	6.3
Consumer goods industries – Food	-74.9	-9.3	32.4	4.0
Consumer goods industries – Rest	-2.7	-2.4	-11.2	-9.8
Textiles and clothing	-20.8	-2.4	-153.0	-17.7
Construction	3.6	0.4	3.8	0.4
Transport	23.0	3.2	-45.0	-6.2
Communication	4.3	1.1	9.2	2.4
Services	21.8	0.7	-30.7	-1.0

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Israel	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	5.0	2.6	0.5	0.3
Energy	3.4	0.7	12.2	2.6
Chemical products	3.1	0.9	92.5	27.8
Other energy-intensive	-3.5	-0.9	2.4	0.6
Electric goods – Other equipment goods	-20.8	-2.7	-55.3	-7.3
Transport equipment	-1.8	-3.8	-6.4	-13.7
Consumer goods industries – Food	3.0	1.3	6.0	2.7
Consumer goods industries – Rest	-0.5	-2.0	-1.8	-7.9
Textiles and clothing	35.9	61.1	36.2	61.6
Construction	1.0	0.2	3.4	0.7
Transport	-4.1	-0.8	-8.9	-1.8
Communication	0.6	0.2	2.1	0.8
Services	-11.3	-0.3	-28.4	-0.7

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Jordan	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	8.7	13.9	-9.9	-15.8
Energy	-16.1	-4.6	22.9	6.5
Chemical products	-7.4	-14.0	104.3	196.8
Other energy-intensive	-0.8	-1.9	0.1	0.2
Electric goods – Other equipment goods	2.9	9.3	-15.3	-48.4
Transport equipment	-0.3	-10.7	-1.0	-35.9
Consumer goods industries – Food	0.0	0.0	-13.6	-18.7
Consumer goods industries – Rest	0.6	261.0	0.7	305.5
Textiles and clothing	23.4	62.0	-13.1	-34.7
Construction	1.2	1.6	3.8	5.0
Transport	-2.7	-7.7	-8.0	-22.9
Communication	1.3	4.9	4.0	15.2
Services	-4.6	-0.5	-15.7	-1.8

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Lebanon	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	4.5	3.0	7.4	4.9
Energy	0.2	0.1	0.7	0.4
Chemical products	3.7	20.9	5.4	30.6
Other energy-intensive	6.2	10.7	6.5	11.2
Electric goods – Other equipment goods	7.5	19.6	15.2	40.0
Transport equipment	-1.1	-10.6	-0.9	-8.8
Consumer goods industries – Food	-19.9	-9.4	-1.4	-0.7
Consumer goods industries – Rest	1.3	13.2	1.4	14.1
Textiles and clothing	2.3	5.9	-2.4	-6.2
Construction	0.3	2.2	0.3	2.2
Transport	1.3	1.7	0.4	0.5
Communication	0.3	1.2	0.6	2.8
Services	1.7	0.2	-2.9	-0.4

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Libya	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-3.5	-1.8	-0.9	-0.4
Energy	14.7	0.3	-1.9	0.0
Chemical products	145.1	47.8	250.2	82.4
Other energy-intensive	0.7	0.3	-19.0	-8.8
Electric goods – Other equipment goods	-7.8	-25.3	-15.7	-50.8
Transport equipment	-0.1	-4.1	0.0	-0.8
Consumer goods industries – Food	-7.7	-3.1	-16.3	-6.5
Consumer goods industries – Rest	-4.1	-12.8	-3.7	-11.6
Textiles and clothing	-6.4	-11.2	30.9	54.5
Construction	3.2	0.8	6.3	1.7
Transport	-3.9	-3.6	-10.4	-9.6
Communication	0.4	1.8	0.9	4.2
Services	-2.5	-0.3	-10.7	-1.4

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Morocco	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-6.8	-1.5	-12.7	-2.9
Energy	-0.6	-0.2	6.1	2.0
Chemical products	4.6	1.3	113.6	33.1
Other energy-intensive	-8.4	-1.9	-6.5	-1.5
Electric goods – Other equipment goods	26.6	5.8	-25.0	-5.5
Transport equipment	-4.1	-3.5	-8.7	-7.5
Consumer goods industries – Food	-5.9	-1.2	-6.5	-1.3
Consumer goods industries – Rest	-6.5	-15.4	-3.3	-7.7
Textiles and clothing	25.4	6.8	17.7	4.7
Construction	3.1	0.8	3.4	0.9
Transport	2.9	0.9	-1.7	-0.5
Communication	0.2	0.5	0.1	0.4
Services	17.5	0.9	14.3	0.7

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Syria	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-2.4	-0.7	-1.6	-0.5
Energy	4.5	0.2	4.3	0.2
Chemical products	1.6	9.2	2.9	16.7
Other energy-intensive	2.7	5.2	0.5	0.9
Electric goods – Other equipment goods	1.9	3.5	-0.1	-0.2
Transport equipment	-0.9	-1.0	-3.5	-3.7
Consumer goods industries – Food	8.9	7.9	1.6	1.4
Consumer goods industries – Rest	0.0	1.3	0.3	11.1
Textiles and clothing	8.7	26.8	8.6	26.4
Construction	1.0	0.7	1.7	1.2
Transport	-1.4	-1.6	-0.5	-0.6
Communication	0.6	1.0	0.9	1.5
Services	0.0	0.0	2.0	0.3

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Tunisia	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	-4.6	-2.4	-16.6	-8.5
Energy	-15.4	-3.8	-8.2	-2.0
Chemical products	-4.5	-2.6	107.5	61.8
Other energy-intensive	-16.9	-9.6	-3.9	-2.2
Electric goods – Other equipment goods	-15.4	-7.8	-18.9	-9.5
Transport equipment	-5.8	-11.3	-2.1	-4.1
Consumer goods industries – Food	119.2	80.8	1.8	1.2
Consumer goods industries – Rest	-5.0	-9.7	-1.4	-2.8
Textiles and clothing	14.3	5.7	14.4	5.7
Construction	5.2	2.8	3.1	1.7
Transport	-11.3	-7.8	-8.2	-5.6
Communication	0.3	1.0	0.2	0.6
Services	18.7	2.2	7.3	0.9

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Turkey	Sectoral production, changes from QI, cumulatively over 2015–30			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-12.6	-0.8	373.4	22.7
Energy	-15.0	-0.9	-46.3	-2.8
Chemical products	-17.0	-1.1	-66.1	-4.4
Other energy-intensive	47.9	1.4	-298.6	-9.0
Electric goods – Other equipment goods	-30.5	-1.2	-351.5	-13.5
Transport equipment	24.1	1.8	-149.0	-11.3
Consumer goods industries – Food	18.3	0.7	55.1	2.2
Consumer goods industries – Rest	0.6	0.2	-18.8	-6.5
Textiles and clothing	20.9	1.1	-188.4	-9.6
Construction	7.2	0.2	3.3	0.1
Transport	-24.9	-0.6	-82.9	-1.9
Communication	1.4	0.2	5.0	0.8
Services	31.4	0.2	67.3	0.4

Source: GEM-E3-MEDPRO.

Table 78. Sectoral production when only changes in trade are simulated in scenarios QII–QIII (cont'd)

Palestine	Sectoral production, changes from QI, cumulatively over 2015–30			
	Trade			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-5.7	-8.6	-7.2	-10.9
Energy	-1.3	-6.9	-1.6	-8.3
Chemical products	0.0	23.1	0.0	23.1
Other energy-intensive	0.1	4.3	-0.1	-3.9
Electric goods – Other equipment goods	0.0	-0.3	0.0	-0.2
Transport equipment	-1.5	-34.6	-2.0	-45.9
Consumer goods industries – Food	14.2	51.1	18.2	65.4
Consumer goods industries – Rest	0.0	0.0	0.0	0.0
Textiles and clothing	-0.6	-26.5	-0.7	-32.9
Construction	2.7	3.7	4.2	5.7
Transport	0.2	2.6	0.3	4.1
Communication	0.0	-0.7	0.0	-1.0
Services	2.2	1.6	3.8	2.8

Source: GEM-E3-MEDPRO.

Table 79. Sectoral employment when only changes in infrastructure are simulated in scenarios QII–QIII

Employment, changes from QI, (%), cumulatively over 2015–30

	Algeria		Egypt		Israel		Jordan		Lebanon		Libya		Morocco		Syria		Tunisia		Turkey	
	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII	QII	QIII
Agriculture	0.1	0.0	-2.3	-2.1	-0.4	-0.1	1.0	0.8	-0.5	-0.4	-3.0	-0.8	-1.5	-0.8	-0.8	-0.7	-1.2	-0.7	-1.3	-0.7
Energy	-1.5	-0.6	-0.3	-0.3	-0.2	-0.1	-1.2	-1.0	0.2	0.1	-0.5	0.2	0.4	0.2	-0.1	-0.1	-0.5	-0.3	-0.1	0.0
Chemical products	18.7	6.7	3.0	3.2	0.7	0.5	2.0	1.5	2.0	1.1	13.5	0.4	1.1	0.4	4.8	4.2	2.0	1.0	0.6	0.3
Other energy-intensive	5.0	1.8	2.2	2.5	0.8	0.5	2.7	2.3	4.9	2.7	7.8	0.5	0.9	0.5	2.4	2.6	1.2	0.7	1.2	0.7
Electric goods – Other equipment goods	20.5	8.1	16.4	18.2	1.5	1.3	8.0	7.5	9.2	6.9	20.8	2.7	4.2	2.7	8.4	9.6	6.6	3.7	2.4	2.0
Transport equipment	11.3	4.3	8.2	8.6	0.0	0.2	4.1	3.4	3.8	2.3	43.0	2.0	3.8	2.0	-0.2	0.2	3.6	2.0	1.7	1.1
Consumer goods industries – Food	3.9	1.5	-0.3	-0.2	-0.4	-0.2	1.8	1.4	0.0	-0.1	-0.8	-0.3	-0.5	-0.3	1.4	1.8	-0.7	-0.5	-1.3	-0.7
Consumer goods industries – Rest	1.1	0.4	3.6	3.9	1.1	0.8	0.0	0.0	6.8	4.3	6.6	-0.2	-0.4	-0.2	3.3	3.8	-0.4	-0.2	1.9	1.3
Textiles and clothing	0.4	0.1	0.6	0.7	-0.2	0.0	1.9	1.8	4.6	2.8	6.8	-0.1	-0.2	-0.1	3.8	4.0	0.9	0.6	0.6	0.6
Construction	1.5	0.6	4.6	4.6	1.4	0.6	5.8	4.8	30.2	21.0	2.5	2.5	4.7	2.5	3.4	3.7	3.6	2.0	2.4	1.3
Transport	-1.9	-0.7	-0.8	-0.5	-0.1	0.0	-0.6	-0.4	0.1	0.0	-1.9	-1.2	-2.2	-1.2	-1.3	-1.3	-3.3	-1.8	-1.1	-0.6
Communication	9.3	3.6	2.3	1.7	0.7	0.0	3.1	1.7	4.1	1.8	28.9	6.8	14.3	6.8	2.3	2.0	10.2	5.5	6.0	2.8
Services	0.1	0.1	-0.6	-0.7	-0.4	-0.2	-0.9	-0.8	-0.7	-0.4	-2.6	-0.3	-0.6	-0.3	-0.5	-0.7	-0.2	-0.1	-0.4	-0.2

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII

Algeria	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	17.9	4.2	6.8	1.6
Energy	-36.6	-0.6	-14.0	-0.2
Chemical products	51.4	25.1	18.2	8.9
Other energy-intensive	83.6	10.2	30.8	3.7
Electric goods – Other equipment goods	61.0	27.0	23.5	10.4
Transport equipment	23.6	17.2	8.8	6.4
Consumer goods industries – Food	22.5	9.3	8.4	3.5
Consumer goods industries – Rest	11.7	6.3	4.5	2.4
Textiles and clothing	2.3	5.9	7.2	1.8
Construction	54.9	5.7	21.1	2.2
Transport	4.9	2.0	1.9	0.8
Communication	18.2	15.0	6.9	5.7
Services	95.9	4.5	37.4	1.7

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Egypt	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	10.7	1.7	10.6	1.7
Energy	-40.0	-0.9	-38.8	-0.9
Chemical products	23.9	7.5	23.9	7.5
Other energy-intensive	48.4	6.4	49.6	6.5
Electric goods – Other equipment goods	54.1	21.4	58.0	23.0
Transport equipment	24.2	13.0	24.5	13.1
Consumer goods industries – Food	28.7	3.6	27.8	3.5
Consumer goods industries – Rest	8.6	7.5	8.6	7.6
Textiles and clothing	37.6	4.3	36.4	4.2
Construction	79.2	8.6	77.0	8.3
Transport	21.5	3.0	22.2	3.1
Communication	22.9	6.0	19.9	5.2
Services	94.6	3.0	83.7	2.7

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Israel	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	0.0	0.0	0.2	0.1
Energy	0.6	0.1	0.7	0.1
Chemical products	4.2	1.3	2.8	0.8
Other energy-intensive	5.3	1.4	3.3	0.9
Electric goods – Other equipment goods	15.8	2.1	12.5	1.7
Transport equipment	0.2	0.5	0.2	0.5
Consumer goods industries – Food	0.4	0.2	0.4	0.2
Consumer goods industries – Rest	0.4	1.7	0.3	1.2
Textiles and clothing	0.2	0.3	0.2	0.3
Construction	10.4	2.0	4.8	0.9
Transport	2.4	0.5	1.8	0.4
Communication	3.3	1.3	1.0	0.4
Services	4.0	0.1	1.9	0.0

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Jordan	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	1.9	3.0	1.5	2.3
Energy	-4.0	-1.1	-3.2	-0.9
Chemical products	2.2	4.2	1.7	3.2
Other energy-intensive	2.1	4.9	1.7	4.0
Electric goods – Other equipment goods	3.3	10.4	3.0	9.4
Transport equipment	0.2	6.4	0.1	5.2
Consumer goods industries – Food	3.0	4.1	2.4	3.3
Consumer goods industries – Rest	0.0	3.0	0.0	2.7
Textiles and clothing	1.5	4.0	1.3	3.5
Construction	6.1	8.1	5.0	6.5
Transport	0.5	1.4	0.4	1.1
Communication	1.4	5.2	0.9	3.4
Services	10.5	1.2	7.7	0.9

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Lebanon	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	2.6	1.7	1.4	0.9
Energy	0.9	0.6	0.6	0.3
Chemical products	0.8	4.6	0.5	2.6
Other energy-intensive	4.5	7.8	2.5	4.4
Electric goods – Other equipment goods	4.7	12.3	3.3	8.7
Transport equipment	0.6	6.4	0.4	3.8
Consumer goods industries – Food	5.4	2.5	2.9	1.4
Consumer goods industries – Rest	1.0	10.2	0.6	6.3
Textiles and clothing	2.9	7.6	1.7	4.6
Construction	4.4	32.9	3.0	22.5
Transport	2.0	2.5	1.1	1.4
Communication	1.4	6.5	0.7	3.1
Services	9.7	1.3	5.4	0.7

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Libya	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	6.4	3.2	5.0	2.5
Energy	-26.6	-0.6	-17.6	-0.4
Chemical products	71.2	23.5	53.1	17.5
Other energy-intensive	34.8	16.2	26.8	12.5
Electric goods – Other equipment goods	8.9	28.9	6.3	20.3
Transport equipment	1.9	55.0	1.4	38.9
Consumer goods industries – Food	15.7	6.3	12.0	4.8
Consumer goods industries – Rest	4.5	13.9	3.3	10.3
Textiles and clothing	8.3	14.6	6.2	10.9
Construction	36.1	9.5	27.9	7.4
Transport	4.7	4.3	3.4	3.2
Communication	7.9	37.4	6.1	28.9
Services	36.6	4.6	26.9	3.4

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Morocco	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	5.0	1.1	2.6	0.6
Energy	2.3	0.7	1.3	0.4
Chemical products	14.7	4.3	7.3	2.1
Other energy-intensive	17.2	3.8	9.1	2.0
Electric goods – Other equipment goods	34.6	7.6	20.2	4.4
Transport equipment	8.4	7.2	4.4	3.8
Consumer goods industries – Food	11.7	2.4	6.1	1.3
Consumer goods industries – Rest	1.0	2.4	0.6	1.3
Textiles and clothing	10.1	2.7	5.6	1.5
Construction	27.8	7.6	14.7	4.0
Transport	1.3	0.4	0.7	0.2
Communication	7.2	17.4	3.5	8.4
Services	42.8	2.1	22.3	1.1

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Syria	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		QIII	
	(bn US$)	(%)	(bn US$)	(%)
Agriculture	4.9	1.5	5.8	1.8
Energy	-1.2	-0.1	-1.1	-0.1
Chemical products	1.3	7.4	1.2	6.9
Other energy-intensive	2.5	4.8	2.7	5.2
Electric goods – Other equipment goods	6.1	11.0	6.8	12.4
Transport equipment	2.1	2.3	2.7	2.9
Consumer goods industries – Food	4.6	4.0	5.2	4.6
Consumer goods industries – Rest	0.2	5.6	0.2	6.3
Textiles and clothing	2.1	6.3	2.1	6.5
Construction	8.3	5.8	9.0	6.3
Transport	0.7	0.8	1.0	1.1
Communication	2.8	4.6	2.7	4.5
Services	14.2	1.9	14.0	1.8

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Tunisia	**Sectoral production, changes from QI, cumulatively over 2015–30**			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	2.3	1.2	1.2	0.6
Energy	-5.8	-1.4	-3.3	-0.8
Chemical products	9.2	5.3	4.8	2.8
Other energy-intensive	7.4	4.2	4.1	2.3
Electric goods – Other equipment goods	20.4	10.3	11.2	5.6
Transport equipment	3.6	7.0	2.0	3.8
Consumer goods industries – Food	3.4	2.3	1.7	1.2
Consumer goods industries – Rest	1.3	2.5	0.7	1.4
Textiles and clothing	10.5	4.2	5.9	2.3
Construction	12.2	6.5	6.7	3.6
Transport	-1.1	-0.8	-0.7	-0.5
Communication	3.5	13.0	1.9	6.9
Services	20.4	2.4	11.0	1.3

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Turkey	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	0.3	0.0	0.6	0.0
Energy	-12.5	-0.7	-8.2	-0.5
Chemical products	35.5	2.4	19.6	1.3
Other energy-intensive	96.2	2.9	57.2	1.7
Electric goods – Other equipment goods	108.1	4.2	77.7	3.0
Transport equipment	47.1	3.6	28.6	2.2
Consumer goods industries – Food	4.7	0.2	3.4	0.1
Consumer goods industries – Rest	10.9	3.8	6.9	2.4
Textiles and clothing	48.9	2.5	32.0	1.6
Construction	143.3	4.0	79.9	2.2
Transport	15.2	0.3	11.0	0.2
Communication	44.4	7.5	21.5	3.6
Services	137.1	0.9	76.6	0.5

Source: GEM-E3-MEDPRO.

Table 80. Sectoral production when only changes in infrastructure are simulated in scenarios QII–QIII (cont'd)

Palestine	Sectoral production, changes from QI, cumulatively over 2015–30			
	All infrastructure			
	QII		**QIII**	
	(bn US$)	**(%)**	**(bn US$)**	**(%)**
Agriculture	0.0	0.0	0.0	0.0
Energy	0.0	0.0	0.0	0.0
Chemical products	0.0	0.0	0.0	0.0
Other energy-intensive	0.0	-0.3	0.0	-0.2
Electric goods – Other equipment goods	0.0	-0.3	0.0	-0.2
Transport equipment	0.0	0.0	0.0	0.0
Consumer goods industries – Food	-0.1	-0.2	0.0	-0.1
Consumer goods industries – Rest	0.0	0.0	0.0	0.0
Textiles and clothing	0.0	-0.2	0.0	-0.1
Construction	0.0	0.0	0.0	0.0
Transport	0.0	-0.1	0.0	0.0
Communication	0.0	0.0	0.0	0.0
Services	0.0	0.0	0.0	0.0

Source: GEM-E3-MEDPRO.

Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30

Algeria	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	16.77	598.83	6.97	8.71	311.16	2.70
Infrastructure	6.37	227.56	0.33	2.34	83.43	0.14
Trade liberalisation	1.77	63.36	0.26	2.50	89.19	0.40
Population	1.58	56.60	3.76	0.35	12.58	0.82
Risk premium	4.63	165.37	2.36	2.54	90.61	1.31

Source: GEM-E3-MEDPRO.

Egypt	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	9.99	431.69	1.10	7.73	334.04	1.15
Infrastructure	5.96	257.58	0.00	5.75	248.53	-0.02
Trade liberalisation	0.80	34.35	0.07	0.17	7.20	0.68
Population	0.23	9.79	0.47	0.10	4.49	0.22
Risk premium	2.67	115.24	0.57	1.52	65.53	0.33

Source: GEM-E3-MEDPRO.

Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30 (cont'd)

Israel	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	2.01	92.26	0.87	2.30	105.59	1.41
Infrastructure	0.89	40.96	0.04	0.55	25.28	0.03
Trade liberalisation	0.20	9.30	0.03	0.55	25.30	0.12
Population	0.53	24.15	0.67	0.95	43.53	1.18
Risk premium	0.40	18.19	0.13	0.24	10.87	0.08

Source: GEM-E3-MEDPRO.

Jordan	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	8.15	45.11	3.96	8.17	45.25	2.91
Infrastructure	3.43	18.96	0.09	2.68	14.85	0.05
Trade liberalisation	1.65	9.12	0.82	4.01	22.21	1.94
Population	0.97	5.39	2.25	0.24	1.33	0.54
Risk premium	1.79	9.90	0.73	1.04	5.75	0.43

Source: GEM-E3-MEDPRO.

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Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30 (cont'd)

Lebanon	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	9.45	60.67	1.55	7.11	45.62	2.23
Infrastructure	3.58	22.98	0.02	2.12	13.57	0.00
Trade liberalisation	1.60	10.28	0.11	1.63	10.49	0.04
Population	0.39	2.50	0.59	1.11	7.10	1.69
Risk premium	3.47	22.25	0.83	1.92	12.33	0.47

Source: GEM-E3-MEDPRO.

Libya	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	16.26	321.73	1.84	13.83	273.75	0.88
Infrastructure	7.08	140.14	-0.18	5.32	105.37	-0.15
Trade liberalisation	2.54	50.26	0.14	4.31	85.31	0.39
Population	0.11	2.15	0.42	-0.04	-0.83	-0.16
Risk premium	4.61	91.33	1.40	2.56	50.62	0.79

Source: GEM-E3-MEDPRO.

Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30 (cont'd)

Morocco	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	9.14	198.67	1.91	5.57	121.12	0.77
Infrastructure	4.92	106.84	0.03	2.60	56.50	0.02
Trade liberalisation	1.11	24.16	0.16	1.41	30.71	0.03
Population	0.69	15.05	1.06	0.23	4.97	0.35
Risk premium	2.17	47.12	0.66	1.23	26.73	0.38

Source: GEM-E3-MEDPRO.

Syria	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	5.66	72.38	2.51	4.52	57.82	0.75
Infrastructure	2.60	33.27	0.02	2.83	36.17	0.01
Trade liberalisation	0.57	7.25	0.05	0.68	8.68	0.07
Population	1.14	14.55	1.93	0.24	3.01	0.39
Risk premium	1.18	15.10	0.47	0.69	8.84	0.28

Source: GEM-E3-MEDPRO.

Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30 (cont'd)

Tunisia	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	13.02	147.55	2.32	7.74	87.72	0.91
Infrastructure	4.59	52.07	0.13	2.47	28.05	0.08
Trade liberalisation	3.20	36.28	0.14	2.73	30.98	0.05
Population	0.75	8.51	1.18	0.18	2.09	0.29
Risk premium	3.76	42.61	0.87	2.09	23.65	0.49

Source: GEM-E3-MEDPRO.

Turkey	QII			QIII		
	Cumulative GDP		Employment	Cumulative GDP		Employment
	(%)	(bn US$)	(%)	(%)	in bn US$	(%)
All measures	4.36	908.54	1.04	2.45	509.29	1.22
Infrastructure	2.13	444.06	-0.01	1.26	262.14	-0.01
Trade liberalisation	0.21	43.14	0.03	-0.38	-78.97	0.67
Population	0.29	61.35	0.52	0.11	23.51	0.20
Risk premium	1.66	345.77	0.50	1.43	296.69	0.42

Source: GEM-E3-MEDPRO.

Table 81. GDP and employment impacts of all structural changes in the SEMC in scenarios QII–QIII, changes from QI scenario, cumulatively over 2015–30 (cont'd)

Palestine	QII			QIII		
	Cumulative GDP		**Employment**	**Cumulative GDP**		**Employment**
	(%)	**(bn US$)**	**(%)**	**(%)**	**in bn US$**	**(%)**
All measures	12.72	18.18	9.47	9.60	13.73	8.10
Infrastructure	0.01	0.01	0.02	0.01	0.01	0.01
Trade liberalisation	2.80	4.00	2.77	3.18	4.54	3.94
Population	0.08	0.12	0.33	0.05	0.08	0.13
Risk premium	10.22	15.60	6.57	7.76	11.84	4.82

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV

Algeria	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	36.08	8.53	24.78	5.86	-41.64	-9.84
Energy	71.61	1.11	-71.47	-1.11	-320.98	-4.97
Chemical products	129.40	63.24	38.88	19.00	-88.27	-43.14
Other energy-intensive	127.68	15.52	-19.63	-2.39	-127.32	-15.47
Electric goods – Other equipment goods	78.32	34.64	6.88	3.04	-61.94	-27.40
Transport equipment	55.14	40.12	28.59	20.80	-32.23	-23.45
Consumer goods industries – Food	56.52	23.41	46.86	19.41	-39.38	-16.31
Consumer goods industries – Rest	20.08	10.69	12.13	6.45	-24.40	-12.98
Textiles and clothing	76.21	13.84	57.86	11.75	-16.72	-4.10
Construction	241.95	25.32	123.39	12.91	-68.32	-7.15
Transport	17.84	7.41	5.92	2.46	-33.28	-13.82
Communication	29.10	24.01	13.37	11.04	-17.14	-14.14
Services	218.20	10.16	106.74	4.97	-181.35	-8.44

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Egypt	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	20.53	3.23	158.47	24.95	-30.87	-4.86
Energy	171.47	4.00	-59.09	-1.38	-403.88	-9.42
Chemical products	47.31	14.82	22.19	6.95	-59.47	-18.63
Other energy-intensive	104.14	13.69	-0.58	-0.08	-67.94	-8.93
Electric goods – Other equipment goods	73.25	29.04	4.33	1.72	-53.12	-21.06
Transport equipment	34.84	18.66	49.60	26.56	-38.09	-20.40
Consumer goods industries – Food	-33.90	-4.22	78.17	9.74	-63.56	-7.92
Consumer goods industries – Rest	12.63	11.10	0.46	0.40	-11.89	-10.45
Textiles and clothing	12.64	1.46	-111.21	-12.85	-78.64	-9.09
Construction	180.14	19.53	134.70	14.60	-87.73	-9.51
Transport	55.83	7.68	-17.71	-2.44	-122.54	-16.85
Communication	43.94	11.53	38.04	9.98	-39.88	-10.47
Services	176.62	5.69	86.85	2.80	-194.04	-6.25

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Israel	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	9.33	4.74	3.50	1.77	-4.42	-2.24
Energy	7.99	1.71	17.63	3.76	-65.00	-13.87
Chemical products	9.16	2.75	102.94	30.91	-81.73	-24.53
Other energy-intensive	6.14	1.63	13.40	3.55	-56.97	-15.11
Electric goods – Other equipment goods	-1.64	-0.22	-27.94	-3.68	-256.12	-33.76
Transport equipment	-1.24	-2.64	-5.12	-10.92	-7.08	-15.10
Consumer goods industries – Food	8.94	4.02	10.72	4.82	-9.75	-4.39
Consumer goods industries – Rest	0.29	1.25	-1.05	-4.48	-4.07	-17.41
Textiles and clothing	36.73	62.54	39.09	66.55	-7.38	-12.60
Construction	24.43	4.70	17.08	3.29	-95.08	-18.29
Transport	1.95	0.40	-2.78	-0.57	-58.99	-12.17
Communication	6.23	2.48	5.94	2.36	-35.28	-14.04
Services	20.39	0.48	8.48	0.20	-424.81	-9.96

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Jordan	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	13.04	20.86	-8.29	-13.26	-6.77	-10.84
Energy	-12.12	-3.42	26.04	7.36	-44.80	-12.66
Chemical products	-4.99	-9.41	109.66	206.87	-10.92	-20.60
Other energy-intensive	2.45	5.82	2.04	4.86	-2.61	-6.22
Electric goods – Other equipment goods	7.79	24.74	-13.68	-43.43	-6.93	-21.99
Transport equipment	-0.06	-2.22	-0.91	-32.73	-0.07	-2.61
Consumer goods industries – Food	5.06	6.95	-11.25	-15.46	-13.14	-18.04
Consumer goods industries – Rest	0.60	281.29	0.68	320.07	-0.02	-10.44
Textiles and clothing	26.04	69.08	-12.05	-31.97	-2.32	-6.16
Construction	10.96	14.42	10.61	13.96	-10.71	-14.09
Transport	-1.66	-4.75	-7.48	-21.36	-5.66	-16.17
Communication	3.47	13.23	5.25	20.03	-4.43	-16.89
Services	31.22	3.66	3.39	0.40	-96.37	-11.31

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Lebanon	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	15.39	10.13	15.07	9.92	-15.84	-10.43
Energy	6.18	3.64	5.67	3.34	-12.36	-7.27
Chemical products	4.78	26.99	6.64	37.49	-4.89	-27.61
Other energy-intensive	13.68	23.75	11.49	19.94	-13.54	-23.51
Electric goods – Other equipment goods	16.03	42.10	22.14	58.15	-10.70	-28.11
Transport equipment	-0.70	-6.83	-0.49	-4.80	-0.66	-6.44
Consumer goods industries – Food	1.85	0.87	12.97	6.10	-22.11	-10.40
Consumer goods industries – Rest	3.15	32.60	2.46	25.53	-3.30	-34.24
Textiles and clothing	6.93	18.20	0.41	1.07	-11.82	-31.05
Construction	6.10	45.88	4.11	30.89	-1.33	-10.02
Transport	2.99	3.80	2.31	2.93	-13.74	-17.48
Communication	2.44	11.02	1.85	8.36	-1.93	-8.73
Services	36.33	5.00	23.63	3.25	-65.23	-8.97

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Libya	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	13.94	7.01	9.75	4.90	-22.25	-11.19
Energy	115.25	2.41	43.15	0.90	-280.17	-5.86
Chemical products	316.00	104.12	385.67	127.08	-129.20	-42.57
Other energy-intensive	57.83	26.88	12.92	6.01	-50.89	-23.65
Electric goods – Other equipment goods	1.21	3.91	-12.66	-41.05	-12.39	-40.16
Transport equipment	1.93	55.05	1.14	32.46	-2.47	-70.27
Consumer goods industries – Food	24.49	9.84	4.25	1.71	-40.27	-16.18
Consumer goods industries – Rest	3.68	11.42	1.20	3.72	-5.89	-18.28
Textiles and clothing	9.90	17.44	54.40	95.81	-14.12	-24.87
Construction	76.39	20.14	54.55	14.38	-28.19	-7.43
Transport	8.76	8.07	-4.16	-3.83	-23.83	-21.95
Communication	9.44	44.68	7.71	36.47	-1.57	-7.45
Services	68.78	8.70	32.54	4.12	-74.23	-9.39

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Morocco	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	7.65	1.72	-5.61	-1.26	-29.03	-6.52
Energy	9.95	3.22	11.89	3.85	-27.52	-8.92
Chemical products	26.46	7.70	127.64	37.15	-51.71	-15.05
Other energy-intensive	26.83	5.99	12.07	2.70	-40.38	-9.02
Electric goods – Other equipment goods	83.13	18.27	3.00	0.66	-107.29	-23.57
Transport equipment	8.40	7.17	-2.38	-2.03	-17.51	-14.95
Consumer goods industries – Food	15.24	3.16	4.31	0.89	-51.61	-10.69
Consumer goods industries – Rest	-4.53	-10.69	-2.07	-4.87	-1.53	-3.61
Textiles and clothing	29.05	7.77	17.90	4.79	-69.97	-18.71
Construction	75.65	20.71	42.52	11.64	-35.22	-9.64
Transport	9.11	2.86	1.19	0.37	-22.26	-6.98
Communication	8.32	19.98	4.05	9.72	-1.88	-4.50
Services	104.21	5.08	58.31	2.84	-115.77	-5.64

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Syria	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	12.92	3.91	7.61	2.30	-24.23	-7.34
Energy	29.88	1.52	13.36	0.68	-104.83	-5.33
Chemical products	3.54	20.19	4.50	25.66	-6.88	-39.22
Other energy-intensive	7.31	14.11	4.23	8.16	-8.30	-16.01
Electric goods – Other equipment goods	10.42	18.90	7.18	13.03	-10.15	-18.41
Transport equipment	5.75	6.14	1.04	1.11	-9.44	-10.08
Consumer goods industries – Food	18.00	15.81	8.22	7.22	-11.90	-10.45
Consumer goods industries – Rest	0.30	10.66	0.55	19.72	-0.47	-16.90
Textiles and clothing	12.30	37.78	12.27	37.69	-13.34	-40.97
Construction	15.82	11.14	13.99	9.85	-16.32	-11.49
Transport	1.02	1.16	0.31	0.35	-9.74	-11.03
Communication	4.91	8.14	4.19	6.95	-6.77	-11.24
Services	30.29	3.95	22.97	2.99	-74.53	-9.71

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Tunisia	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	2.13	1.09	-13.64	-7.01	-7.01	-3.60
Energy	-2.54	-0.62	-1.83	-0.44	-24.68	-6.00
Chemical products	11.41	6.56	119.84	68.90	-40.61	-23.35
Other energy-intensive	3.23	1.82	7.59	4.28	-21.32	-12.01
Electric goods – Other equipment goods	10.11	5.10	-6.62	-3.34	-67.30	-33.98
Transport equipment	1.30	2.53	1.78	3.46	-9.71	-18.86
Consumer goods industries – Food	136.45	92.50	6.06	4.11	-13.28	-9.00
Consumer goods industries – Rest	1.01	1.99	2.00	3.93	-4.24	-8.34
Textiles and clothing	36.13	14.40	24.60	9.80	-66.80	-26.62
Construction	50.66	27.19	27.27	14.64	-19.64	-10.54
Transport	-7.92	-5.46	-7.01	-4.83	-8.05	-5.54
Communication	4.95	18.24	2.60	9.58	-1.72	-6.34
Services	68.80	8.04	32.50	3.80	-72.06	-8.43

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Turkey	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	-3.63	-0.22	351.14	21.39	-59.08	-3.60
Energy	-3.53	-0.21	-37.95	-2.27	-188.31	-11.28
Chemical products	24.98	1.67	-36.86	-2.46	-166.45	-11.13
Other energy-intensive	215.60	6.48	-179.50	-5.39	-337.52	-10.14
Electric goods – Other equipment goods	133.99	5.16	-231.15	-8.90	-395.70	-15.24
Transport equipment	76.45	5.78	-108.61	-8.21	-232.61	-17.59
Consumer goods industries – Food	52.68	2.08	84.03	3.31	-174.39	-6.87
Consumer goods industries – Rest	14.85	5.15	-8.39	-2.91	-41.85	-14.52
Textiles and clothing	32.44	1.65	-172.80	-8.77	-345.28	-17.53
Construction	413.52	11.57	303.99	8.51	-538.32	-15.06
Transport	93.55	2.12	14.66	0.33	-507.20	-11.48
Communication	60.51	10.20	38.60	6.51	-47.92	-8.08
Services	430.64	2.80	349.74	2.27	-1186.91	-7.72

Source: GEM-E3-MEDPRO.

Table 82. Changes in sectoral production in the SEMC in the alternative scenarios QII–QIV (cont'd)

Palestine	Sectoral production, changes from QI, cumulatively over 2015–30					
	QII		QIII		QIV	
	(bn US$)	(%)	(bn US$)	(%)	(bn US$)	(%)
Agriculture	3.97	5.97	-1.36	-2.04	4.35	7.18
Energy	0.27	1.40	-0.55	-2.80	0.28	1.35
Chemical products	0.00	23.08	0.00	23.08	0.00	-76.92
Other energy-intensive	0.18	7.20	-0.02	-0.92	-1.31	-56.73
Electric goods – Other equipment goods	0.25	5.61	0.21	4.79	-2.65	-56.56
Transport equipment	-1.54	-35.36	-2.01	-46.11	-1.93	-45.54
Consumer goods industries – Food	7.20	25.88	13.44	48.29	-18.00	-71.09
Consumer goods industries – Rest	0.00	0.00	0.00	0.00	0.00	0.00
Textiles and clothing	-0.55	-25.58	-0.69	-32.20	-1.00	-52.78
Construction	15.87	21.54	12.92	17.53	7.47	10.40
Transport	0.56	6.66	0.60	7.16	-3.34	-34.93
Communication	0.05	8.70	0.03	5.09	0.05	8.00
Services	15.44	11.43	12.78	9.46	-0.56	-0.34

Source: GEM-E3-MEDPRO.

Table 83. Sectoral employment in scenarios QII–QIV

Employment, changes from QI (%), cumulatively over 2015–30										
QII										
	Algeria	**Egypt**	**Israel**	**Jordan**	**Lebanon**	**Libya**	**Morocco**	**Syria**	**Tunisia**	**Turkey**	**Palestine**
Agriculture	1.9	-2.6	4.4	18.0	5.9	-3.6	-2.4	1.1	-9.4	-2.7	4.5
Energy	0.5	4.0	1.5	-3.4	2.2	2.4	2.9	1.3	2.5	0.9	1.7
Chemical products	51.0	8.0	2.0	-12.1	20.8	80.9	3.1	16.9	0.8	-1.1	0.0
Other energy-intensive	8.1	7.6	0.9	2.7	17.4	14.1	1.9	11.0	-3.3	3.6	1.9
Electric goods – Other equipment goods	26.0	20.2	-0.9	20.5	32.0	-7.5	12.6	15.8	-1.1	1.5	0.7
Transport equipment	30.3	9.6	-3.1	-5.2	-10.9	35.0	2.0	3.2	-3.8	1.9	-37.8
Consumer goods industries – Food	14.5	-10.1	3.2	3.2	-5.4	-3.2	-1.6	12.8	78.7	-1.3	20.5
Consumer goods industries – Rest	2.3	2.6	0.4	266.5	17.2	-5.1	-14.7	7.6	-5.9	0.4	0.0
Textiles and clothing	1.9	-5.7	60.0	63.8	8.1	-0.9	2.5	33.6	5.4	-2.7	-28.5
Construction	18.6	12.1	3.9	10.8	37.2	6.9	15.5	8.0	20.5	8.6	20.1
Transport	1.5	0.9	-0.4	-7.3	-2.5	-4.2	-1.3	-1.0	-10.2	-1.8	0.4
Communication	16.2	6.1	1.8	10.2	7.0	32.1	15.9	5.7	13.9	7.6	7.4
Services	3.5	0.9	-0.1	1.7	0.4	-4.9	1.4	1.3	2.3	0.5	4.3

Source: GEM-E3-MEDPRO.

Table 83. Sectoral employment in scenarios QII–QIV (cont'd)

	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	Syria	Tunisia	Turkey	Palestine
QIII											
Agriculture	2.3	22.5	0.8	-17.5	7.8	-3.3	-4.6	-0.6	-11.1	22.6	-2.6
Energy	-2.4	-1.0	3.1	7.5	2.7	1.0	2.7	0.5	2.4	-3.0	-0.7
Chemical products	13.8	0.4	29.7	190.8	33.6	106.6	33.3	21.8	62.7	-5.5	0.0
Other energy-intensive	-6.1	-5.5	2.9	0.0	16.2	-2.0	0.3	4.7	1.2	-8.1	-5.1
Electric goods – Other equipment goods	-0.4	-5.0	-4.4	-46.5	51.8	-45.0	-2.0	9.5	-6.6	-12.7	1.3
Transport equipment	15.2	15.7	-11.4	-36.0	-7.2	18.7	-4.7	-2.1	-0.4	-12.2	-47.7
Consumer goods industries – Food	13.5	2.6	4.1	-20.4	2.9	-7.4	-1.9	3.9	0.2	-1.3	43.9
Consumer goods industries – Rest	0.6	-7.4	-5.2	293.0	19.1	-7.7	-7.2	15.7	-0.9	-8.8	0.0
Textiles and clothing	1.9	-19.1	63.8	-35.7	-2.5	69.0	1.7	32.5	4.2	-14.1	-33.9
Construction	8.9	7.1	2.8	7.4	27.7	4.7	8.9	6.0	11.0	5.1	17.8
Transport	-1.5	-8.7	-1.1	-25.3	-0.1	-11.9	-2.0	-2.2	-7.6	-5.2	1.9
Communication	7.0	4.6	1.9	15.3	6.4	27.5	7.6	4.2	7.2	3.6	4.5
Services	1.1	-2.6	-0.2	-0.9	0.6	-4.1	0.7	0.0	0.9	-0.1	4.1

Source: GEM-E3-MEDPRO.

Table 83. Sectoral employment in scenarios QII–QIV (cont'd)

	Algeria	Egypt	Israel	Jordan	Lebanon	Libya	Morocco	Syria	Tunisia	Turkey	Palestine
					QIV						
Agriculture	2.7	3.2	0.6	4.2	-1.1	-3.4	2.6	1.8	5.1	2.7	-2.1
Energy	-0.9	-2.2	-4.8	-3.6	-3.1	-1.1	-0.8	-1.6	-1.8	-0.9	12.7
Chemical products	5.0	0.9	-9.3	-1.6	-9.0	-19.7	-1.3	-5.5	-7.2	5.0	-44.1
Other energy-intensive	1.0	0.6	-4.1	6.0	-2.4	-7.5	0.4	1.7	-2.1	1.0	-35.1
Electric goods – Other equipment goods	2.1	3.0	-15.2	-0.6	-3.1	-4.4	-6.2	0.1	-11.5	2.1	-25.7
Transport equipment	0.4	-0.2	-8.1	13.5	8.6	-33.6	0.5	-1.7	-1.2	0.4	-19.6
Consumer goods industries – Food	1.3	1.0	1.3	-0.8	-0.1	-4.1	-0.7	4.8	0.2	1.3	-48.3
Consumer goods industries – Rest	3.2	1.7	-4.3	-1.1	-10.4	-7.5	4.4	-1.5	-1.0	3.2	-40.0
Textiles and clothing	2.5	0.6	-0.5	7.8	-7.6	-6.4	-3.9	-19.9	-9.6	2.5	-33.3
Construction	-7.3	-3.9	-12.7	-6.1	-5.3	-4.9	-3.7	-4.1	-4.6	-7.3	3.4
Transport	0.0	-4.8	-4.2	-2.5	-5.5	-10.7	-1.8	-2.1	-1.0	0.0	-2.9
Communication	-2.0	-2.3	-6.9	-6.6	-3.2	-2.8	-0.5	-2.9	-2.4	-2.0	21.5
Services	-0.9	-1.5	-4.9	-3.9	-3.8	-1.2	-1.0	-2.6	-1.3	-0.9	36.2

Source: GEM-E3-MEDPRO.

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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