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Convergence beyond the economic sphere: Effects and feedbacks of Euro-Med integration

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Executive Summary:

This report is structured in three parts. In part I we study convergence in a multifaceted sense across Mediterranean partner countries. We focus on “social” indicators which measure the quality of life beyond familiar economic statistics. We find that there is some evidence that the Barcelona Initiative may have improved living conditions beyond the purely economic sphere. While the evidence is statistically robust, it is nevertheless spotty and no systematic pattern emerges.

In part II, we put special emphasis on convergence in terms of institutions and regulatory environments. We check if convergence processes can be seen as the result of economic integration under the auspices of the Euro-Med partnership. We find institutional divergence in some areas, e.g. government intervention to the economy, capital flows and foreign investment, and convergence in others, e. g. banking, financial services, and price controls. But the evidence must be cautiously received since the statistical support is often weak.

In part III we view the macroeconomic development as endogenous. We use augmented growth and gravity regressions to quantify the impact of living conditions on both the volume and the structure of trade. Unfortunately, data quality and availabiliy limit the scope of the analysis. Still, and in line with the theoretical literature, we find that both a deterioration and an improvement in living conditions may increase trade. For the former, a deterioration increases migration and immigrants tend to strenghten trade between their new home country and their country of origin. For the latter, improvements like better education may raise the marginal product of labor and hence stimulate exports via a productivity effect and imports via an income effect.

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I. Convergence of Living Conditions and Environmental Quality

by Bernd Lucke, University of Hamburg

1. Introduction, research issue and literature review

The Barcelona Initiative aimed at promoting integration and activating growth potentials for the Southern Mediterranean Partner Countries (MPC). This was inspired by standard results in trade theory which state that trade is mutually beneficial to trading partners. Economic integration with the European Union and among MPCs was clearly successful up to a certain point, although it remains unclear if the potential has been fully exploited, see e. g. Lucke and Nathanson (2007), Lucke and Zotti (2011).

Both conventional economic wisdom and casual empirical evidence suggest that increasing integration in the MENA countries leads to some sort of economic convergence. This convergence should occur in terms of per-capita output and other important macroeconomic variables, at least in the conditional sense of Barro and Sala-i-Martin (1992, 1995).

The emphasis here is on the fact that convergence occurs in economic *aggregates*. Much less is known for the consequences of free trade and growth on the economics and general living conditions of vulnerable groups of the economy, e. g. children, women, low-skilled workers or the older generation, cf. Harrison (2007), Berg and Krueger (2003), Choski et al. (1991) for the variety of possible outcomes mentioned in the literature. Also, little knowledge is available on

how non-market systems (e. g. education, health, governance, environment etc) are affected by trade liberalization, increased integration and economic growth.

The research reported here addressed to related questions: First, do living conditions in the Mediterranean Partner countries converge to an improved (mean) level as a result of the Barcelona Initiative? Second, is there cross country convergence in social and environmental conditions in the sense that disparities between countries become smaller over time? If so, is this cross country convergence caused by Barcelona-related developments?

We study these issues using the well-known World Development Indicators, World Bank (2010). This data set has the desirable property that data for different countries are compiled using the same standards across countries. We focus our attention on a cross section of Arabic MPCs, excluding others which are (like Israel) structurally very different or which joined only recently (Albania and Mauretania). Our cross section comprises Algeria, Egypt, Jordan, Lebanon, Morocco, Syria and Tunisia. The sample generally starts 1995 and extends to the most recent observation. As such, the sample typically contains some “pre-treatment” observations (prior to the entry into force of Association Agreements) as a well-defined reference point.

Identifying the effects trade liberalization has had on living conditions and the environment is a highly nontrivial task, since many factors unrelated to the Barcelona Initiative also impact on them. Moreover, Barcelona-related effects can be direct or indirect. For instance, changes in female employment may be a direct consequence of changes in tariff rates, e. g. when women lose their jobs in formerly protected industries. Other changes in female employment may be indirectly induced. Suppose there is an overall positive effect of trade liberalization on GDP. This

may cause an expansion of activities in non-traded goods, e. g. services. Women benefit from this expansion, but the effect is clearly indirect, since tariffs do not directly impact on services. Rather, we need to control for the macroeconomic effects of trade liberalization.

Since these effects have been studies in previous FEMISE research by Lucke and Nathanson (2007), we updated their work to include the most recent data. This is documented in Lucke and Zotti (2011). Since the results are qualitatively similar to Lucke and Nathanson (2007) we do not present them in this report but refer the interested reader to the paper which is available upon request. .

The Lucke-Nathanson research was focused on assessing the *aggregate* economic effects of the Barcelona Initiative. We henceforth call Barcelona-induced effects on macroeconomic aggregates "endogenous" and all other developments "exogenous". The (updated) growth regressions of Lucke and Zotti enable us to decompose the growth of the main macroeconomic indicators into a systematic ("endogenous") part and the ("exogenous") residuals.

We therefore specify regressions with three groups of conditioning regressors: First, observed tariff rates capture direct effects of free trade policies on social indicators, e. g. the compensation of low-skilled workers may have changed or the price of drugs in medical treatments may have decreased in response to FTA-policies. Second, as laid out above, an indirect effect of free trade may operate through changes in income or investment, and this indirect effect corresponds to the systematic ("endogenous") part of decomposed macro aggregates. Obviously, many social indicators may actually be more receptive to free-trade-induced increases in, say, GDP, than to

lower tariff rates directly. Third, “exogenous” developments captured by the Lucke-Nathanson residuals may also be responsible for changes in social or environmental indicators.

Details on this methodology are given more formally in the following section. Here it may suffice to note that our analysisprovides a well-defined statistical model in which we can assess if, and if so, how strongly, the Barcelona Initiative has extended beyond the economic sphere. Hence benefitial or possibly detrimental effects of current free-trade oriented policies can be identified and this identification helps to provide recommendations for future policies. We also single out those areas of social well-being which are least receptive to improvement of economic conditions. This gives clues about policy alternatives which might be better suited to achieve a given goal.

2. Methodology

As laid out in the introduction, our project has close ties to the literature on economic convergence (for surveys see Temple (1999), Durlauf and Quah (1999), Durlauf et al. 2005) and to the debate whether trade creates growth which (in its modern form) traces back to Sachs and Warner (1995). In fact, millions of growth regressions have been run even by single authors (e. g. Sala-i-Martin (1997)), to study *economic* convergence. We make use of the same methodology, but apply it to the issue of social and environmental (cross country) convergence, which has received much less attention by academic economists.

To this end, we make use of the familiar concept of σ-convergence, see e. g. Barro and Sala-i-Martin (1992). But before studying whether there is convergence across countries our interest focuses on the *driving forces* of convergence or divergence. Which developments made social and environmental indicators move in a certain way in the southern Mediterranean countries?

Growth regressions, i. e. regressions run to determine conditional β–convergence are appropriate to answer this question. However, in the context of social indicators the estimated β is of little interest since no theory suggests that β should smaller than one as the Solow growth model does for output or capital. Rather, the focus is on the coefficients of the conditioning variables because they are informative on what type of variable has affected the dynamics of the social indicator and how strongly so. The conditioning variables will allow us to infer whether Barcelona-related developments affected social indicators and if so, in what way.

This investigation is the core piece of our research. We use dynamic panel estimation to exploit the whole time series and cross section dimension simultaneously. The estimation strategy (the well-known Arellano-Bond estimator, cf. Arellano and Bond (1991)) allows for cross country fixed effects heterogeneity which is simply wiped out by estimating the regression equation in first differences. Hence, we are left with the coefficients of the time-varying conditioning variables and the estimated β–coefficients (which may be interpreted as a measure of the average convergence *within* a country).

In the following, we give a more specific description of what we did: In a first step we updated the Lucke-Nathanson growth regressions for the Mediterranean partners to the most recent

available data. Formally, denote by T a matrix of tariff rates as direct free trade policy measures, and let Y be a matrix of observations on "endogenous" explanatory variables for ΔGDP, the growth rate of real per capita GDP. By "endogenous" we mean that a variable changes in response to tariff rate changes. Simply think of Y as lagged *levels* of GDP or other macroeconomic variables. Hence Y should be thought of as expressing the *economic* effects of the Barcelona Initiative beyond the mere tariff rate reduction. Finally, let X be a matrix of variables capturing exogenous hetergeneity (e. g. oil prices, population growth, trend, etc.). The updated Lucke-Nathanson results can be written in matrix notation as

$$\Delta GDP = \hat{\alpha}T + Y\hat{\beta} + X\hat{\gamma} + \hat{\varepsilon} \tag{1}$$

where hatted symbols denote estimated coefficient vectors and regression residuals. Then, in principle, $z_1 := \hat{\alpha}T + Y\hat{\beta}$ is the systematic endogenous part of ΔGDP associated with the impulses from the Barcelona initiative[2], while $z_2 := X\hat{\gamma} + \hat{\varepsilon}$.

This decomposition was used in the analysis of conditional convergence. In order to trace down the causes of convergence or non-convergence and to take into account exogenous heterogeneity, we had to control for both the direct and indirect impact of the Barcelona Initiative and for unrelated exogenous events. Hence, estimation yielded a decomposition of the growth rate of GDP (and hence of GDP) as

[2] For simplicity, we abstract from the fact that exogenous errors affect z_1 via the lagged endogenous term.

$$\Delta GDP = \underbrace{\underbrace{\hat{\alpha}\,\Delta T}_{\substack{\text{changes in tariffs,}\\ \text{anticipated or implemented}}} + \underbrace{\hat{\beta}\,Y}_{\substack{\text{lagged endogenous}\\ \text{variables}}}}_{\text{=: BI-induced changes}} + \underbrace{\underbrace{\hat{\gamma}X}_{\substack{\text{exogenous}\\ \text{variables}}} + \underbrace{\hat{\varepsilon}}_{\text{residual}}}_{\text{=:exogenous changes}}$$

$$=: \quad \widehat{\Delta GDP^{BI}} \quad + \quad \widehat{\Delta GDP^{Ex}} \tag{2}$$

This decomposition of GDP into changes due to the Barcelona Initiative and changes due to exogenous forces was done using the Lucke and Zotti (2011) update. In the next step the growth rate of a social indicator *SI* was regressed on tariff rates *T*, lagged endogenous variables $\tilde{Y}$ (including the lagged level of *SI*) and exogenous variables $\tilde{X}$. (Note that $\tilde{Y}$ and $\tilde{X}$ are in general different from *Y* and *X* in (2)). Here, direct effects of the Barcelona Initiative on social indicators, i. e. effects not operating through changes in economic variables, were projected on *T* while the indirect effects of the Barcelona Initiative were projected on $\tilde{Y}$.

Set up this way the coefficient estimates were used to assess which effects the Barcelona Initiative has had on social and environmental conditions either directly, i. e. through non-economic governance reforms, or indirectly through its economic impact. Moreover, it was also possible to identify how important exogenous changes, operating either directly or indirectly via GDP, have been for social indicators:

$$\Delta SI = \underbrace{\underbrace{\hat{a}\,\Delta T}_{\substack{\text{changes in tariffs}\\ \text{anticipated or implemented}}} + \underbrace{\hat{b}\,Y}_{\substack{\text{lagged endogenous}\\ \text{variables}}}}_{\substack{\text{=: direct BI-induced changes}\\ \text{(e. g. non-economic governance reforms)}}} + \underbrace{\hat{c}\,\widehat{\Delta GDP^{BI}}}_{\substack{\text{BI-induced change in income}\\ \text{=: indirect BI-induced changes}\\ \text{(due to economic BI-efffects)}}}$$

$$+ \underbrace{\underbrace{\hat{d}\,\widehat{\Delta GDP^{Ex}}}_{\substack{\text{exogenous changes}\\ \text{in income}}} + \underbrace{\hat{e}\,X}_{\substack{\text{other exogenous}\\ \text{variables}}} + \underbrace{\hat{\eta}}_{\text{residual}}}_{\text{=:exogenous changes of social indicators}} \tag{3}$$

As mentioned earlier, the estimation of (2) and (3) made use of the well-known dynamic panel estimator by Arellano and Bond (1991). While this estimator can handle contemporaneous endogenous variables, we restricted ourselves to reduced form specifications, since no structural, model-based analysis was intended. Hence, all regressors were either classified as predetermined or as exogenous. The most important predetermined variable was the lagged endogenous variable which was almost among the list of regressors (and almost always turned out to be significant). We used dynamic instruments for the predetermined variables, starting at lag two (as is the conventional usage). Exogenous variables instrumented themselves.

In general, we deleted insignificant regressors and removed the corresponding instruments. We tested various specifications to make sure the results we obtained are robust and regressor exclusion restrictions were not path dependent. The typical approach in the specification work was to start with a very general specification involving all candidate regressors and then eliminating insignificant regressors in a multifaceted approach where at each step various alternative decisions for regressor elimination were tested. Having arrived at a "final" specification in which all regressors were significant, we tested again whether re-inclusion of any of the eliminated regressors would find this regressor to be significant. We used encompassing techniques, if the general-to-specific regressor elimination strategy resulted in multiple paths with different specifications of final regression equations.

For σ-convergence, i. e. the study of cross country convergence, things were much less protracted since our panel data set shrank to simple time series. We first computed the standard deviation σ_t^{SI} of each social indicator across countries and then studied its development over time. The

estimated equation is of type (4), although we allowed for more than just one lag of the endogenous variable. Again, insignificant regressors were eliminated.

$$\sigma_t^{SI} = \alpha_0 + \beta\sigma_{t-1}^{SI} + \gamma t \tag{4}$$

If the standard deviation turned out to be a mean reverting process, i. e. $|\beta| < 1$, we took this as evidence of convergence between countries. By contrast, we interpreted as divergence any finding of nonstationarity, be it a stochastic, i. e. $|\beta| \geq 1$, or a nonstochastic trend, i. e. $\gamma \neq 0$. We use formal testing as much as possible, but, unfortuntately, for some indicators the available time series on cross country standard deviations are rather short, since the indicator must be available in each single country for each period[3]. (We report some "eyeball econometrics" in these cases, but obviously, this should be received cautiously). If there is a finding of convergence or divergence we used the Arellano-Bond estimates to conclude whether the phenomenon was partially due to developments originating in the Barcelona Initiative.

3. Data

For our sample of southern Mediterranean countries (Algeria, Egypt, Jordan, Lebanon, Morocco, Syria, Tunisia) we extracted data informative of social and environmental conditions from the World Bank's World Development Indicators (WDI). The time series span is 1995 to the most recent observations, except for those series where data availability starts later than 1995. To structure our analysis we grouped the 52 time series according to the general category of living

[3] In the β–convergence analysis we work with unbalanced panels, In the σ–convergence analysis our sample corresponds only to the subset of the panel which is balanced.

condition to which they belong. In the order of these seven groups, the complete list of WDI indicators analysed in this project is as follows:

1. Health:

lifeexpfem	Life expectancy at birth, female
lifeexpmale	Life expectancy at birth, male
tuberdetect	Tuberculosis case detection rate (all forms)
tubertreat	Tuberculosis treatment success rate
incidtuberc	Incidence of tuberculosis
immunDPT	Immunization, DPT (children ages 12-23 months)
immunmeasles	Immunization, measles (children ages 12-23 months)
mortfem	Mortality rate, adult, female
mortmale	Mortality rate, adult, male
deathrate	Death rate

2. Education:

schpreprimfem	School enrollment, preprimary, female
schpreprimmale	School enrollment, preprimary, male
schprimfem	School enrollment, primary, female
schprimmale	School enrollment, primary, male
primcomplfem	Primary completion rate, female
primcomplmale	Primary completion rate, male
schsecondfem	School enrollment, secondary, female
schsecondmale	School enrollment, secondary, male
secondfem	Progression to secondary school,
secondmale	Progression to secondary school,
schtertfem	School enrollment, tertiary, female
schtertmale	School enrollment, tertiary, male (% gross)
journalart	Scientific and technical journal articles

3. Women:

nonschoolprimfem	Children out of school, primary, female

fert	Adolescent fertility rate (births by women ages 15-19)
ferttotal	Fertility rate, total (births per woman)
employfem	Employment to population ratio, 15+, female
employfem1524	Employment to population ratio, ages 15-24, female
partfem	Labor participation rate, female
seatsparlfem	Proportion of parliament seats held by women

4. Environment:

forestdepl	Net forest depletion (% of GNI)
renewables	Combustible renewables (% of total energy)
emissiondam	Particulate emission damage (% of GNI)
energydepl	Energy depletion (% of GNI)
CO2dam	Carbon dioxide damage (% of GNI)
CO2intens	CO2 intensity (kg per kg of oil equivalent energy use)
CO2percap	CO2 emissions (metric tons per capita)
CO2perPPPGDP	CO2 emissions (kg per 2005 PPP $ of GDP)

5. Governance and Infrastructure

elecpercap	Electric power consumption
phonelines	Telephone lines
startbusin	Time required to start a business
startupcosts	Cost of business start-up procedures
militGDP	Military expenditure (% of GDP)

6. Information and Communication Technologies

mobile	Mobile cellular subscriptions
internetusers	Internet users
broadinternet	Fixed broadband Internet subscribers
Itexp	ICT expenditure (% of GDP)

7. Labor Mobility:

rural	Rural population (% of total)
ruralpopgrowth	Rural population growth
urbanpop	Urban population (% of total)
urbanpopgrowth	Urban population growth
remittances	Workers' remittances, received (% of GDP)

4. Results

We start with the results of the dynamic panel estimates. In the following tables + and – signs indicate significant positive or negative coefficients, respectively. (The significance level is 5% throughout). The first column contains the dependent variable, an indicator of social or environmental living quality. The second column indicates a significant correlation of the dependent variable with the (lagged) aggregate tariff rate (unweighted mean per country). The particular choice of lags varies across specifications, depending on what, if any, is found to be significant. Thus, this column captures effects of the Barcelona Initiative which did not operate through changes in GDP.

The third and fourth columms indicate significant correlations with GDP, decomposed into changes in GDP found to be caused by the Barcelona Initiative (GDP-BI) and those which are due to exogenous reasons (GDP-Ex). The fifth column indicates other significant exogenous influences. The sixth column shows a possible dependence on a linear trend. By shading columns 4-6 grey, we emphasize that these columns all capture exogenous developments, while the two non-shaded columns 2 and 3 reveal whatever effect of the Barcelona Initiative may be found in the data. (The detailed regression results underlying these tables can be found in the Appendix).

1. Health:

	Tariffs	GDP-BI	GDP-Ex	X	T
lifeexpfem				+	
lifeexpmale				+	
tuberdetect					+
tubertreat				+	
incidtuberc				+	
immunDPT		+			
immunmeasles					+
mortfem			-		+
mortmale			-		+
deathrate		-			

The main conclusions of health-related indicators are as follows: Clearly, most changes in health-related developments are exogenous and have no connection to the Barcelona Initiative. They are either determined by trends or by other exogenous variables. However, all three measures of mortality show that mortality decreases with increasing GDP. This may be due to better provision of health services with rising aggregate income. It does not seem to matter whether the increase in GDP is due to the Barcelona Initiative or to other factors, since either one of the breakups of GDP is significant in the regressions of mortality indicators. There is also spotty evidence that immunization rates respond positively to (Barcelona-induced) increases in GDP. Hence, summing up, it seems that at least some health variables improve with rising income and therefore any positive effect the Barcelona Initiative may have had (and has had according to Lucke and Nathanson (2007)) will have contributed somewhat to improvements in the population's health.

2. Education

	Tariffs	GDP-BI	GDP-Ex	X	T
schpreprimfem					+
schpreprimmale	+			+	
schprimfem					+
schprimmale					+
primcomplfem				+	
primcomplmale				+	
schsecondfem				+	
schsecondmale					+
secondfem					+
secondmale					+
schtertfem					+
schtertmale	+				+
journalart		-			+

The findings here are fairly clear: Almost all changes in education-related indicators are due to exogenous forces. GDP does not affect schooling indicators at all. The negative influence of Barcelona-induced GDP on the number of published journal articles should probably be discarded as a statistical artefact, although it may also be evidence of a substitution effect: If the Barcelona process leads governments to focus more on the market economy, they may substitute away from non-market activities like research and provide less funds. Simultaneously, qualified scholars may find it more attractive to take on a job in the business sector of the economy and, hence, both developments result in less publishable articles. But, clearly, there is not enough information to reach a robust conclusion on such hypotheses.

With similar caution we should receive the two regression results which indicate that male school enrollment (at the preprimary level and at the tertiary level) has decreased with lower tariff rates, i. e. was higher prior to the Barcelona Initiative. The results themselves are quite alarming and

they are not completely implausible: If the government has pursued a more market oriented approach due to its involvement in the Barcelona process, it may have reduced funds for preprimary education or raised parental contributions, shying off some families. Also, tertiary education may have become more expensive by increases in tuition and by an increased willingness of young men to enter professional life after finishing their secondary education. But both types of arguments would also apply to female students and since no negative impact of the Barcelona process on girls and young women can be found, the evidence for a harmful effect of the Barcelona Initiative on education is not compelling.

3. Women:

	Tariffs	GDP-BI	GDP-Ex	X	T
Nonschoolprimfem					-
Fertadolescent				+	
Ferttotal	+	+			
Employfem		+			
employfem1524	-				
Participfem					+
Seatsparlfem				+	-

Only three out of seven indicators of women's role in society show some effect of Barcelona-related developments. For once, lower tariffs increase the employment of young women aged 15-24. This is a direct effect not operating through GDP and could hence indicate that traditional thinking yields to a more western influence as far as women are concerned. Along the same lines, total female employment is positively affected by Barcelona-induced increases in GDP. We also find that fertility was higher with higher tariff rates, which again indicates that the traditional role of women changes through the direct influence of the Barcelona Initiative. However, we also find

the possibly offsetting effect that increases in income raise the number of children born.

4. Environment

	Tariffs	GDP-BI	GDP-Ex	X	T
forestdepletion	-	-			
renewables	+	+			
emissiondamage	+				
energydepletion		+			
CO2damage				+	
CO2intensity				+	
CO2percap				+	
CO2perPPPGDP				+	

First, any CO_2-related indicator is unaffected by the Barcelona Initiative and even unaffected by GDP. However, the Barcelona Initiative seems to have directly reduced emission damages, possibly due to a higher sensibility for environmental issues. This might be another piece of evidence for more western thinking in countries benefiting from Association Agreements with the EU. Both the share of energy over gross national income and the consumption of renewable energies increase with Barcelona-induced increases in GDP, while forest depletion decreases, possibly as a result of a shift from the agricultural to the industrial sector. However, forest depletion and renewables usage are adversely affected from lower tariffs, so that no clear picture emerges as to what effects the Barcelona Initiative may have had on environmental conditions.

5. Governance and Infrastructure:

	Tariffs	GDP-BI	GDP-Ex	X	T
elecpercap	-				
phonelines	+				+

startbusin					-
startupcosts	-				-
militGDP	+				

No income effects can be found for indicators of governance and infrastructure. But as much as tariff reductions are able to proxy governmental reforms in other domains, two positive developments are visible: The provision of electricity has improved and military spending as a percentage of GDP has decreased. The latter may possibly be interpreted as a successful promotion of mutual trust under the Barcelona process. On the other hand, startup costs for businesses seem to increase with falling tariff rate. This result, however, is valid only relative to a strong negative time trend. With some further scrutiny it is easy to verify that red tape in starting a business has actually decreased by much, so that this result is of no concern. That the number of phonelines decreases with trade liberalization efforts is probably a spurious result due to less need of phonelines in the face of increasing cell phone usage.

6. Information and Communications Technologies:

	Tariffs	GDP-BI	GDP-Ex	X	T
mobile		+			
internetusers				+	
broadinternet			-		
Itexp			-		

Most of the internet and telecommunication indicators seem to have exogenous determinants. The only noteworthy result is an increase in mobile phones due to increased income under the Barcelona Initiative, but this, in line what was mentioned above, is probably spurious.

7. Labor Mobility:

	Tariffs	GDP-BI	GDP-Ex	X	T
rural				-	
ruralpopgrowth				-	+
urbanpop					+
urbanpopgrowth		-	+		
remittances				+	

The main conclusion for the important set of variables which measure labor mobility is clearly that Barcelona Initiative has not had a major impact. Most developments are exogenous. There is an ambiguous effect of GDP on urban population growth. As this indicates that urban populations growth increases with exogenous increases in GDP but decreases with GDP increases due to the Barcelona Initiative, the result seems not in line with the previous result that fertility depends positively on Barcelona-induced GDP growth.

Next, let us turn to the cross country convergence results, i. e. to σ-convergence. For health we mostly find convergence across sample countries. This, however, is not likely to be due to the Barcelona Initiative since the previous (Arellano-Bond) results indicate that most health-related developments are due to exogenous causes.

1. Health:

	Convergence	Divergence	Unclear
lifeexpfem	x		
lifeexpmale	x		
tuberdetect	x		
tubertreat	x		
incidtuberc	x		

immunDPT		x	
immunmeasles		x	
mortfem	x		
mortmale	x		
deathrate		x	

2. Education:

For education indicators no clear picture about cross country convergence emerges. Again, the convergence result for secondar schooling is certainly not due to the Barcelona Initiative, as these variables were not found to be receptive to it in the previous analysis:

	Convergence	Divergence	Unclear
schpreprimfem		x	
schpreprimmale			x
schprimfem			x
schprimmale			x
primcomplfem			x
primcomplmale			x
schsecondfem	x		
schsecondmale	x		
secondfem			x
secondmale			x
schtertfem		x	
schtertmale		x	
journalart			x

3. Women:

	Convergence	Divergence	Unclear
nonschoolprimfem	x		

fertadolescent			x
ferttotal	x		
employfem		x	
employfem1524			x
participfem		x	
seatsparlfem		x	

Women's role in the society shows evidence of convergence along some and evidence of divergence along other indicators. Female employment was found to be positively affected by Barcelona-induced increases in GDP. Interestingly, this seems to lead to cross country-divergence, i. e. it seems that some countries (Algeria, Jordan, Lebanon, Tunisia) move faster than others to a more modern concept of female participation in the economy. This finding is in line with the fact that we also see divergence in terms of female labor market participation and in the number of seats women gain in parliamentary elections.

4. Environment:

	Convergence	Divergence	Unclear
forestdepletion	x		
renewables		x	
emissiondamage	x		
energydepletion		x	
CO2damage		x	
CO2intensity			x
CO2percap		x	
CO2perPPPGDP			x

Emission damages were found to be reduced under Barcelona influence. We now see that this is a broad development visible also in cross country convergence. Energy- and CO_2-related indicators show no sign of convergence or even diverge. This can again be read as some countries moving

faster than others on envirronmental issues (or some countries moving and others not moving at all). But unfortunately, a detailed country analysis is unable to idintify a set of environmentally progressiv countries. Some countries make headway in terms of one indicator but they are among the laggards in terms of other indicators.

5. Governance and Infrastructure:

	Convergence	Divergence	Unclear
elecpercap			x
phonelines			x
startbusin	x		
startupcosts	x		
militGDP	x		

In terms of governance and infrastructure we find convergence in three indicators and an unclear pattern in the other two. So there is clearly no divergence. The convergence of the share of military expenditure over GDP may be due to an athmosphere of increased mutual trust partially promoted by the Barcelona Initiative, since we found this indicator to decrease under Barcelona influence. The convergence in startup costs for businesses may also be Barcelona-induced, given our earlier results.

6. Information and Communications Technologies:

	Convergence	Divergence	Unclear
mobile		x	
internetusers		x	
broadinternet		x	
Itexp			x

ICT indicators show mostly divergence. In light of our previous results this divergence must be attributed to exogenous causes, so there is little to be learned for the Barcelona Initiative. We note, however, that divergence along the important dimension of ICT again indicates that some countries may be eager to promote these technologies whereas others are slower ot just stay backwards.

7. Labor Mobility:

	Convergence	Divergence	Unclear
rural			x
ruralpopgrowth			x
urbanpop			x
urbanpopgrowth			x
remittances			x

Finally, in terms of labor mobility, no clear convergence patterns are discernable.

5. Policy Implications and Conclusions

What do we conclude from these results and what are the policy implications?

First, we should note that the reliability of our results hinges critically on data quality. We believe to have used the best data set available, but it is not rare that an in-depth look at a time series leaves the researcher startled. The data compiled by the World Bank are certainly informative for what is going on in developing countries, but it is equally certain that data quality is too low to convey a true picture. Rather, any analysis is an analysis of noisy data and should be received with appropriate caution.

With this caveat, let us conclude that there is some evidence that the Barcelona Initiative may have improved living conditions beyond the purely economic sphere. This evidence, however, is spotty and no systematic pattern emerges.

For health indicators, it is comforting to see that increases in GDP, be they Barcelona-induced or due to other causes, decrease mortality. More specific health indicators, however, like immunization rates, do mostly not show any robust responses. Here, medical programs and campaigns are certainly better suited to make progress.

While increases in income also raise the number of newborns, most other evidence suggests that if the Barcelona Initiative has had any effect on women's role in Arabic societies, then this effect was positive on balance. Quite a bit of the evidence we present in this report can be interpreted in the sense that traditional thinking has yielded to more modern perspectives on women's abilities

and women's rights. This change of mind, however, seems to take place in some countries quite forcefully (Algeria, Jordan, Lebanon, Tunisia), while little progress is visible in others (Egypt, Morocco, Syria). Consequently, we find cross-country divergence in the data.

It is hard to say why this is so. If the strength of traditional sentiment in a country is responsible, then this must probably be taken as exogenous. But it might also be that the general attitude of the MENA government towards economic liberalization and how this policy is communicated to the population has some influence. Clearly, it would be in the interest of the European Union to have the MENA government spread correct information and positive sentiment about the potentials of free market mechanisms and the benefits associated with it. In dealing with MENA governments, it might be worthwhile putting more emphasis on the fact that in return for European assistance the EU expects the MENA government to transmit to the population and defend against potential criticisms the main ideas underlying its strategy of integration, cooperation and reform.

A similar point may be made for environmental issues. Overall, our findings have been that the stimulus from the Barcelona Initiative may have worked either way, with environmental improvements along some indicators and environmental deterioration along others. The improvements may be evidence of more environmental awareness being conveyed by opening up to western ideas, but this is clearly not enough. But the EU has little direct influence, unless it decided to give extra money for prodcution technologies with high environmental standards. Except for this, the key role is with the MENA government and all the EU could (and should) do is to press this government to communicate the issue well to its own population. It is important to bear in mind that (unlike for women's role in the economy) we could not single out a set of

countries whose environmental policy seems to be more advanced than those of other countries in our sample. So it seems there is ample ground for the EU to use its influence to make MENA governments more concerned about the usage of their environmental resources.

This fits well to the issue of governance, where it is hard to see any Barcelona-induced improvements. Admittedly, many dimensions of governance are not captured by any available index, but the few which we have show no improvements that could be attributed to the Barcelona Initiative. Moreover, infrastructure does also not respond in any impressive way to Barcelona, with the notable exception of better electricity provision. So it seems that the Barcelona Initiative has not really changed the way by which governments are run in MENA states. It remains to be seen if the Arab spring is more successful.

On the negative side, there is some evidence that male schooling has decreased in response to the era of liberalization in MENA economies. We have argued that this may be a substitution effect from the non-market to the market sector. But more than that: It may also be evidence of a Ricardian specialization on comparative advantage. If trade liberalization pushes MENA countries' to shift to the production of goods requiring mostly low-skilled labor, while the EU specializes on human-capital intensive goods, then it would not be implausible to see young men less interested in tertiary education and find less scholarly articles being published from MENA countries' research institutions.

While this conjecture may be questioned by the fact that no similar effect for women has been identified, the mere possibility of such a development should be taken seriously. After all, Barcelona-induced trade liberalization called for tariff decreases across the whole range of

products. The EU might want to consider whether a more discriminatory approach which tolerates some levels of protection for human-capital intensive production is possibly better suited to set incentives for the young generation to invest in higher education.

Overall, social indicators suggest plenty of room for further policy measures. But these would mostly be measures which the MENA governments should feel a responsibility for. The European Union can do little more than use indirect means to influence domestic policy makers to act in the right direction. Many programs have been designed and applied in European Union countries to improve e. g. the environment or the role of women in a modern society. It would not be difficult to make use of this experience, but it requires a receptiveness of MENA governments which may be hard to ensure.

Fortunately, we also do not find evidence of harmful effects of the Barcelona Initiative, at least not on a broad scale. So it does not really seem that the European Union has a moral obligation to compensate MENA countries for certain unwanted developments. But the EU should be aware that its strategy of general tariff reductions may have led MENA countries to specialize on production technologies which are low-skilled labor intensive and may therefore have had a discouraging effect for higher education. The available evidence is clearly to weak to support such a claim in any rigorous way. But some evidence of this sort exists and since a development of this kind would be quite detrimental for any society, close attention should be paid to how the phenomenon emerges in the future.

6. References

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7. Appendix:

The following tables contain the detailed regression results for Chapter I: *Convergence of Living Conditions and Environmental Quality*.

1. Health

Dependent Variable: LIFEEXPFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIFEEXPFEM(-1)	0.955478	0.020029	47.70489	0.0000
T	0.005203	0.006107	0.851898	0.3970

Mean dependent var	0.250143	S.D. dependent var	0.256782
S.E. of regression	0.098347	Sum squared resid	0.725404
J-statistic	4.682812	Instrument rank	7

Dependent Variable: LIFEEXPMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LIFEEXPMALE(-1)	0.988191	0.019787	49.94074	0.0000
T	-0.006468	0.005581	-1.158990	0.2505

Mean dependent var	0.223254	S.D. dependent var	0.208202
S.E. of regression	0.078013	Sum squared resid	0.419941
J-statistic	5.985796	Instrument rank	7

Dependent Variable: TUBERDETECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TUBERDETECT(-1)	0.423630	0.001767	239.6951	0.0000
T	0.039687	0.011472	3.459364	0.0009

Mean dependent var	0.681159	S.D. dependent var	6.222570
S.E. of regression	7.046495	Sum squared resid	3326.757
J-statistic	5.727821	Instrument rank	7

Dependent Variable: TUBERTREAT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TUBERTREAT(-1)	0.192650	0.011308	17.03588	0.0000
Mean dependent var	0.163934	S.D. dependent var		5.882687
S.E. of regression	6.887961	Sum squared resid		2846.640
J-statistic	5.172771	Instrument rank		7

Dependent Variable: INCIDTUBERC

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INCIDTUBERC(-1)	0.878316	0.073934	11.87974	0.0000
T	-0.014348	0.035018	-0.409738	0.6833
Mean dependent var	-0.139437	S.D. dependent var		1.006192
S.E. of regression	1.221125	Sum squared resid		102.8892
J-statistic	4.650411	Instrument rank		7

Dependent Variable: IMMUNDPT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMMUNDPT(-1)	0.451126	0.020919	21.56510	0.0000
LNY_END	39.41032	7.739008	5.092425	0.0000
Mean dependent var	0.393443	S.D. dependent var		2.870997
S.E. of regression	3.654401	Sum squared resid		787.9241
J-statistic	5.749987	Instrument rank		7

Dependent Variable: IMMUNMEASLES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IMMUNMEASLES(-1)	0.293663	0.017258	17.01653	0.0000
T	0.158134	0.057462	2.751960	0.0076
Mean dependent var	0.239437	S.D. dependent var		3.091300
S.E. of regression	3.674679	Sum squared resid		931.7252
J-statistic	6.500002	Instrument rank		8

Dependent Variable: MORTFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MORTFEM(-1)	0.998835	0.000499	2001.566	0.0000
LNY_EXOG	-0.299711	0.127853	-2.344186	0.0236
T	0.005815	0.002630	2.211301	0.0323
Mean dependent var	-2.161868	S.D. dependent var		1.549295
S.E. of regression	0.382173	Sum squared resid		6.426485
J-statistic	0.003393	Instrument rank		7

Dependent Variable: MORTMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MORTMALE(-1)	1.000000	9.64E-08	10378401	0.0000
LNY_EXOG	-4.02E-05	1.72E-05	-2.338508	0.0240
T	6.39E-07	2.76E-07	2.312772	0.0255
Mean dependent var	-2.361689	S.D. dependent var		1.764598
S.E. of regression	0.436099	Sum squared resid		8.368013
J-statistic	7.06E-11	Instrument rank		7

Dependent Variable: DEATHRATE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEATHRATE(-1)	0.765358	0.008943	85.58420	0.0000
LNY_END	-2.340364	0.024030	-97.39371	0.0000
Mean dependent var	-0.059694	S.D. dependent var		0.110072
S.E. of regression	0.096883	Sum squared resid		0.563175
J-statistic	5.637661	Instrument rank		7

2. Education

Dependent Variable: SCHPREPRIMFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHPREPRIMFEM(-1)	0.153790	0.002787	55.18581	0.0000
T	0.962266	0.000372	2584.599	0.0000
Mean dependent var	0.473468	S.D. dependent var		0.663963
S.E. of regression	3.687631	Sum squared resid		639.1352
J-statistic	3.539677	Instrument rank		8

Dependent Variable: SCHPREPRIMMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHPREPRIMMALE(-1)	0.256614	0.075415	3.402670	0.0014
TUW(-1)	14.43666	3.135485	4.604283	0.0000
T	1.007346	0.058555	17.20330	0.0000
Mean dependent var	0.472362	S.D. dependent var		0.891865
S.E. of regression	4.549257	Sum squared resid		952.0041
J-statistic	6.548198	Instrument rank		8

Dependent Variable: SCHPRIMFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHPRIMFEM(-1)	0.632547	0.020871	30.30809	0.0000
T	0.177869	0.027660	6.430536	0.0000
Mean dependent var	0.322068	S.D. dependent var		1.951104
S.E. of regression	2.818375	Sum squared resid		405.1053
J-statistic	4.068021	Instrument rank		7

Dependent Variable: SCHPRIMMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHPRIMMALE(-1)	0.420132	0.010734	39.14158	0.0000
T	0.204795	0.009074	22.57014	0.0000
Mean dependent var	-0.055350	S.D. dependent var		2.945817
S.E. of regression	4.252321	Sum squared resid		922.1941
J-statistic	8.290764	Instrument rank		8

Dependent Variable: PRIMCOMPLFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIMCOMPLFEM(-1)	0.849198	0.111988	7.582931	0.0000
T	-0.356932	0.375043	-0.951710	0.3468
Mean dependent var	0.792337	S.D. dependent var		2.614953
S.E. of regression	4.638036	Sum squared resid		881.9666
J-statistic	1.679334	Instrument rank		7

Dependent Variable: PRIMCOMPLMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRIMCOMPLMALE(-1)	1.014032	0.355130	2.855381	0.0067
T	-0.753734	0.393279	-1.916537	0.0623

Mean dependent var	0.337703	S.D. dependent var	3.016484
S.E. of regression	6.441564	Sum squared resid	1701.243
J-statistic	2.011446	Instrument rank	7

Dependent Variable: SCHSECONDFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHSECONDFEM(-1)	0.886040	0.068011	13.02794	0.0000
T	0.100448	0.086903	1.155869	0.2504

Mean dependent var	1.203137	S.D. dependent var	2.382343
S.E. of regression	2.779207	Sum squared resid	803.2953
J-statistic	2.962177	Instrument rank	7

Dependent Variable: SCHSECONDMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHSECONDMALE(-1)	0.764993	0.035254	21.69918	0.0000
T	0.352388	0.067832	5.195009	0.0000

Mean dependent var	0.711766	S.D. dependent var	2.148603
S.E. of regression	3.558602	Sum squared resid	367.2458
J-statistic	7.473364	Instrument rank	8

Dependent Variable: SECONDFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SECONDFEM(-1)	0.318905	0.020597	15.48317	0.0000
T	0.665463	0.109250	6.091170	0.0000

Mean dependent var	1.253625	S.D. dependent var	3.059637
S.E. of regression	6.423959	Sum squared resid	1320.552
J-statistic	3.159212	Instrument rank	7

Dependent Variable: SECONDMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SECONDMALE(-1)	0.336206	0.029245	11.49625	0.0000
T	0.877575	0.031479	27.87805	0.0000
Mean dependent var	1.066390	S.D. dependent var		2.991818
S.E. of regression	4.802913	Sum squared resid		738.1753
J-statistic	5.245684	Instrument rank		7

Dependent Variable: SCHTERTFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHTERTFEM(-1)	0.440736	0.069037	6.384031	0.0000
T	1.107412	0.067306	16.45338	0.0000
Mean dependent var	1.660960	S.D. dependent var		3.032856
S.E. of regression	1.460949	Sum squared resid		51.22491
J-statistic	3.655723	Instrument rank		5

Dependent Variable: SCHTERTMALE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SCHTERTMALE(-1)	0.376797	0.045399	8.299714	0.0000
TUW(-1)	8.736775	0.820229	10.65163	0.0000
T	0.761221	0.151781	5.015265	0.0000
Mean dependent var	0.940779	S.D. dependent var		1.941267
S.E. of regression	1.279150	Sum squared resid		37.63320
J-statistic	2.931364	Instrument rank		5

Dependent Variable: JOURNALART

Variable	Coefficient	Std. Error	t-Statistic	Prob.
JOURNALART(-1)	0.777176	0.049374	15.74073	0.0000
LNY_END	-898.6905	488.4847	-1.839752	0.0709
T	11.85768	1.100132	10.77842	0.0000
Mean dependent var	22.50984	S.D. dependent var		43.30289
S.E. of regression	53.61646	Sum squared resid		166734.1
J-statistic	3.357672	Instrument rank		7

3. Women:

Dependent Variable: NONSCHOOLPRIMFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NONSCHOOLPRIMFEM(-1)	0.367328	0.053398	6.879068	0.0000
T	-8989.713	2454.027	-3.663249	0.0009

Mean dependent var	-12028.15	S.D. dependent var	30325.73
S.E. of regression	53184.72	Sum squared resid	9.05E+10
J-statistic	3.390204	Instrument rank	6

Dependent Variable: FERT-FERT(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNY_END	2.41E-12	1.54E-12	1.563396	0.1250

Mean dependent var	0.090457	S.D. dependent var	0.310684
S.E. of regression	0.323865	Sum squared resid	4.719994
J-statistic	1.43E-14	Instrument rank	8

Dependent Variable: FERTTOTAL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FERTTOTAL(-1)	0.901888	0.007494	120.3410	0.0000
TUW(-2)	0.118313	0.028528	4.147229	0.0001
LNY_END	0.979665	0.130816	7.488859	0.0000

Mean dependent var	-0.063393	S.D. dependent var	0.071867
S.E. of regression	0.037122	Sum squared resid	0.079927
J-statistic	2.904386	Instrument rank	7

Dependent Variable: EMPLOYFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPLOYFEM(-1)	0.659798	0.002407	274.0896	0.0000
LNY_END	23.04376	0.804748	28.63476	0.0000

Mean dependent var	0.278689	S.D. dependent var	0.636426
S.E. of regression	0.657023	Sum squared resid	25.46908
J-statistic	5.395401	Instrument rank	8

Dependent Variable: EMPLOYFEM1524

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMPLOYFEM1524(-1)	0.309843	0.054946	5.639033	0.0000
TUW(-1)	-2.863085	0.625107	-4.580148	0.0000
Mean dependent var	0.109859	S.D. dependent var		0.902402
S.E. of regression	0.990241	Sum squared resid		67.65985
J-statistic	8.919846	Instrument rank		8

Dependent Variable: PARTFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PARTFEM(-1)	0.882891	0.025307	34.88726	0.0000
T	0.021734	0.007688	2.827032	0.0061
Mean dependent var	0.200000	S.D. dependent var		0.350510
S.E. of regression	0.268536	Sum squared resid		4.975683
J-statistic	6.211571	Instrument rank		7

Dependent Variable: SEATSPARLFEM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SEATSPARLFEM(-1)	0.258154	0.022687	11.37883	0.0000
LNY_EXOG	28.52918	2.766331	10.31300	0.0000
T	-0.054850	0.004903	-11.18768	0.0000
Mean dependent var	0.556818	S.D. dependent var		1.948690
S.E. of regression	2.224992	Sum squared resid		202.9741
J-statistic	5.085514	Instrument rank		8

4. Environment

Dependent Variable: FORESTDEPL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FORESTDEPL(-1)	0.776910	0.012459	62.35906	0.0000
TUW(-1)	-0.021939	0.003727	-5.887144	0.0000
LNY_END	-0.177267	0.021161	-8.377078	0.0000
Mean dependent var	-0.006877	S.D. dependent var		0.016041
S.E. of regression	0.016684	Sum squared resid		0.016144
J-statistic	3.067818	Instrument rank		7

Dependent Variable: RENEWABLES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RENEWABLES(-1)	0.335185	0.005707	58.73073	0.0000
RENEWABLES(-2)	0.289999	0.002740	105.8340	0.0000
TUW(-2)	1.030287	0.057252	17.99554	0.0000
LNY_END	1.996075	0.055884	35.71792	0.0000
Mean dependent var	-0.003876	S.D. dependent var		0.174607
S.E. of regression	0.219315	Sum squared resid		2.741648
J-statistic	3.969480	Instrument rank		8

Dependent Variable: EMISSIONDAM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EMISSIONDAM(-1)	0.411566	0.161402	2.549950	0.0130
TUW(-1)	0.907127	0.345270	2.627299	0.0106
Mean dependent var	-0.019526	S.D. dependent var		0.048523
S.E. of regression	0.070816	Sum squared resid		0.346024
J-statistic	4.967887	Instrument rank		7

Dependent Variable: ENERGYDEPL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ENERGYDEPL(-1)	0.289480	0.013536	21.38535	0.0000
LNY_END	84.25583	10.97944	7.673966	0.0000
Mean dependent var	0.480040	S.D. dependent var		2.174387
S.E. of regression	2.734530	Sum squared resid		448.6592
J-statistic	6.260138	Instrument rank		7

Dependent Variable: CO2DAM

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO2DAM(-1)	0.796281	0.092428	8.615193	0.0000
CO2DAM(-2)	-0.253120	0.120120	-2.107224	0.0386
Mean dependent var	-0.017044	S.D. dependent var		0.079285
S.E. of regression	0.132818	Sum squared resid		1.252485
J-statistic	3.045730	Instrument rank		7

Dependent Variable: CO2INTENS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO2INTENS(-1)	1.002262	0.002488	402.9151	0.0000
Mean dependent var	3.230347	S.D. dependent var		0.475601
S.E. of regression	0.210223	Sum squared resid		6.717426
J-statistic	1.300616	Instrument rank		2

Dependent Variable: CO2PERCAP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO2PERCAP(-1)	0.632434	0.006783	93.23314	0.0000
Mean dependent var	0.038944	S.D. dependent var		0.142876
S.E. of regression	0.296968	Sum squared resid		5.820531
J-statistic	5.933085	Instrument rank		7

Dependent Variable: CO2PERPPPGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CO2PERPPPGDP(-1)	0.429013	0.028370	15.12200	0.0000
Mean dependent var	0.002150	S.D. dependent var		0.037582
S.E. of regression	0.053389	Sum squared resid		0.390509
J-statistic	6.870460	Instrument rank		7

5. Governance and Infrastructure:

Dependent Variable: ELECPERCAP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ELECPERCAP(-1)	1.011061	0.010217	98.96147	0.0000
TUW(-1)-TUW(-2)	-333.3766	22.56312	-14.77529	0.0000
Mean dependent var	35.56591	S.D. dependent var		35.68737
S.E. of regression	45.32197	Sum squared resid		141731.6
J-statistic	6.427290	Instrument rank		8

Dependent Variable: PHONELINES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PHONELINES(-1)	0.925418	0.125251	7.388525	0.0000
TUW(-1)	7.596273	0.442159	17.17996	0.0000
T	0.154611	0.010296	15.01631	0.0000
Mean dependent var	0.341484	S.D. dependent var		0.575256
S.E. of regression	0.815560	Sum squared resid		45.22936
J-statistic	3.247555	Instrument rank		7

Dependent Variable: STARTBUSIN

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STARTBUSIN(-1)	0.379508	0.018463	20.55502	0.0000
T	-1.280822	0.289920	-4.417851	0.0001
Mean dependent var	-2.580645	S.D. dependent var		6.989393
S.E. of regression	8.025266	Sum squared resid		1867.742
J-statistic	5.917466	Instrument rank		7

Dependent Variable: STARTUPCOSTS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
STARTUPCOSTS(-1)	0.678274	0.015205	44.60734	0.0000
TUW(-1)	-80.34297	15.66587	-5.128534	0.0000
T	-3.645622	0.357977	-10.18396	0.0000
Mean dependent var	-5.333333	S.D. dependent var		15.43048
S.E. of regression	19.20226	Sum squared resid		7743.263
J-statistic	2.857123	Instrument rank		7

Dependent Variable: MILITGDP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
MILITGDP(-1)	0.095088	0.003534	26.90383	0.0000
TUW(-1)	3.526702	0.360010	9.796121	0.0000
Mean dependent var	-0.049220	S.D. dependent var		0.415221
S.E. of regression	0.473250	Sum squared resid		15.45359
J-statistic	5.579063	Instrument rank		7

6. Information and Communications Technologies:

Dependent Variable: LNMOBILE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNMOBILE(-1)	0.783312	0.009070	86.36021	0.0000
LNY_END	22.15486	2.625342	8.438847	0.0000
Mean dependent var	0.507098	S.D. dependent var		0.556118
S.E. of regression	0.634077	Sum squared resid		23.72118
J-statistic	5.656521	Instrument rank		7

Dependent Variable: LNINTERNETUSERS

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNINTERNETUSERS(-1)	0.838167	0.030138	27.81123	0.0000
T	0.069062	0.079350	0.870349	0.3873
Mean dependent var	0.430104	S.D. dependent var		0.596990
S.E. of regression	0.703823	Sum squared resid		32.69419
J-statistic	4.043020	Instrument rank		7

Dependent Variable: BROADINTERNET

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BROADINTERNET(-1)	1.341177	0.001603	836.7056	0.0000
LNY_EXOG	-0.612690	0.064924	-9.436987	0.0000
Mean dependent var	0.150405	S.D. dependent var		0.278491
S.E. of regression	0.295892	Sum squared resid		2.363910
J-statistic	6.825842	Instrument rank		8

Dependent Variable: ITEXP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ITEXP(-1)	1.027139	0.194706	5.275336	0.0005
LNY_EXOG	-12.61547	0.947538	-13.31394	0.0000
Mean dependent var	0.048324	S.D. dependent var		0.530907
S.E. of regression	0.324190	Sum squared resid		0.945891
J-statistic	4.398651	Instrument rank		5

7. Labor mobility

Dependent Variable: RURAL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RURAL(-1)	0.888670	0.005499	161.6076	0.0000
LNY_EXOG	-1.244724	0.210534	-5.912231	0.0000
Mean dependent var	-0.223934	S.D. dependent var		0.317129
S.E. of regression	0.144039	Sum squared resid		1.224078
J-statistic	4.953730	Instrument rank		7

Dependent Variable: RURALPOPGROWTH

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RURALPOPGROWTH(-1)	0.279779	0.082636	3.385691	0.0013
LNY_EXOG	-16.78507	7.106945	-2.361785	0.0216
T	0.337298	0.162977	2.069610	0.0430
Mean dependent var	0.039032	S.D. dependent var		0.704157
S.E. of regression	0.780207	Sum squared resid		35.30590
J-statistic	1.789695	Instrument rank		7

Dependent Variable: URBANPOP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
URBANPOP(-1)	0.920734	0.006108	150.7339	0.0000
T	0.004628	0.000703	6.587169	0.0000
Mean dependent var	0.212676	S.D. dependent var		0.309548
S.E. of regression	0.139125	Sum squared resid		1.335556
J-statistic	6.136629	Instrument rank		7

Dependent Variable: URBANPOPGROWTH

Variable	Coefficient	Std. Error	t-Statistic	Prob.
URBANPOPGROWTH(-1)	0.684265	0.026550	25.77296	0.0000
LNY_END	-11.28335	1.654682	-6.819046	0.0000
LNY_EXOG	2.645585	0.434506	6.088720	0.0000
Mean dependent var	-0.075719	S.D. dependent var		0.321970
S.E. of regression	0.386434	Sum squared resid		8.810528
J-statistic	2.724792	Instrument rank		7

Dependent Variable: REMITTANCES

Variable	Coefficient	Std. Error	t-Statistic	Prob.
REMITTANCES(-1)	0.102911	0.004117	24.99564	0.0000
T	-0.028573	0.039120	-0.730397	0.4677

Mean dependent var	-0.041800	S.D. dependent var	1.032159
S.E. of regression	1.217034	Sum squared resid	99.23851
J-statistic	4.400229	Instrument rank	7

II. The Impact of the Convergence of Institutional Frameworks on the Euromed Process[1]

by Suleyman Degirmen, Mersin University

Abstract:

Does institutional reform and possible convergence toward the EU standards occur? If so, does this contribute to closing the gap in economic growth visible between non-EU Mediterranean partners (MPCs) and EU countries, because gradually markets operate under similar rules? To what extent do non-EU Mediterranean partner countries adopt the EU's institutional system to benefit from Free Trade Agreements, FTA, opportunities? What kind of similarities and differences in terms of financial institutions (such as banks, central bank, regulatory and supervisory agencies)and non-financial institutions(government units) and their policies influence macroeconomic outcomes, e.g. convergence in terms of trade and economic growth? Finally, since the market mechanism cannot assure economic and financial stability automatically, does institutional convergence provide convergence in trade (i.e., in export)?

This project briefly asks the question of the impact of institutions on trade and attempts to estimate the potential for trade increases between MPCs and EU. This latter is computed using the gravity equation which is defined in detail in the project. Our test results indicate that MPC countries reveal some information on convergence to or divergence from EU countries in terms of

[1] I would like to thank to Mehmet Songur and Nuran Coskun in the Department of Economics at Mersin University, for their valuable research assistance for this project.

institutional structure. Moreover, institutional convergence between MPCs and EU countries also enables more bilateral trade in terms of exports. Furthermore, institutions matter, and the convergence of institutional variables towards the EU ones - under the current process of EU enlargement - can be expected to deepen the level of the European trade integration with the Mediterranean Partner Countries.

1. Introduction, research issue and literature review

Does institutional convergence toward the EU standards in terms of institutional construction and reconstruction (i.e., reform) enable to close the convergence gap in economic growth of the South and North countries or in economic growth of non-EU Mediterranean partners[2], (MPCs), and EU countries (for instance, gradually markets of the South and North or non-EU Mediterranean and EU countries operate under similar rules)? Will non-EU Mediterranean partner countries transpose and assimilate the EU's institutional system to benefit from FTA opportunities, in the Barcelona process? For instance, in the sense of liberalization, intervention of government to markets in non-EU MPCs must decline to enable their market work in more efficient way.

In other words, what kind of similarities and differences in financial institutions (such as, banks, central bank, regulatory and supervisory agencies) and non-financial (government units) and their policies (monetary policy convergence and further, fiscal policy convergence) can there be to influence macroeconomic environment (outcome convergence in terms of trade and thus economic growth)?

In detail, in regard of the structure and volume of trade, an augmented gravity regression method will be used, in addition of the indicators of institutional quality. Moreover, similar issues arise in the analysis of policies of the central bank, regulatory and supervisory agencies, or the general government. Legal frameworks and institutional settings differ substantially and may gradually converge with advancing economic integration. Here, convergence is interpreted in the sense of Drezner (2002, p.53) as the tendency of policies to grow more alike, in the form of

[2] I did not use Middle East and North African countries (MENA) definition since the narrow and broader definition of MENA does not cover Albania, Bosnia and Herzegovina, Croatia, Montenegro countries in the definition of non-EU MPCs.

incremental similarity in structures, processes, and performances (for detail information please see also Marelli and Signorelli (2010) for a recent review of a wide concept of convergence).

We study these issues with reference to the well-known World Development Indicators, World Bank (2010). Indicators from other sources are used along with this database, but care must be taken that data for different countries are compiled using the same standards across countries. The cross section of countries should basically comprise the non-EU Mediterranean partners, except those which are (like Israel) structurally very different or which joined only recently (Albania and Mauretania).

Thus, we aimed to study the cross country variation of each indicator over time, including possibly some "pre-treatment" observations to have a well-defined reference point. (i.e. the sample may start a little earlier than the launch of the Barcelona Initiative, to include some information on how things were prior to integration efforts). However, due to insufficient length of time series and of munber of data, we just covered the post-Barcelona initiative. Testing for convergence is straightforward as soon as the conditioning heterogeneity is properly specified. For this to be true, note that the degree of integration will generally differ across countries at a certain point of time, as some Mediterranean partners were rather quick to embrace the Barcelona Initiative, while others were extremely tardy.

Conceptual Framework

An implicit assumption of most policy makers and academics is that globalization of or liberalization in trade and finance may lead to a convergence in institutional framework, economic policies, and regulatory framework virtually in every country. Convergence is the tendency of policies to grow more alike, in the form of incremental similarity in structures, processes, and performances (Drezner, 2002, p.53). In the growth literature, Rodrick (2002)

states that Latin American countries' development procedure or process fit into Neoclassical view; however, East Asian countries has diverged from today's Neoclassical consensus. China, India, South Korea, and Taiwan have almost combined unorthodox element (such as institutional innovation) with orthodox policies. It could also account for why important institutional difference persist among the advanced countries of North America, Western Europe, and Japan. To picture this point in terms of non-EU Mediterranean partner countries and EU countries, we use heterodox approach to detail the convergence issue. To be more specific, institutional framework covers policies applied by central bank, regulations and deregulations by regulatory and supervisory agencies, fiscal policies, and international reserve position by government.

In terms of institutional indicators and actual policies, Rodrick (2002) points out that many countries have combined unorthodox elements (such as institutional innovation) with orthodox policies and that this might account for why important institutional differences persist. We will therefore check for heterodox approaches of non-EU MPCs in the analysis of the convergence issue. We relate this to a decent amount of research on the effects of institutional convergence between non-EU MPCs and the EU countries (see Kaditi (2010), Kasman et.al (2008), Iancu (2009), Schweikert et al. (2008), Marelli and Signorelli (2010). For a summary, also see Kutan and Orlowski (2006).)

Thus, following questions will be purposely answered in the project: Does globalization lead to institutional convergence/divergence in these areas (such as, EU, non-EU Mediterranean partner countries)—existence of regional convergence? More generally, does globalization lead to the rollback of regulation, reforms, policies etc.? Some policy solutions to cope with post-crisis uncertain scenario should be discussed in this manner: (i) what are the most important areas of convergence? And (ii) which are these where the progress in economic policy is the easiest?

Analyzing the economic convergence between EU and non-EU Mediterranean partner countries and agreeing that the institutions form an environment that could influence in different direction (positive or negative) and at different level, the economic and social activity of a country, it provides justification for harmonizing the national institutions with those of EU, to make them convergent (in term of social, political, and economical reforms) by adequate transformation and improvement of their quality and effectiveness. Therefore, institutional convergence towards EU standards can be important factor of economic development for explaining the gaps in the nominal (i.e., inflation, exchange rate, interest rate, budget deficits, current account balance, external reserves, domestic savings and investment, etc.) and real convergence (i.e., GNP, GNP per capita, trade openness) of the countries (Marelli and Signorelli, (2010)).

As for the relationship between institutional and macroeconomic convergence we follow studies such as Brun, Carrere, Guillaumont and Melo (2005), Kula and Aslan (2008), Koukhartchouk and Mauref (2003), Kaditi (2010), Kasman et al.(2008), Iancu (2009) and Marelli and Signorelli (2010). To be more specific, our intention is to test the effects of institutional convergence on economic growth or trade openness/deepening in related countries such as EU and non-European Mediterranean Partner Countries. Therefore, institutional convergence towards EU standards can be important factor of economic development [of non-MPC] for explaining the gaps in the nominal (i.e., inflation, exchange rate, interest rate, budget deficits, current account balance, external reserves, domestic savings and investment, etc.) and real convergence (i.e., GNP, GNP per capita, trade openness) of the countries (Marelli and Signorelli, (2010)).

Moreover, there has been certain amount of research about the effects of institutional convergence of EU countries and some other countries (such as Poland, Hungary, Central, other former socialist countries pertaining to the Commonwealth of Independent States or East

European countries) toward the EU standards (for instance, Kaditi (2010), Kasman et.al (2008), Iancu (2009), Schweikert et al. (2008), Marelli and Signorelli (2010)) to access or integrate into the EU. Kutan and Orlowski (2006) study summarizes seven studies evaluating specific areas of monetary convergence to the Euro. All of these studies reflect a narrow side of institutional convergence regardless of the Barcelona process or non-EU Mediterranean partner countries, not requiring the accession or integration into the EU, focusing on institutional convergence in financial market, examination of the impact of the recent financial and economic crisis along with the different samples, specifications, and estimation methods they used. In addition, the major governmental budget deficit, the failure to control the monetary system cause inflation and unemployment with negative effects on the economic actors. They affect the business plans and decisions of the companies and further the very foundation of the economic growth.

It is important to determine how institutional convergence has affected macroeconomic convergence with the sample covering before and after the Barcelona Initiative (possibly from the early 1990s to 2008). We use the World Bank database, and other databases (such as Eurostat, Penn World Table, CEPII database, www.freetheworld.com, www.heritage.org and www.ggdc.net) from different sources are used along with this database. The cross section of countries should basically comprise the non-EU Mediterranean partners, except those which are (like Israel) structurally very different or which joined only recently (Palestinian, Albania and Mauretania).

To measure the degree of State intervention and the role of institutions in the economy, Koukhartchouk and Maurel (2003) use the Index of Economic Freedom. According to them, this index is composed of "the factors that most influence the institutional setting of economic growth. While it was computed for measuring economic freedom around the world and for emphasizing the

empirical strong correlation between freedom and growth, here the focus is put on the causality running from institutions to trade (in regard of export or import). Therefore, to search for the relationship between the determinants of institutional convergence and its effect on macroeconomic convergence, we benefit from Koukhartchouk and Maurel (2003) and Kula and Aslan (2008) for model and variable specification; Kaditi (2010) and Iancu (2009) and Schweichert et al. (2008) also guide us to build our methodology analysis, especially describing the determinants of institutional convergence. Thus, next section will cover the details on the methodology and model.

2. Methodology and model

Gravity Model Specification and the Hausman Test

Geographical proximity in the literature of International economics and its foreign trade relationship has been a subject of interest. In Kula and Alper (2008), seminal papers such as Timbergen (1962) and Pöyhönen (1963) use first version of gravity models, and extended version of them have been a great tools to analyze the potential foreign trade opportunity, and to explain the determinants of foreign trade among countries along with mainly in geoprahical proximity (p.2)

Accoding to Helpman and Krugman (1985), Krugman (1991 and 1997), initial structure of the Gravity model in economic theory developed by Classical and new foreign trade theories. After Timbergen (1962) and Pöyhönen (1963)'s pioneering studies, Linnemann (1966) adds population as a measure of country size into the Gravity model. However, other studies conducted by Koo and Karamera (1991), and Carrillo and Li (2002) used per capita income to indicate the

level of economic development among countries (see for details, Helpman and Krugman (1985) and Krugman (1991, 1997)). Besides, dummy variables such as cultural similarities, trade partnership were common to use to measure the effects of them on foreign trade in the model (see, Eichengreen and Irwin (1996), Soloaga and Winters (1999), Rose (2002), Martinez-Zarzoso and Nowak-Lehmann (2003), Cheng and Wall (2002; 2005). In recent years, Gravity model has been used to measure trade potentials to be emerged provided that if canditate countries become a member of EU (see, Brenton, Di Mauro and Lücke (1999), Paas (2003), and Antonucci and Manzocchi (2006)).

For the study of institutional convergence we see some potential in the use of Brun, Carrere, Guillaumont and Melo (2005), Kula and Aslan (2008), Koukhartchouk and Maurel (2003), Kaditi (2010)'s research methodology and Kasman et. al's (2008) cointegration analysis, possibly in an Autoregressive Distributed Lag (ARDL) framework to take account of slow institutional adjustment. These methods could be particularly useful when we address the issue of whether trade deepening in terms of export and import increases with institutional convergence toward EU standards.

Thus, assuming that trade is a function of the size of economies and their distance, the basic gravity model can be written in logs as

$\ln M\,ij = \beta_0 + \beta_1 \ln(E\,i\,E\,j) + \beta_3 \ln Dij$

where Mij is the level of trade (exports, imports, or total trade) between countries i and j, *E*i is GDP of country i and *Dij* is the distance between *i* and *j*.

It is most common to extend the basic equation by including a number of factors that potentially facilitate or inhibit trade, such as cultural, geographical, and political characteristics. Such extended models are referred to as 'augmented' gravity models. We assemble data for a panel of all EU and non-EU MP countries for 1999-2009 and estimate an augmented gravity

model for each of the countries in our sample. The key variables in our study are the indicators of institutional quality[3]. Using panel estimation techniques we single how institutional conditions affect volume of Euro-Mediterranean trade. A simple way to investigate the effect of institutional and nominal convergence on trade is to regress trade flows with the EU on the institutional convergence, with the addition of some control variables, e.g. the most relevant economic variables explaining trade flows, such as GDP in the individual countries and aggregate EU's GDP. Trade deepening is expected to increase with the process of institutional convergence toward the EU standards. Besides, non-EU Mediterranean countries normally increase their trade relationship with the EU countries and hence, they will have a chance to grow faster. The equation to be estimated is in Equation (1) as following:

$$LnTRADE_{ij} = \alpha_0 + \alpha_1 LnSIM_{ij} + \alpha_2 LnBEXCR_{ij} + \alpha_3 LnDIST_{ij} + \sum_{1}^{7} \alpha_k INST_i^k + \sum_{1}^{7} \alpha_{k'} INST_j^{k'} + \varepsilon_t \quad (1)$$

To measure the degree of state intervention in the economy and the role of institutions we benefited from the Index of Economic Freedom of the World 2011. In Equation 1, variables[4] and their expected signs are described as followings:

[3] Availability of data determined which one of followings is used in the text respectively. 1-For Fiscal burden of government, we need government expenditures, tax rate faced by the average taxpayers, budget deficits.
2- For Government intervention in the economy we need government consumption as a percentage of the economy, economic output produced by the government, government ownership of business and industries.
3- For Monetary policy, we need Average inflation rate CPI and WPI, interbank interest rate or money market rate,
4- For Capital flows and foreign investment, we need foreign investment code, restrictions on foreign ownership of business, restrictions on the industries and companies open to foreign investors, restrictions on capital flows.
5- For Banking and Finance , government ownership of banks, restrictions on the ability of foreign banks to open branches and subsidiaries, government influence over the allocation of credit, government regulations, capital structure of banks, capital adequacy ratio
6- For Wages and Prices , minimum wage laws, government price controls, government subsidies to businesses that affect prices
7- For Regulation, regulations that impose a burden on business, labor regulations such as established work weeks, paid vacations, regulations related to banking sector.

[4] We also wanted to collect data for Real GDP in PPP, Unemployment rates, Current account deficit; however, insufficiency of data did let us to collect them.

TRADE[5]**=** bilateral trade, that is the exports of country j from country i in terms of level of value. It is a dependent variable.

SIM= similarity between home (i) and host (j) countries economic growth. Following formula is benefited from Kula and Aslan (2003) study.

$$SIM_i = \ln\left[1 - \left(\frac{GDPi}{GDPi + GDPj}\right)^2 - \left(\frac{GDPj}{GDPi + GDPj}\right)^2\right]$$

Expected coefficient sing is (+) which means that bilateral trade tends to increase if their exchanges are of intra-industry nature; if their exchanges are of their inter-industry nature the coefficient should be (-).

BEXCR= bilateral real exchange rate between home (i) and host (j) countries. Following formula is computed by benefiting from Brun et al. (2005) study;

$BEXCRij = \frac{NOE_i}{NOE_j} x \frac{CPI_i}{CPI_j}$, where first term in above equation comprises nominal exchange rate for j or EU countries over nominal exchange rate for i or MPC countries while second term comprises consumer price index for j or EU countries over consumer price index for i or MPC countries. The coefficient is expected to be (-) since an increase of it that reflects a depreciation of the importing country's currency against that of the exporting country reduces bilateral trde.

DIST= distance between capitals of home (i) and host (j) countries. Since the longer the higher transport and insurance costs, its coefficients is expected to be (-).

To measure financial and non-financial institutional condition quaility, assuming INST i (home or MPCs) ve j (host or EU countries), we list INST variables for i and j countries as following:

[5] We also extracted import data in volume; however, all tests done over import as a dependent variable did not relatively produce more significant results. Therefore, we just presented the test results of export as a dependent variable.

INST 1- for **fiscal burden of government variable**, government spending. The larger the public share of the economy, the lower the trade volume. Expected sign is (-).

INST 2- for **government intervention in the economy variable**, General gov't consumption as share of total consumption. We believe that market incentive for trading are much lower when the State plays a predominant role in the economy. Expected sing is (-).

INST3- for **monetary policy variable**, annual inflation (CPI) (according to most recent year). Inflation is expected to be negatively related with trade. Expected sign is (-).

INST4- for **capital flows and foreign investment variable**, Restrictions in Foreign Capital Market Exchange/Index of capital controls among 13 IMF categories. Expected sign is (-).

INST5- for **banking and finance variable**, ownership of banks or extention of credit. Expected sign is (-), since all restrictions on credit and finance obviously tend to hinder foreign trade.

INST6- for **wages and prices variable**, price controls or Transfers and subsidies as a share of GDP. Expected sign is (-) since more freedom from government influence and higher market flexibilty favour absoluate advantage for trade.

INST7- for **regulation variable**, credit market regulation. Expected sign is (-), even if its impact is far from direct, businesses or firms are likely to discourage potential trade partners.

We use STATA 2011, and EVIEWS 7 econometric programs to run a static panel version of Generalized Least Square, (GLS), method[6] for above equation (1) according to variables described above. Artan and Kalayci (2009) gives us a reason of why we should use Panel GLS

[6] To transform our data set to dynamic one we tried Arellano-Bond Dynamic Panel Estimator Generalized Method of Moments (GMM) but we could not use it beacuse distance variable (DISTij) had a same value for all other observations, and also time length in panel data was not enough to run the test. Another try is to use Panel ARDL method; however, we could not use it as well since time length of panel data is smaller than 20 which is supposed to be in minimum. Smaller time length does allow to compute panel unit root, panel cointegration which are precondition of Panel ARDL. Last option was to use time series OLS method for comparison of each individual non-EU MP countries with EU(27). But, we cameacross with similar problem of DIST variable, and therefore, even though we took it out from the model, t-test results were insignificant. Again, because of inadequacy of observations, we were limited to use static GLS model and to compare as a block of non-EU MPCs (8) with EU(27).

method for this project as following: "Error components model or random effect model assumes that individual and time effects are not connected with independent variables. Therefore, since coefficients in a model can not be computed for each individuals, degrees of freedom will he higher. Besides, all factors which influence dependent variable, and are unfortunately not included in the model can be explained by a random error term. Thus, panel regression analysis for a random effects model is GLS method (p.183)".

To be more specific and keep the model simple way due to availability of data, our approach is to test the effect of institutional convergence on trade opennes in related countries. Thus, in regard of the explanation in footnote 4, we compare block of non-EU MPCs (8) with EU (27).

Research methodology that fits into the casual relationship between institutional convergence and economic convergence is derived from Koukhartchouk and Maurel (2003) and Kula and Aslan (2008) for model and variable specification; Kaditi (2010) and Iancu (2009) and Schweichert et al. (2008) also guide us to build our methodology analysis, especially describing the determinants of institutional convergence. According to studies mentioned, we can express that (financial and nonfinancial) institutional convergence providing market stability means that similarities and differences in capital structure of banks, capital adequacy ratio, monetary policies (interest rate, exchange rate, inflation rate etc.) of central bank along with fiscal discipline (the Maastrich's Criteria[7]), and regulations and deregulations of regulatory and supervisory agency for banking and capital market while macroeconomic convergence includes country variables such as business cycle behavior, GNP growth, GNP per capita, PPP in $, and trade opennes/deepenning

[7] It is also called in the literature as Maastricht's parameters including (i) disparities in long-term interest rates, (ii) Deficit/GDP ratio, (iii) Debt/GDP ratio, and (iv) national inflation rates.

etc. Thus, institutional convergence also deals with non-financial institutions behavior influencing macroeconomic of a country.

In a panel data analyzing method, since we use time variant and time invariant variables; therefore, we have to go thru the Hausman test procedure[8] (i.e., choosing either fixed or random effects) to reach a more reliable estimation. In other words, getting consistent estimates of the time invariant variables requires the use of the Hausman-Taylor procedure. We are thus concerned with the potential correlation of the fixed effects with the explanatory variables. Hausman (1978) and Hausman and Taylor (1981) basically show that if the fixed effects are not correlated with a subset of explanatory variables, then the time-invariant variables coefficients can be consistently and efficiently estimated. This procedure combines the advantages of taking into account the fixed effects and keeping in the equation the time-invariant variables whose impact on trade we want to estimate (Kouckhartchouk and Maurel, 2003, pp.14-15).

Assume that our gravity model simply can be written in the following way:

$$Y_{it} = \alpha + X_{it}'\beta + u_{it}$$

where $u_{it} = \mu_i + \vartheta_{it}$

μ_i : Individual effects remain constant in time. Or, individual effects are assumed random. Therefore, our assumption is as following:

$$E\left(\vartheta_{it} \middle| X_{it}\right) = 0$$

$$Cov\left(\mu_i , X_{it}\right) = 0$$

[8] According to Baltagi (2008), if random effects model produces more efficient [estimation] results than that of fixed effects model, we must choose random effects model. In other words, when both fixed and random effects models have efficient test results, we must relatively consider the better one. Therefore, it has to be determined between both models which can be consistent, but their efficiencies can be different. In the literature, this efficiency test requires Hausman test fitting with Chi^2 with k freedom degree (p.20). However, another study, Erlat (2006) asserts that Hausman test results cannot definitely help to choose between fixed and random effects models (p.22).

And, hypotheses to be tested are followings,

H_0: $cov(\mu_{it}, X_{it}) = 0$ $\text{cov}\left(\mu_{it}, X_{it}\right) = 0$

H_A: $cov(\mu_{it}, X_{it}) \neq 0$ $\text{cov}\left(\mu_{it}, X_{it}\right) \neq 0$

When we do the Hausman test for Equation 1, we get the values of Chi^2=3,05, and Prob.= 0,9802, which means that the Hausman test rejects the null hypothesis of the absence of correlation between the residuals and certain variables the X_i.[9] Thus, we continue our model with random effects since we use, for instance, distance variable, DIST, which is time invariant. In the estimations done by random effects model, it is assumed that residuals do not have autocorrelation and constant variance exists.

[9] When Chi^2<0, the Hausman test cannot be run.

3. Data

For our sample of non-EU MPCs[10], we collected the data from different resources such as the World Bank Indicators, Eurostat, Penn World Table, CEPII database, www.freetheworld.com, www.heritage.org and www.ggdc.net . The cross section of countries should basically comprise 16 non-EU Mediterranean partners, such Albania, Algeria, Croatia, Egypt, Israel, Jordan, Tunisia, Turkey *(here it makes 8 and afterwards we call non-EU MPCs (8))*; however, we had to let following countries such as Bosnia and Herzegovina, Mauritania, Monaco, Montenegro, Lebanon, Palestenian, Morocco, and Syria out of the model since the available data for these countries were skipping in middle years which did not let us do unbalanced panel data analysis and also seriously limited us to benefit from other econometric models (see also Footnote 5).

The details of sources for extracted data for gravity model are as in following Table 1:

Names of Variables	**Sources of Variables**
Nominal Exchange Rates	Penn World Table
Consumer Price Index	World Bank Development Indicators
GDP and GDP (EU)	World Bank Development Indicators
Import and Export (2000=100)	EuroStat
Distance	CEPII
Institutional Indicators such as General gov't consumption as share of total consumption, Transfers and subsidies as a share of GDP, Standard deviation of annual inflation (last 5 yrs), Annual inflation (most recent yr), Freedom of citizens to own foreign currency bank accounts (domestically and abroad), Restrictions in Foreign Capital Market, Exchange/Index of capital controls among 13 IMF categories, Ownership of banks, Extension of credit, Credit Market Regulation, Price controls	www.freethworld.com and Economic Freedom of the World 2011
Institutional Indicators such as Government Spending	http://www.freetheworld.com/2011/2011/Dataset.xls, and http://www.heritage.org/index/Explore.aspx?view=by-region-country-year

[10] Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Israel, Jordan, Lebanon, Mauritania, Monaco, Montenegro, Morocco, The Palestinian territories, Syria, Tunisia and Turkey.

To measure the degree of state or government intervention in the economy and the role of institutions Koukhartchouk and Maurel (2003) use the Index of Economic Freedom. According to them, this index is composed of "the factors that most influence the institutional setting of economic growth. While it was computed for measuring economic freedom around the world and for emphasizing the empirical strong correlation between freedom and growth, here the focus is put on the causality running from institutions to trade (in regard of export or import). In the project, we deal with data range from 1999 to 2009 for MPC, and EU(27)[11]. Before runing a panel data analysis, due to many limitations arising from availability of data, since we can not analyze any individiual non-EU MPCs (8) in respect of EU (27) and thus, we blocked non-EU MPCs (8) and EU (27) and compared them. In summary, we used 1089 observations which comprise of 8 non-European MP countries along with a block of EU(27), 11 variables and 11 years.

4. Results

We can counter that some coefficients may have the wrong signs or are not significant at the rest results. Initial assumption-partially confirmed in Table 2-is that some of them reflect a degree of economic freedom which is lower (or not very different) in EU countries, and higher in MPCs. Table 2 reflects that 8 non-EU MPCs have been made some progress in institutional quality toward EU(27) on average level. In other words, their score are greater than that of EU (27) for INST 1, and INST 2 indicators. In the rest, even if the figures reflects the opposite situation, 8 non-EU MPCs have been making some progress toward EU (27). In details, INST3,

[11] Austria, Belgium, Bulgaria, Czech Republic, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, UK.

INST5, INST6, and INST7 reflects some convergency toward EU(27); however, INST1, INST2 and INST4 diverges from EU(27). Therefore, we test how this progressive situation has affected economic convergence between these two blocks.

Table 2: Institutions Scores Averaged over Countries Blocks

	MPCs (8)											EU (27)										
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Inst1	**59.2**	**57.9**	**55.8**	**57.5**	**54.4**	**54.3**	**55.9**	**59.7**	**59.8**	**60.7**	**62.7**	**36.7**	**40.5**	**45.9**	**44.0**	**44.0**	**43.1**	**42.6**	**44.6**	**45.7**	**46.0**	**47.4**
Inst2	**5.3**	**5.5**	**5.2**	**5.5**	**5.4**	**5.6**	**5.9**	**5.8**	**5.9**	**5.6**	**5.6**	**4.7**	**4.4**	**4.3**	**4.2**	**4.2**	**4.3**	**4.4**	**4.3**	**4.4**	**4.2**	**3.9**
Inst3	**3.8**	**6.3**	**6.9**	**6.9**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.5**	**7.7**	**8.8**	**9.0**	**9.3**	**9.4**	**9.4**	**9.4**	**9.4**	**9.3**	**8.9**	**9.7**
Inst4	**2.4**	**3.0**	**3.1**	**3.1**	**3.5**	**3.5**	**3.7**	**3.7**	**3.5**	**3.5**	**4.1**	**7.2**	**7.6**	**8.5**	**8.9**	**8.9**	**9.8**	**10.**	**10.00**	**10.00**	**10.00**	**10.00**
Inst5	**3.1**	**4.4**	**4.3**	**4.6**	**4.6**	**4.6**	**5.3**	**5.3**	**5.3**	**5.3**	**5.3**	**6.2**	**7.2**	**7.8**	**8.8**	**8.8**	**8.8**	**9.0**	**9.0**	**9.0**	**9.0**	**9.0**
Inst6	**3.8**	**4.4**	**4.9**	**4.9**	**5.0**	**4.9**	**4.6**	**4.6**	**4.5**	**4.5**	**4.5**	**6.3**	**6.3**	**5.9**	**5.9**	**5.7**	**5.4**	**5.4**	**5.7**	**5.7**	**5.7**	**5.7**
Inst7	**5.9**	**6.1**	**6.5**	**6.7**	**6.8**	**6.9**	**7.4**	**7.8**	**7.5**	**7.5**	**7.4**	**6.8**	**8.1**	**8.2**	**8.5**	**8.5**	**8.5**	**9.0**	**9.0**	**9.1**	**9.0**	**8.5**

To easly and robustly decide that if institutional convergence between non-EU MPCs (8) and EU (27) leads economic convergence in terms of trade, we modified Equation 1 as in Equation 2 since Koukhartchouk and Maurel (2003, p.20) study inspired us to combine the last two component in Equation 1 (please see details in Table 3). We iteratively run econometric test, Panel Generalized Least Squares, (Panel GLS), for bilateral import as of dependent variable and later, bilateral export figure as of dependent variable; however, bilateral export figures present

relatively more significant resutls[12]. Besides, the test for Equation 1 has been done after the rejection of H-null hypothesis in the Hausman test by STATA 2011 econometric program, but some exceptions apply.

Table 3-Equation 1: Random-effects GLS regression results (Including Turkey)

```
Random-effects GLS regression                   Number of obs      =        88
Group variable: ident                           Number of groups   =         8

R-sq:  within  = 0.7591                         Obs per group: min =        11
       between = 0.9964                                        avg =      11.0
       overall = 0.9810                                        max =        11

Random effects u_i ~ Gaussian                   Wald chi2(17)      =   3617.43
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000
```

ex	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
sim	.7625757	.0160794	47.43	0.000	.7310606	.7940908
bexcr	.01719	.0182237	0.94	0.346	-.0185278	.0529077
dist	-.729805	.1373637	-5.31	0.000	-.999033	-.460577
inst1	.0008146	.0016581	0.49	0.623	-.0024353	.0040644
inst2	-.0390758	.0123971	-3.15	0.002	-.0633738	-.0147779
inst3	-.0351757	.007244	-4.86	0.000	-.0493737	-.0209776
inst4	-.013983	.0151875	-0.92	0.357	-.04375	.0157841
inst5	.0085169	.0139992	0.61	0.543	-.0189211	.0359549
inst6	.0496033	.0154441	3.21	0.001	.0193334	.0798733
inst7	.0748951	.0272943	2.74	0.006	.0213992	.128391
insteu1	.0691372	.0226986	3.05	0.002	.0246488	.1136257
insteu2	.2697698	.1950041	1.38	0.167	-.1124313	.6519709
insteu3	-.1769478	.1029092	-1.72	0.086	-.3786461	.0247505
insteu4	.0820573	.0570463	1.44	0.150	-.0297513	.1938659
insteu5	-.3992494	.1193834	-3.34	0.001	-.6332365	-.1652622
insteu6	-.0803507	.079222	-1.01	0.310	-.235623	.0749215
insteu7	.601515	.1781026	3.38	0.001	.2524404	.9505897
_cons	13.0088	1.929653	6.74	0.000	9.226746	16.79085
sigma_u	0					
sigma_e	.12244336					
rho	0	(fraction of variance due to u_i)				

Statistically signifincant test results in the Table 3 state that SIM matters to increase bilateral trade about %76 while DIST negatively affects trade about %73. On the other hand, for

[12] According to the European Commission, EU trade with the MPCs has increased substantially since 1995. Exports to the EU for Southern Mediterranean countries have doubled between 1995-2006, while imports from the EU to the Southern Mediterranean countries have increased by about 60% (Lannon, 2008, p.3).

non-EU MPCs, INST2 makes a sense that an increase in government intervention into economy leads %4 decline in trade. INST3, monetary policy variable such inflation has negative relationship with trade as much as %3.5. For EU(27), just INST 5, banking and finance, creates negative effects on trade. Thus, since we can not definitley tell if there is an institutional convergence between two blocks, and how trade is affected by this convergence, we decided to use of the difference between institutional quality criterion for two blocks (see Koukhartchouk and Maurel, 2003, p.20).

$$LnTRADE_{ij} = \alpha_0 + \alpha_1 LnSIM_{ij} + \alpha_2 LnBEXCR_{ij} + \alpha_3 LnDIST_{ij} + \alpha_k \left(\sum_{1}^{7} INST_i^k + \sum_{1}^{7} INST_j^{k'} \right) + \varepsilon_t \quad (2)$$

According to the Hausman test result, below, for Equation 2,

```
Test:  Ho:  difference in coefficients not systematic

            chi2(19) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                     =       93.36
           Prob>chi2 =      0.0000
           (V_b-V_B is not positive definite)
```

we should use fixed effects model for non-EU MPCs (8) (i.e., including Turkey); however, according to the explanation as mentioned in the footnote 7, we present panel GLS test results as followings:

Table 4-Equation 2: Random-effects Panel GLS regression results (Including Turkey)

```
Random-effects GLS regression                   Number of obs      =        88
Group variable: ident                           Number of groups   =         8

R-sq:  within  = 0.4814                         Obs per group: min =        11
       between = 0.9928                                        avg =      11.0
       overall = 0.9601                                        max =        11

Random effects u_i ~ Gaussian                   Wald chi2(10)      =   1851.11
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000
```

ex	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bexcr	-.0204508	.0242994	-0.84	0.400	-.0680768	.0271753
sim	.767961	.0219171	35.04	0.000	.7250042	.8109178
dist	-.3065767	.1745558	-1.76	0.079	-.6486998	.0355463
inst1	-.0020133	.0021697	-0.93	0.353	-.0062658	.0022392
inst2	-.0304323	.0169396	-1.80	0.072	-.0636334	.0027688
inst3	-.0186328	.0094272	-1.98	0.048	-.0371097	-.0001559
inst4	-.0716872	.0182731	-3.92	0.000	-.1075019	-.0358725
inst5	.0305266	.0176114	1.73	0.083	-.0039911	.0650443
inst6	.0429576	.0193949	2.21	0.027	.0049443	.080971
inst7	.0568288	.0336522	1.69	0.091	-.0091283	.1227859
_cons	14.71376	1.397401	10.53	0.000	11.9749	17.45262
sigma_u	0					
sigma_e	.14694516					
rho	0	(fraction of variance due to u_i)				

Statistically signifincant test results in the Table 4 state that SIM still matters to increase bilateral trade about %76 while DIST and BEXCR are not statictically significant. INST 3 and 4 coefficients are (-) as expected. For monetary policy and restrictions on capital flows and foreign investment aspects, we see some divergence between these two blocks, and thus, bilateral trade declines respectively %1.8 and %7.2. However, INST 6 coefficient is supposed to be (-) but its sign is (+) which means that there are some convergence in terms of wages and prices variable and thus, increase in bilateral trade about %4.3.

In addition, we also wondered that since Turkey is among 20 leading countries in the World, and has been intensively going under the social, political and economic reforms since April 2001 along with New Economic Stability Program when we compared to non-EU MPCs, if

it may create an outlier effect in the test results. For this reason, we also present test results by excluding Turkey from the model.

According to the Hausman test result, below, for Equation 2,

```
    Test:  Ho:  difference in coefficients not systematic

                 chi2(19) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =        8.68
                Prob>chi2 =      0.9784
                (V_b-V_B is not positive definite)
```

we should use random effects model for non-EU MPCs (7) (i.e., excluding Turkey) and we present panel GLS test results as followings:

Table 5-Equation 2: Random-effects Panel GLS regression results (Excluding Turkey)

```
Random-effects GLS regression                   Number of obs      =        77
Group variable: ident                           Number of groups   =         7

R-sq:  within  = 0.6073                         Obs per group: min =        11
       between = 0.9976                                        avg =      11.0
       overall = 0.9657                                        max =        11

Random effects u_i ~ Gaussian                   Wald chi2(10)      =   1857.06
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000
```

ex	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bexcr	.5208443	.0873304	5.96	0.000	.3496799	.6920087
sim	.8058735	.0309935	26.00	0.000	.7451273	.8666196
dist	-.8741821	.1789916	-4.88	0.000	-1.224999	-.523365
inst1	-.0076171	.0020731	-3.67	0.000	-.0116803	-.0035539
inst2	.0106743	.0149719	0.71	0.476	-.0186701	.0400187
inst3	-.0033311	.0095365	-0.35	0.727	-.0220224	.0153601
inst4	-.0779052	.0152712	-5.10	0.000	-.1078363	-.0479742
inst5	-.0224952	.0169913	-1.32	0.186	-.0557974	.010807
inst6	.0328744	.0178584	1.84	0.066	-.0021274	.0678762
inst7	.0480745	.0295126	1.63	0.103	-.0097691	.105918
_cons	18.79806	1.448607	12.98	0.000	15.95884	21.63727
sigma_u	0					
sigma_e	.13591952					
rho	0	(fraction of variance due to u_i)				

After taking Turkey out of the model, statistically signifincant test results in the Table 5 state that SIM still matters to increase bilateral trade about %80 and DIST and BEXCR are statictically significant and respectively decreases bilateral trade about %87 and increases bilateral trade %52. INST 1 and 4 coefficients are (-) as expected. For fiscal burden of government, and restrictions on capital flows and foreign investment aspects, we see some divergence between these countries, and thus, bilateral trade declines respectively %7.6 and %7.8. Besides, INST 6 coefficient is (-) as expected which means that there are some divergence in terms of regulation on credit markets and thus, decrease in bilateral trade about %3.3. In sum,

taking out Turkey lets DIST and BEXCR be significant, and increases divergence between 7 non-EU MP countries and EU (27).

We also tried to transform Equation 2 to dynamic aspect to find the best robust test results which arise more close approch to what Table 1 reflects. Thefore, we attempt to try a few options and then, compare their results with that of Equation 2. In keeping in mind, first, dynamic ones do not require the Hausman test, and second, footnote 7 reasons that the Hausman test does not necessarily specify random effects model. Therefore, first attempt is to add TRADE(-1) which creates Equation 3. Including Equation 3 and afterwards, we use Panel Estimated Generalized Least Squares, (Panel EGLS), method along with help of EVIEWS 7 program.

$$LnTRADE_{ij} = \alpha_0 + \alpha_1 LnTRADE_{ij}(-1) + \alpha_2 LnSIM_{ij} + \alpha_3 LnBEXCR_{ij} + \alpha_4 LnDIST_{ij} + \alpha_k \left(\sum_{1}^{7} INST_i^k + \sum_{1}^{7} INST_j^{k'} \right) + \varepsilon_t \quad (3)$$

Table 6-Equation 3: Panel EGLS regression results of TRADE(-1) (Including Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/02/12 Time: 23:50
Sample (adjusted): 2000 2009
Periods included: 10
Cross-sections included: 8
Total panel (balanced) observations: 80
Linear estimation after one-step weighting matrix
White cross-section standard errors & covariance (d.f. corrected)
WARNING: estimated coefficient covariance matrix is of reduced rank

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	**0.700311**	0.081865	8.554439	0.0000
DIST	-0.077852	0.119365	-0.652214	0.5165
BEXCR	**0.079429**	0.032434	2.448919	0.0169
SIM	**0.206095**	0.055091	3.741006	0.0004
INST1	**-0.001846**	0.000592	-3.120717	0.0026
INST2	-0.007677	0.005761	-1.332524	0.1871
INST3	-0.005673	0.005851	-0.969622	0.3357
INST4	**-0.034164**	0.007382	-4.628125	0.0000
INST5	0.006516	0.013495	0.482825	0.6308
INST6	-0.006220	0.008450	-0.736174	0.4642
INST7	-0.004731	0.020197	-0.234222	0.8155
C	4.070196	1.744836	2.332710	0.0226

Weighted Statistics

R-squared	0.990290	Mean dependent var	9.581583
Adjusted R-squared	0.988719	S.D. dependent var	1.750823
S.E. of regression	0.109660	Sum squared resid	0.817718
F-statistic	630.4669	Durbin-Watson stat	1.546136
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.989419	Mean dependent var	8.937282
Sum squared resid	0.833585	Durbin-Watson stat	1.630183

Table 7-Equation 3: Panel EGLS regression results of TRADE(-1) (Excluding Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/05/12 Time: 15:25
Sample (adjusted): 2000 2009
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	**0.694268**	0.073918	9.392448	0.0000
DIST	-0.096914	0.166381	-0.582485	0.5625
BEXCR	0.059157	0.079618	0.743013	0.4605
SIM	**0.200045**	0.064134	3.119192	0.0028
INST1	-0.001304	0.001609	-0.810542	0.4209
INST2	-0.012268	0.010244	-1.197657	0.2359
INST3	-0.008644	0.006722	-1.285780	0.2036
INST4	**-0.026959**	0.011265	-2.393233	0.0200
INST5	0.002242	0.011796	0.190053	0.8499
INST6	-0.012178	0.013200	-0.922532	0.3601
INST7	0.005521	0.020417	0.270396	0.7878
C	4.269080	1.881883	2.268515	0.0270

Weighted Statistics

R-squared	0.989780	Mean dependent var	8.926173
Adjusted R-squared	0.987842	S.D. dependent var	1.247161
S.E. of regression	0.098626	Sum squared resid	0.564177
F-statistic	510.6569	Durbin-Watson stat	1.534281
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.988290	Mean dependent var	8.707158
Sum squared resid	0.565153	Durbin-Watson stat	1.534614

According to test results of including Turkey case in Table 6 and 7, EX(-1) (i.e., TRADE (-1)) has a power to explain about %70 of changes in EX (i.e., TRADE), dependent variable while BEXCR and SIM still matters respectively about %7.9 and %20.6 on bilateral trade. INST1 and INST4 respectively have -%0.2 and -%3.4 effect on TRADE (i.e., EX) which reflect that non-EU MPCs diverges from EU(27). And, exclusion of Turkey creates similar magnitude effect on EX(-1) and SIM while INST4 causes a decline in TRADE about -%2.7. In

sum, inclusion of Turkey increases institutional divergence. Second attempt is to add a TREND variable which forms Equation 4.

$$LnTRADE_{ij} = \alpha_0 + \alpha_1 LnSIM_{ij} + \alpha_2 LnBEXCR_{ij} + \alpha_3 LnDIST_{ij} + \alpha_k \left(\sum_{1}^{7} INST_i^k + \sum_{1}^{7} INST_j^{k'} \right) + TREND + \varepsilon_t \quad (4)$$

Table 8-Equation 4: Panel EGLS regression results of TREND (Including Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/10/12 Time: 00:36
Sample: 1999 2009
Cross-sections included: 8
Total panel (balanced) observations: 88
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIST	**-0.542202**	0.141536	-3.830831	0.0003
BEXCR	0.004159	0.018585	0.223803	0.8235
SIM	**0.772660**	0.014997	51.52180	0.0000
INST1	-0.000730	0.001579	-0.462322	0.6452
INST2	**-0.033641**	0.011333	-2.968484	0.0040
INST3	**-0.039284**	0.006391	-6.147229	0.0000
INST4	**-0.034693**	0.013914	-2.493405	0.0148
INST5	**0.040964**	0.013254	3.090695	0.0028
INST6	**0.056624**	0.014479	3.910761	0.0002
INST7	0.021424	0.020668	1.036580	0.3032
TREND	**0.048477**	0.005996	8.085356	0.0000
C	16.35798	1.118279	14.62782	0.0000

Weighted Statistics

R-squared	0.996393	Mean dependent var	9.853491
Adjusted R-squared	0.995871	S.D. dependent var	2.536350
S.E. of regression	0.162977	Sum squared resid	2.018672
F-statistic	1908.638	Durbin-Watson stat	1.109848
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.974383	Mean dependent var	8.899102
Sum squared resid	2.274230	Durbin-Watson stat	1.141144

Table 9-Equation 4: Panel EGLS regression results of TREND (Excluding Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/10/12 Time: 00:34
Sample: 1999 2009
Cross-sections included: 7
Total panel (balanced) observations: 77
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DIST	**-0.846275**	0.151268	-5.594547	0.0000
BEXCR	**0.341531**	0.078152	4.370100	0.0000
SIM	**0.751978**	0.024911	30.18677	0.0000
INST1	**-0.005217**	0.001724	-3.026217	0.0035
INST2	-0.007874	0.012233	-0.643616	0.5221
INST3	**-0.027864**	0.008070	-3.452903	0.0010
INST4	**-0.036805**	0.012937	-2.844944	0.0059
INST5	-0.013846	0.013864	-0.998735	0.3216
INST6	**0.034854**	0.015465	2.253749	0.0276
INST7	**0.038168**	0.021237	1.797231	0.0769
TREND	**0.040538**	0.006165	6.575007	0.0000
C	18.31981	1.221841	14.99361	0.0000

Weighted Statistics

R-squared	0.993514	Mean dependent var	9.041882
Adjusted R-squared	0.992416	S.D. dependent var	1.580975
S.E. of regression	0.137681	Sum squared resid	1.232145
F-statistic	905.0992	Durbin-Watson stat	1.114183
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.976554	Mean dependent var	8.670883
Sum squared resid	1.302128	Durbin-Watson stat	1.162319

Table 8 and 9 tell us that addition of TREND gets the test results closer to what Table 1 says. In this sense, TREND decreases DIST's effect on TRADE as of -%54. SIM still matters for TRADE and its coefficient is %77. INST2, INST3 and INST 4 create some divergence and hence, respectively decrease TRADE by %3.3, %3.9 and %3.4. On the other hand, INST 5 and INST 6

indicate some convergence and hence, respectively increase TRADE by %4 and %5.6. When we go over the results in consideration of 'without Turkey', DIST becomes important and decreases TRADE more as of %84. But, BEXCR turns out to be significantly increases TRADE about %34. SIM is still matters at about same percentage. Divergence situation changes a bit: INST1 very slightly decrease TRADE about %0.5; INST3's negative effect on TRADE declines to %2.7; and, INST 4's response does not change almost. On the other hand, INST 6's response positively increases TRADE about %3.4 which is lower than %5.6. INST 7 becomes important to positively effect TRADE about %3.8. In sum, TREND is statistically significant and clearly shows more robust results for guiding us. In sum, removing Turkey emerges the importance of divergence on INST 1 (i.e., government spending) but convergence on INST 7 (i.e., credit market regulation).

Last attempt is to add TRADE(-1), SIM (-1), and BEXCR (-1) which form Equation 5.

$$LnTRADE_{ij} = \alpha_0 + \alpha_1 LnTRADE_{ij}(-1) + \alpha_2 LnSIM_{ij} + \alpha_3 LnSIM_{ij}(-1) + \alpha_4 LnBEXCR_{ij} + \alpha_5 LnBEXCR_{ij}(-1) + \alpha_4 LnDIST_{ij} + \alpha_k \left(\sum_{1}^{7} INST_i^k + \sum_{1}^{7} INST_j^{k'} \right) + \varepsilon_t \quad (5)$$

Table 10-Equation 5: Panel EGLS regression results with All Lagged (Including Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/02/12 Time: 23:53
Sample (adjusted): 2000 2009
Periods included: 10
Cross-sections included: 8
Total panel (balanced) observations: 80
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	**0.636176**	0.059363	10.71674	0.0000
DIST	**-0.268574**	0.127043	-2.114029	0.0383
BEXCR	**0.254020**	0.078241	3.246640	0.0018
BEXCR(-1)	**-0.087135**	0.033155	-2.628130	0.0107
SIM	**1.516325**	0.505603	2.999041	0.0038
SIM(-1)	**-1.251894**	0.512003	-2.445093	0.0172
INST1	**-0.002389**	0.001348	-1.772525	0.0809
INST2	-0.009832	0.008891	-1.105743	0.2729
INST3	-0.003028	0.004721	-0.641370	0.5235
INST4	**-0.035912**	0.010646	-3.373301	0.0012
INST5	0.000341	0.012067	0.028243	0.9776
INST6	0.002091	0.010716	0.195084	0.8459
INST7	-0.008341	0.019221	-0.433968	0.6657
C	6.277743	1.405059	4.467958	0.0000

Weighted Statistics

R-squared	0.993270	Mean dependent var	9.128336
Adjusted R-squared	0.991944	S.D. dependent var	1.456813
S.E. of regression	0.098978	Sum squared resid	0.646575
F-statistic	749.2869	Durbin-Watson stat	1.570782
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.991637	Mean dependent var	8.937282
Sum squared resid	0.658831	Durbin-Watson stat	1.552820

Table 11-Equation 5: Panel EGLS regression results with All Lagged (Excluding Turkey)

Dependent Variable: EX
Method: Panel EGLS (Cross-section weights)
Date: 03/03/12 Time: 00:02
Sample (adjusted): 2000 2009
Periods included: 10
Cross-sections included: 7
Total panel (balanced) observations: 70
Linear estimation after one-step weighting matrix

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EX(-1)	**0.698390**	0.073372	9.518512	0.0000
DIST	-0.144843	0.180434	-0.802752	0.4255
BEXCR	-0.242512	0.480325	-0.504891	0.6156
BEXCR(-1)	0.312369	0.488778	0.639081	0.5254
SIM	0.712334	0.583715	1.220344	0.2274
SIM(-1)	-0.514288	0.576783	-0.891649	0.3764
INST1	-0.001492	0.001645	-0.906571	0.3685
INST2	-0.013086	0.010617	-1.232478	0.2229
INST3	-0.007603	0.006759	-1.124921	0.2654
INST4	**-0.025818**	0.011674	-2.211674	0.0311
INST5	0.001012	0.013151	0.076941	0.9389
INST6	-0.009546	0.013604	-0.701729	0.4858
INST7	-0.000165	0.021022	-0.007829	0.9938
C	4.569566	1.962888	2.327981	0.0236

Weighted Statistics

R-squared	0.990298	Mean dependent var	8.881601
Adjusted R-squared	0.988046	S.D. dependent var	1.137872
S.E. of regression	0.099176	Sum squared resid	0.550810
F-statistic	439.6968	Durbin-Watson stat	1.502508
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.988413	Mean dependent var	8.707158
Sum squared resid	0.559195	Durbin-Watson stat	1.519469

Since we can not include lagged variable of SIM, and all INST variables, adding lagged value of EX, BEXCR, and SIM changes the direction of explanation power of INST variables toward lagged variable. In detail, EX(-1) explain %63.6 of changes in TRADE which means that long term contract or relationship between exporters and importers lasts for awhile. DIST's sign is as expected and decrease TRADE about %26.8 which is lower than that of with TREND.

Whereas BEXCR(-1) decreases TRADE about %8.7, in current period BEXCR increases it by %25.4. Hence, changes in BEXCR has an lagged effect on TRADE. Whereas SIM (-1) decreases TRADE about % 125, in current period SIM increases it by %154.6. Hence, changes in SIM has an lagged effect on TRADE. INST 1 and INST 4 have negative effects on TRADE which indicate divergences. When Turkey is out of the model, analysis does not give more meaningful information about changes in TRADE.

Table 12: Summary and Comparison of Significant Test Results of Different Equations

	Equation 2		**Equation 3**		**Equation 4**		**Equation 5**	
	Table 4 W/ Turkey	Table 5 W/O Turkey	Table 6 W/ Turkey	Table 7 W/O Turkey	Table 8 W/ Turkey	Table 9 W/O Turkey	Table 10 W/ Turkey	Table 11 W/O Turkey
BEXCR	--	0.52	0.079	--	--	0.34	0.25	--
SIM	0.767	0.806	0.206	0.20	0.77	0.75	1.52	--
DIST	--	-0.874	--	--	-0.54	-0.84	-0.27	--
INST 1	--	-0.008	-0.001	--	--	-0.005	-0.002	--
INST 2	--	--	--	--	-0.034	--	--	--
INST 3	-0.186	--	--	--	-0.039	--	--	--
INST 4	-0.0716	-0.078	-0.034	-0.027	-0.034	-0.037	-0.035	-0.025
INST 5	--	--	--	--	0.041	--	--	--
INST 6	-0.429	--	--	--	0.057	0.035	--	--
INST 7	--	--	--	--	--	0.038	--	--
EX(-1)	--	--	0.70	0.69	--	--	0.63	0.69
TREND	--	--	--	--	0.048	0.040	--	--
SIM(-1)	--	--	--	--	--	--	-1.25	--
BEXCR (-1)	--	--	--	--	--	--	-0.08	--

In a subconclusion, when we compare all test results with thest results of Equation 2, we come up with following ideas according to figures in Table 12. First, SIM almost matters in all equations with a different magnitudes. Second, INST 4 really differs from all other variables in terms of its responses in all equations, which means that restrictions in foreign capital market exchange or index of capital controls among 13 IMF categories are important for all economy in non-EU MPCs. When we compare the test results of Equation 3, 4, and 5 with Equation 2, INST

4 responses less in terms of magnitude. Third, with the exception of Equation 2 test results, removing Turkey from the test decreases its responses toward TREND, especially in INST variables. And, removing Turkey also increases responses of BEXCR, SIM, and DIST variable compared to INST variables, especially in the test results of Equation 2 and 4. These are very reasonable since Turkey has an advanced level of economic, social and political reform than other 7 non-EU MPCs. Fourth, Equation 4 with TREND among all other equations definitely reflects best picture of Table 1, and tells us that there are divergence in government intervention to the economy, monetary policy, and restrictions on capital flows, which state that these are expected since non-EU MPCs are developing countries and thus, are not liberalized as much as their counterparties ; however, there are convergence situations in banking and finance and price controls for non-EU MPCs. On the other hand, exclusion of Turkey decreases divergence and changes the direction of convergence toward credit market regulation.

5. Policy implications and conclusions

According to the text what we have written so far, the partnership has witnessed, not strong but semi-strong promotion of bilateral relations, but needs a qualitative (in the institutional sense) and quantative change to spur bilateral trade and thus, economic growth. Starting from the Barcelona process in 1995, the aim has still been a multilateral partnership with a view to increase the potential for regional integration and cohesion. First of all, we should have some understanding about that our test results owe some explanations: the reliability of our results depends on data quality even though we used the best data set available. The data compiled by the World Bank Development Indicators along with other data sources are certainly informative for

what is going on in non-EU MPCs, but it seems that data quality does not reflect what we definitely intended for. With this in mind, there is some evidence of divergence from and convergence toward EU institutional standards that may have disimproved and improved bilateral trade between non-EU MPCs and EU countries.

We compared all test results with test results of Equation 2, in Table 12. However, these evidences do not have a systematic pattern since they change by the form of equations. As we expected from the mentioned models in the project, similarities in economic growth, bilateral exchange rate changes, distance from capital to capital cities, and institutional conditions between non-EU MPCs and EU countries, are important elements to explain changes in bilateral trade between these counterparties. Removing Turkey from the test decreased the response of INST variables to TRADE. On the other hand, removing Turkey also increases responses of BEXCR, SIM, and DIST variable compared to INST variables. These are very reasonable since Turkey has an advanced level of economic, social and political reforms in the sense of liberalization procedure than other 7 non-EU MPCs. In the end, Equation 4 with TREND among all definitely reflected the best picture of what Table 1 reflects, and tells us that there are divergence in government intervention to the economy, monetary policy, and restrictions on capital flows which state that these are expected since non-EU MPCs are developing countries and, thus, are not liberalized as much as their counterparties; however, there are convergence situations in banking and finance and price controls for non-EU MPCs toward EU standards so that they need to go over more reforms toward EU standards and thus, can potentially increase bilateral trade with EU countries.

Besides, we unfortunately cannot present any evidence for the earlier stage of the Barcelona Initiative, and the individual evaluations of each country in non-EU MPCs due to the

limitations of data. However, based up on the rest results for 1999-2009 which mostly cover the post-Barcelona initiative, the paper enables very useful comments and recommendations. Therefore, it is intitially important to understand what Barcelona Initiative has/has not achieved and where they may be room for improvement? There have been many proposals, initiatives, and communications by the European Commision which analyze the achievements and shortcomings of the Barcelona process since 1995. In this process, regional integration (i.e., standardization of institutional structure and quality among MPCs) and the integration of MPCs toward the EU to reap the potential benefitst of globalization and free trade have been still important issue to tackle.

Due to the Barcelona process, there have been improvements in the field of exports and investments, but services have not increased as much. Besides, there have been improvements in macro-economic stability: inflation down significantly over 10 years which can be interpreted that one of the institutional indicators for monetary policy has been improved ofer time, but our test result indicate some divergence which points its importance for the economy later in the text. Decline in price level also affects bilateral exchange rate. Improvements in economic governance and (economic, social, and political) reforms have been encouraging but short of initial expectations and thus, have not been enough to attract the domestic and foreign investment which are still important for MPCs. Therefore, the test results lend at least mild support for them. Economic growth has been good since 1995 but not sufficient, which our test results of SIM for all different equations drived for the different model implies the importance of explanatory power of SIM over TRADE.

However, even if free trade with the EU has favored exports and investment but there has been room for the domestic policies of MPCs. There is a lack of institutional balance between the weight of the EU on one side and the Mediterranean partners on the other side. According to our

test results may be interpreted that removal of Turkey from the model has changed the response of institutional variables. This means that some countries in MPCs are weak in institutional structure while some are in better situation like Turkey. MPCs should have update and upgrade their institutional structure fitting best in to their social, political, and economical conditions and during this adjusment, they should accordingly transfer all required institutions with their legal structure from the EU. Therefore, to close this gap between MPCs and the EU countries, visibility of the Barcelona process and the perception by citizens should have been improved.

It is hard to say why this is so. If the strength of traditional sentiment in a country is responsible, then this must probably be taken as exogenous. But it might also be that the general attitude of the non-EU MPCs government towards economic liberalization and how this policy is communicated to the population has some influence. Clearly, it would be in the interest of the European Union to have the non-EU MPCs government spread correct information and positive sentiment about the potentials of free market mechanisms and the benefits associated with it. In dealing with non-EU MPCs governments, it might be worthwhile putting more emphasis on the fact that in return for European assistance the EU expects the non-EU MPCs government to transmit to the population and defend against potential criticisms the main ideas underlying its strategy of integration, cooperation and reform. So it seems there is ample ground for the EU to use its influence to make non-EU MPCs governments more concerned about the usage of their institutional quality conditions. In sum, on this task, government of MPCs and the quidence of the EU have crucial role for helping institutional structure: upgrading the political level of the EU's relationship with its MPCs, providing more co-ownership and by making the Euro-Mediterranean relationship more concrete and visible through additional regional and sub-regional projects, relevant for the citizens of the region.

Concludingly, the development of Euro-Mediterranean relationships initiated in Barcelona in 1995 has already generated a number of positive results to be consolidated for future policies. Therefore, policy recommendations should include how institutions should be changed and what policy they should implement in the future. As we indicated by the test results, INST1 and INST2 reflect divergence between MPCs and the EU countries, and Barcelona process is very much focused on the intergovermental dimension; therefore, civil society including business communities should be, actively and fully, associated to the Union of Mediterranean for new bodies of the institutional structure. In addition, approximation of legislation and regulation should have a priority of the Euro-Mediterranean deeper economic integration process. The test result of INST7 for credit market regulation is supposed to indicate that more regulation on credit market operations discourages firms' potential partners, but is not significant. Moreover, these improvements will enable a decline in divergence in INST1 and INST2 which means that free market operation along with robust legal and institutional system will increase bilateral trade between MPCs and the EU. Doing all these will most likely improve business climate, and will consolidate macro-economic stability and improve public finance management.

Overall, institutional indicators suggest plenty of room for further policy measures. But these would mostly be measures, which the MENA governments should feel a responsibility for. The European Union can do little more than use indirect means to influence domestic policy makers to act in the right direction in regard of increasing the standard of institutional toward EU standard. Government intervention to economy and government consumption as share of GDP in non-EU MP countries higher than EU level pull more attention and hence, the test result of INST2 may be interpreted as government intervention to economy reflect some divergence. Turkey, a country who is in the process of accession to EU, has been under many reforms in

different fields, which aim to improve and get closer the standards of Turkey in all institutional conditions toward EU standards. Therefore, there have been signs of these improvements in the sense of increase in exports to and imports from EU countries that both are in %50 of total foreign trade. In this sense, Turkey can be a guidance country for non-EU MP countries to the road going thru EU membership in future aspect. It would not be difficult to make use of this experience, but it requires a receptiveness of non-EU MPCs governments that may be hard to ensure.

Changes in institutions and their policy should consider inreasing FDI by letting a reduction on the restrictions over capital flows and foreign investment so that the test result for INST 4 reflects a divergence situation between MPCs and the EU; decreasing unemployment which the test result supports that a decline in price controls cause some increase in TRADE and thus, decline in unemployment; informal economy which is very serious challenge in the Mediterranean area, and reduction of poverty. In addition, uncertainty of surrounding the availability of new sources of financing their real side of economy should have been gotten rid off as much as MPCs can. Our test result says there is a convergence in banking and finance which means there is a chance to decrease uncertainty as long as convergence increases. This will help to increase the access to bank lending by the private sectore. Thus, Euro-Mediterranean (finanacial and non-financial) institutions should have been created in regard of the economic and financial framework of Barcelona process. In the time of change of institutions and their policies, countries who have a weak institutional structure should not be penalized so that the perspectives of a new generation of initiative or agreement should consider them as well.

Moreover, another objectives of the new initiative could also be clarified to avoid exagerated expectations from the new inititiave. MPCs should develop new incentives for

promoting social, political and economical reforms (especially, decreasing the influence of governement on economy due to fiscal burden, INST1, government intervention via consumption, INST2, monetary policy along with independent central bank, INST3, decrease controls over capital flows and FDI, INST4) alongside the objective of deeper economic integration. Objective is not the creation of an free trade area as such but of an area of shared prosperity as foreseen in the Barcelona declaration. This should be addressed together with the social dimension of the partnership.

So far the discussion has viewed economic integration efforts as an outcome of institutional convergence. Quite obviously for further studies, however, openness, trade and economic growth are also endogenous to institutional conditions which may change the direction of causality between institutional and economic convergence or divergence. Here it may suffice to note that this type of analysis is able to reveal the main economic determinants of both the variance and the mean of social well-being and of institutional and policy convergence. Hence benefitial or possibly detrimental effects of current policies can be identified and this identification helps to provide future policies. Moreover, we single out those areas which are particularly difficult to improve and discuss measures beyond pure economics that might be fit to use. It should be also stressed that examination of the impact of the recent financial and economic crises that caused not only greater instability and deteriorated real performance but also "divergence" in key nominal and real variables is important in further aspect of this project.

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III. Trade Flows and Living Conditions

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1. Introduction, research issue and literature review

This chapter analyzes the effects of living conditions on bilateral trade between the EU and Mediterranean countries (MPC). Since the beginning of the Barcelona process in 1995, integration between the EU and MPC has been heavily promoted with the expectation of economic convergence between the southern and northern coasts of the Mediterranean. Full liberalization of trade in the region was one of the main aims of the process, due to its mutual benefits particularly towards facilitation of growth and development .

Last decade witnessed interesting and somehow unexpected economic developments between the two coasts of the Mediterranean. For example, when international trade is considered, it is observed that total trade between the EU and MPC has increased since 2001 but the increasing rate is less than what it is for the trade between MPC and rest of the World. When the net trade is investigated, except for Algeria, MPC countries are net importers both from the EU and the World but net imports from the latter doubles that of from the former in most of the years in the last decade. Therefore, it will not be an exaggeration to say at least that promotion of the integration somehow was not successful when international trade is considered.

Another interesting development was observed in human development indicators in MPC. There has been obviously a rise in various indicator values and also in human development indicators

since the last 30 years but during this time migration from MPC to the EU has risen as well. The causality between international trade-migration-living conditions became one of the main research areas regarding the economies of the region but very limited research can be found on the relation between living conditions and trade, for which the impact of latter on the former was is searched in most of the cases.

The analyses in this chapter focus on the impact of living conditions on bilateral trade (both exports and imports) between the EU and MPC and the hypotheses are such that in one way or other trade should be promoted whether living conditions converge or not between the southern and northern coasts of the Mediterranean.

First relevant argument is that if there has been an improvement in living conditions in MPC, either because of the convergence or not, this should promote imports of MPC from the EU due to the rise in purchasing power and change in preferences and in consumption patterns in MPC. As the second argument it is put forward that improvement in living conditions might increase productivity in MPC which in return may increase exports form MPC to the EU. Again whether this improvement is a result of the convergence or not does not change the outcome.

In case if there is no improvement in living conditions in MPC, the third argument suggest that migration to the EU from MPC should rise which in return might increase MPC's exports to the EU in certain industries due to changing consumption pattern in the EU. However an opposite impact is also proposed as the fourth argument such that rising low-skilled labor force in the EU due to migration may increase exports of the EU in certain low-skilled labor abundant industries. While rising migration is the driving force between the trade increase in the last two arguments

and which is a result of deteriorating living conditions in MPC, improvement of living conditions is the main driving force behind the rise in trade in the first two arguments.

Various papers that use the traditional and/or new trade theories provide the empirical evidence that differences in relative factor endowments and firm heterogeneity affect export decision and in most of the cases the international comparative advantage lies in higher labor productivity which is a natural outcome of improved human capital (Bandyopadhyay et. al, 2008; Melitz, 2003). In support of the second argument, Márquez-Ramos and Martínez-Zarzoso (2010) estimates impact of human development index (hdi) on bilateral trade in which hdi proxies technological innovation in the exporting country. In their analyses hdi was found to have some statistical significance over trade however it has to be kept in mind that the reverse causality is also mentioned for example in Hamid and Amin (2006).

In support of the third and fourth arguments Gould (1994) postulates that the immigrant-trade relationship operates through two broad channels. First, migrants are expected to stimulate trade by lowering transaction costs. This is because immigrants have superior knowledge of home country markets, languages, business practices, laws and other matters related to trade. This channel has been referred to as the "information bridge hypothesis" (Dunlevy, 2006). The immigrants' knowledge basically overcomes information asymmetries associated with cultural differences. Also, immigrants may arrive with established connections to home country business networks. These networks can be conduits of information, and can deter opportunistic behavior. Second, immigrants might find that certain goods they are used to consuming in their home country are not available in the host country, and boost imports of such commodities from their

home country to the host country. These immigrant preference effects have been referred to as "transplanted home bias" effect by White (2007).

First chapter of this report puts some slight evidence of convergence in living conditions between the two coasts of the Mediterranean. In other words, it might be said that results regarding the convergence of living conditions are mixed. However, still, increase in trade is expected due to 3rd and 4th arguments above. Results section in this chapter explains the econometric findings and next two sections provide empirical methodology and database respectively.

2. Methodology and model

Our methodology makes use of a gravity model like many studies about trade flows in the last 50 years. Since its introduction by Tinbergen (1962) and the contributions of Bergstrand (1985, 1989), Helpman and Krugman (1985), Deardoff (1998), and Anderson and van Wincoop (2003), the gravity model has dominated the literature on international trade flows.

In the traditional gravity model of Tinbergen, the volume of bilateral trade between countries *i* and *j*, X_{ij}, is assumed to be positively related to the size of the economies of the countries and inversely related to the distance between them:

$$X_{ij} = G\frac{E_i^{\beta_1} E_j^{\beta_2}}{D_{ij}^{-\beta_3}} \qquad (1)$$

where G is the gravitational constant, E_i is the economic size of country i and D_{ij} is the distance between i and j. It is common to express this relationship in a *log-log* form to obtain

$$\ln X_{ij} = \beta_0 + \beta_1 \ln E_i + \beta_2 \ln E_j + \beta_3 D_{ij} \qquad (2)$$

The economic size of the countries is typically measured by their gross domestic product (GDP) or similar measures.

The literature contains many applications where the basic model is augmented to include other variables that potentially facilitate or inhibit trade, such as cultural, geographical and political characteristics, depending upon the research question investigated. We augment it by including dummy variables that indicate whether two countries had a colonial link, whether the trading partner is a GATT/WTO member, whether the two countries speak the same language, and whether the two countries have a regional trade agreement between them. We also include an index that indicates the level of living conditions, which is the main interest variable for our purposes. Hence, the gravity equation we estimate takes the following form:

$$\ln X_{ij} = \beta_0 + \beta_1 \ln GDP_i + \beta_2 \ln GDP_j + \beta_3 \ln D_{ij} + \beta_4 col_{ij} + \beta_5 gatt_j + \beta_5 lan_{ij} + \beta_6 rta_{ij} + lc_j \quad (3)$$

where X_{ij} is the volume of exports from country i in EU to the MP country j (or the volume of imports from the MP country j to country i in EU), and lc_j the living conditions index in the MP country j.[1]

We assemble data for a panel of all EU countries for 1998-2010 and apply panel estimation techniques to estimate the augmented gravity model above. However, the main indicator we use to measure living conditions, the Human Development Index (HDI), is available only for years 2000, 2005, and 2006-2010. This gives us an unbalanced data set for seven years. Thus, the equation we estimate is

[1] There is no dummy variable $gatt_i$ since all EU-member countries are GATT/WTO members.

$$\ln X_{ij} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln D_{ij} + \beta_4 col_{ij} + \beta_5 gatt_{jt} + \beta_5 lan_{ijt} + \beta_6 rta_{ijt} + lc_{jt} + \upsilon_{ij} + \varepsilon_{ijt} \quad (4)$$

where υ_{ij} are unobservable country-pair individual effects.[2] The advantages of using panel data and panel estimation techniques are well documented in the literature. The main advantage of using a panel-based approach is the ability to deal with unobserved country-pair heterogeneity which conventional cross-section estimation techniques fail to model yielding biased estimates (see e.g. Cheng and Wall (2005) and Carrère (2006)). Cross-section specifications also fail to properly account for possible omitted variables bias (see e.g. De Benedictis and Taglioni (2011)). Two commonly used panel estimation techniques are the fixed effects (FE) and random effects (RE) estimation. The main difference between the two methods is that FE method allows the country-pair individual effects to be correlated with the regressors whereas the RE model assumes that individual effects are uncorrelated with all the regressors. Furthermore, because the FE method is a within-method (which transforms the data into deviations from individual means) that ignores the between-groups variance, it cannot provide estimates for the coefficients of the time-invariant regressors such as distance. Although this is a disadvantage, the FE estimator is unbiased and consistent in the presence of correlation between the individual effects and the regressors whereas the RE estimator is not. The common procedure used to choose which model to use is to employ a Hausman specification test suggested by Hausman (1978). The RE model has been convincingly rejected in almost all studies in the literature. We follow the same strategy of estimating both FE and RE models and employ a Hausman test.

[2] We also included unobservable time specific effects in our initial runs, but we found that they were not statistically significant. They were, therefore, not included in the final specification.

3. Data

The data used in econometric analyses are grouped under trade, migration, gravity variables, living conditions and human development components.

Trade

This data set is composed of annual bilateral total export and total import data between the EU (27) and the Mediterranean partner countries (MPC). MPC includes Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt Arab Republic, Israel, Jordan, Lebanon, Morocco, Syrian Arab Republic, Tunisia and Turkey. Time span covered is 1998-2010. Nominal values of trade data are converted into real values by using export and import prices indices provided in the Eurostat. The source of data is COMEXT: Eurostat's External Trade database, http://ec.europa.eu/eurostat.

Migration

This data covers number of immigrants in the EU whose home country belong to MPC according to country of birth. The immigrants data is organized by sex and age group. However, the migration variable used in econometric estimation includes total number of immigrants. The source of data is http://ec.europa.eu/eurostat.

Gravity variables

Main dataset for variables in gravity equation are collected both for the EU and MPC from the CEPII Gravity Set which is available at http://www.cepii.fr/anglaisgraph/bdd/gravity.htm. This data set covers real GDP and real per capita GDP, population and bilateral distance. GDP data was updated by using World Development Indicators database of World Bank, available at

(http://data.worldbank.org/. This data set also covers various intercept dummy variables that show whether bilateral trade partners have common border, language, colonial relationship, currency, religion and are part of a bilateral and/or multilateral trade agreement. Regional trade agreement information is also obtained from WTO, available at http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx.

Human development

The variables human development index, education index and health index are obtained for MPC from World Bank's World Development Indicator database as well. Education and health indices are actually components of human development index, http://data.worldbank.org/.

Living conditions

World Development Indicators database is used to collect living conditions for MPC as well, http://data.worldbank.org/. These conditions are grouped according to their main emphasis and the ones used in the estimation are presented here.

Business Environment
Time required to enforce a contract (days)
Time required to register property (days)
Time required to start a business (days)
Time to prepare and pay taxes (hours)
Time to resolve insolvency (years)
Start-up procedures to register a business (number)
Cost of business start-up procedures (% of GNI per capita)
Procedures to enforce a contract (number)

Education

School enrollment, preprimary (% gross)
School enrollment, preprimary, female (% gross)
School enrollment, preprimary, male (% gross)
School enrollment, primary (% gross)
School enrollment, primary (% net)
School enrollment, primary, female (% gross)
School enrollment, primary, female (% net)
School enrollment, primary, male (% gross)
School enrollment, primary, male (% net)
School enrollment, primary, private (% of total primary)
School enrollment, secondary (% gross)
School enrollment, secondary (% net)
School enrollment, secondary, female (% gross)
School enrollment, secondary, female (% net)
School enrollment, secondary, male (% gross)
School enrollment, secondary, male (% net)
School enrollment, secondary, private (% of total secondary)
School enrollment, tertiary (% gross)
School enrollment, tertiary, female (% gross)
School enrollment, tertiary, male (% gross)
Children out of school, primary
Children out of school, primary, female
Children out of school, primary, male
Primary completion rate, female (% of relevant age group)
Primary completion rate, male (% of relevant age group)
Primary completion rate, total (% of relevant age group)
Primary education, duration (years)
Primary education, pupils (% female)
Progression to secondary school (%)
Progression to secondary school, female (%)
Progression to secondary school, male (%)
Total enrollment, primary (% net)
Total enrollment, primary, female (% net)
Total enrollment, primary, male (% net)
Secondary education, duration (years)
Education expenditure (% of GNI)

Environment

Adjusted savings: carbon dioxide damage (% of GNI)
Adjusted savings: particulate emission damage (% of GNI)
CO2 emissions (kg per 2005 PPP $ of GDP)
CO2 emissions (kg per PPP $ of GDP)
CO2 emissions (metric tons per capita)
CO2 intensity (kg per kg of oil equivalent energy use)
Combustible renewables and waste (% of total energy)
Combustible renewables and waste (% of total energy)
Energy depletion (% of GNI)
Mineral depletion (% of GNI)
Net forest depletion (% of GNI)

Health

Immunization, DPT (% of children ages 12-23 months)
Immunization, measles (% of children ages 12-23 months)
Incidence of tuberculosis (per 100,000 people)
Tuberculosis case detection rate (%, all forms)
Tuberculosis case detection rate (all forms)
Tuberculosis treatment success rate (% of registered cases)

Labor market

Employment to population ratio, 15+, female (%)
Employment to population ratio, 15+, male (%)
Employment to population ratio, 15+, total (%)
Employment to population ratio, ages 15-24, female (%)
Employment to population ratio, ages 15-24, male (%)
Employment to population ratio, ages 15-24, total (%)
Age dependency ratio (% of working-age population)
Age dependency ratio, old (% of working-age population)
Age dependency ratio, young (% of working-age population)
Labor participation rate, female (% of female population ages 15+)
Labor participation rate, male (% of male population ages 15+)
Labor participation rate, total (% of total population ages 15+)
Workers' remittances and compensation of employees, received (% of GDP)

Mortality
Adolescent fertility rate (births per 1,000 women ages 15-19)
Death rate, crude (per 1,000 people)
Fertility rate, total (births per woman)
Life expectancy at birth, female (years)
Life expectancy at birth, male (years)
Life expectancy at birth, total (years)
Mortality rate, adult, female (per 1,000 female adults)
Mortality rate, adult, male (per 1,000 male adults)
Survival to age 65, female (% of cohort)
Survival to age 65, male (% of cohort)

Population
Refugee population by country or territory of asylum
Refugee population by country or territory of origin
Rural population (% of total population)
Rural population growth (annual %)
Urban population (% of total)
Urban population growth (annual %)

Various
Electric power consumption (kWh per capita)
Road sector gasoline fuel consumption per capita (kt of oil equivalent)
Telephone lines (per 100 people)
Mobile cellular subscriptions (per 100 people)
Information and communication technology expenditure (% of GDP)
Internet users (per 100 people)
Scientific and technical journal articles
Strength of legal rights index (0=weak to 10=strong)
Proportion of seats held by women in national parliaments (%)

4. Results

Empirical analyses tested four arguments by employing panel data econometrics.

1. Exports of the EU to MPC might increase due to changing purchasing power and preferences as a result of an improvement in living conditions in MPC.
2. Exports of MPC to the EU might increase due to increasing labour productivity in MPC as a result of an improvement in living conditions in MPC.
3. Exports of MPC to the EU might increase due to consumption preferences of immigrants in the EU as a result of rising migration from MPC to the EU.
4. Exports of the EU to MPC might increase in certain industries that employ low-skilled labour as a result of rising migration from MPC to the EU.

While the first two arguments explicitly assume an improvement in living conditions, the last two implicitly assume no improvement in living conditions which result in rising migration from MPC to the EU.

To test these arguments both fixed and random effect panel estimations were carried out that utilized bilateral trade-gravity models. All the living condition indicators specified in Data section and human development index and its two main components education and health indices were also used to proxy living conditions in the gravity model.

Tens of estimations were carried out and one common finding was that random effect models were strongly rejected in each case. Therefore, outcomes of random effect models were not provided in this report and were not interpreted as well. Another common finding was the

inconsistency and statistical insignificancy of the estimated coefficients of the individual living conditions indicators. Hence, not much space was devoted here for the interpretation of these. However, general findings are such that: the only indicator that has statistically significant impact on exports of the EU to MPC is the improvement in number of internet users in MPC and the only indicator that has statistically significant impact on imports of the EU from MPC is the improvement in female mortality rate. Nevertheless, it is quite difficult to find an economic justification for these impacts.

Another indicator that the relevant literature employs to proxy living conditions is the human development index. In the analyses human development index and its main two components, education and health indices, were also used separately to see their individual impact on exports and imports. Fixed effect estimation results that tested the mentioned four arguments are provided in the Appendix and main findings are summarized below.

In general, the overall performance of the estimated equations are quite moderate. The explanatory power of the right-side variables are low. There can be more than one reason for this. First of all, the time span is not long enough to include the variation in data series particularly for the human development and similar indices. It would be quite optimistic to expect enough variation particularly in living condition variables in any 10 years. Secondly, the panel is unbalanced due to lack of data which creates another constraint. Thirdly, various intercept dummies, which are key variables in gravity model, were omitted because of the collinearity problem. Fourthly, the distance variable which proxies the core theory behind gravity equation was omitted as well, as it does not change by year. In addition due to collinearity it could not be included as intercept dummies. Time dummy variables were statistically insignificant too.

Equations that tested the 1st and 4th arguments (exports of the EU to MPC) had performed better compared to tests of 2nd and 3rd arguments. Therefore, gravity model provided a better explanation for the exports of the EU to MPC. The implicit assumptions behind first and fourth group of models were such that while the improvement in living conditions in MPC was the main driving force behind rising imports from the EU, it was deterioration in living conditions in MPC which caused the rise in migration and export potential of the EU in low-skilled abundant industries.

In the first group of models the argument is that exports of the EU to MPC might increase due to changing purchasing power and preferences as a result of an improvement in living conditions in MPC. Three different models were estimated and in each case exports of the EU to MPC was the dependent variable. On the right side we used real GDP for partner and reporter countries, an intercept dummy that took the value 1 if both partner and reporters countries were part of a regional trade agreement and one of the living conditions variables which is human development index, education index and health index. It is observed that being a part of a regional trade agreement creates a positive impact and particularly GDP of the MPC rather than the EU gains importance in terms of the impact on rising imports from the EU. The estimated coefficients on all three living condition indicators were positive. However, only education index was found to have statistically significant impact on imports from the EU while the coefficient on human development index was very close to %10 significance level.

In the fourth group of models the argument is that exports of the EU to MPC might increase in certain industries that employ low-skilled labour as a result of rising migration from MPC to the

EU. The three equations specified in the first group were augmented by migration variable that showed the number of immigrants in the EU whose country of birth was MPC. In each model migration was found to have statistically significant impact on exports of the EU to MPC. The estimated coefficient on all of the living conditions indicators was positive however neither of them was statistically significant. The coefficient on health index was very close to %10 significance level.

In the third group of models the argument is that exports of MPC to the EU might increase due to consumption preferences of immigrants in the EU as a result of rising migration from MPC to the EU. In these models the dependent variable was imports of the EU from MPC and right side variables were augmented by migration from MPC to the EU. In each model migration was found to have statistically significant impact on exports of the MPC. The estimated coefficient on GDP of the EU had a greater impact compared to the GDP in MPC. The coefficient of the living conditions indicators was positive however either of them was far from being statistically significant.

Finally, in the second group of models the argument is that exports of MPC to the EU might increase due to increasing labour productivity in MPC as a result of an improvement in living conditions in MPC. The same models in the first group were specified here except that the dependent variable was exports from MPC to the EU. As it was in the other groups GDP of the importer country was found to have larger impact on dependent variable. The coefficient of the living conditions indicators was positive however either of them was far from being statistically significant as they were in third group models.

5. Policy implications and conclusions

The main aim of this chapter is to evaluate the impact of changing living conditions in MPC on bilateral trade between the EU and MPC. The theoretical and empirical literature provides evidence on the positive impact of trade on living conditions. However, there is not much done in the literature on what is aimed at in this chapter.

The direction of relationship between living conditions and trade foreseen in this study was framed around four main arguments. Arguments suggest that bilateral trade between the EU and MPC should increase anyway in cases both when living conditions improve or deteriorate in MPC. When they deteriorate the expectation is that migration from MPC to the EU should become the driving force behind trade increase. Another expectation is that an improvement in living conditions might affect labor productivity in MPC as well as consumption patterns and purchasing power.

The findings of the empirical analyses are not that statistically solid but the direction of the relationships are as expected. Diagnostics of the models show that econometric models are moderate. Their explanatory power is limited. It is our belief that the statistically non-satisfactory results are mostly due to lack of data and lack of variation in the series due to short time period.

One promising finding is that the estimated direction of relationship between living conditions and exports; and living conditions and imports are as anticipated. There are four arguments, hypotheses to be tested and the direction of the mentioned relationships actually provides the evidence in favour of the arguments, though statistical significance of the evidence is moderate and sometimes very low. Therefore we strongly believe that further effort should be given

particularly to expand the coverage of time period used in estimation. Ten years is definitely not enough to experience a significant change in living conditions in any MPC country.

Another promising finding is that migration definitely affects both exports and imports of the EU. This is due to the developments both in factor and product markets after the migration. Therefore, further effort could also be given to find the impact of living conditions on migration.

Among the findings, one relatively more solid model suggest that an improvement in education index in MPC increases imports from the EU which might be due to changing consumption patterns. This finding is consistent with the limited empirical evidence in the literature. From a theoretical point of view the improvement in education might increase labor productivity in MPC and exports as well. Hence, targeting higher level of education for all age groups in southern Mediterranean can be the main policy conclusion derived from the analyses. It should be worthwhile to analyze the impact of specific living conditions on migration from different age groups, to derive more sophisticated policy conclusions particularly regarding the type and quality of education, length of it. It would be also meaningful to evaluate whether improvements in education results in enough wage differentiation by education level.

It would be quite interesting to see the net trade impact of improvement in education as it would create incentives both to import and export. Rising labor productivity with improvement in education should have a positive impact on exports of the MPC. If this productivity is reflected on wages earned, it should stop out-migration and should improve purchasing power. However, currently, to satisfy the changing consumption patterns by domestic production in MPC may demand production rises in a wide range of industries which cannot be achieved in the short-run

and which might put pressure on imports.

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7. Appendix:

The following tables contain the detailed regression results for Chapter III: *Trade Flows and Living Conditions*. These results are based on fixed effect estimations and these only focus on the effects of indices of human development, education and health. As the findings regarding the detailed list of living conditions given in the data section were inconsistent and as the random effect models were rejected in each case, results regarding those estimations are not provided here.

1. Imports of Mediterranean countries from the EU

Effect of human development index

Fixed-effects (within) regression				
Number of obs = 1276				
R-sq: within = 0.1683			F(4,188)	= 28.19
between = 0.7047			Prob > F	= 0.00
overall = 0.6530				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	0.415	0.500	0.408	
lgdpcons_p	0.498	0.505	0.325	
rta	0.194	0.106	0.070	*
lhdi_p	3.848	2.417	0.113	
cons	-3.688	1.867	0.844	

Effect of education index

Fixed-effects (within) regression				
Number of obs = 1276				
R-sq: within = 0.1697		F(4,188)	= 27.48	
between = 0.6823		Prob > F	= 0.00	
overall = 0.6283				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	0.371	0.488	0.448	
lgdpcons_p	0.663	0.372	0.076	*
rta	0.201	0.107	0.063	*
ledi_p	1.850	0.930	0.048	*
cons	-7.230	1.428	0.613	

Effect of health index

Fixed-effects (within) regression				
Number of obs = 1301		F(4,188)	= 24.75	
R-sq: within = 0.1546		Prob > F	= 0.00	
between = 0.7704				
overall = 0.7292				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	0.732	0.466	0.118	
lgdpcons_p	0.985	0.330	0.003	*
rta	0.032	0.093	0.731	
lhi_p	2.072	3.319	0.533	
cons	-2.474	1.341	0.067	

2. Exports of Mediterranean countries to the EU

Effect of human development index

Fixed-effects (within) regression
Number of obs = 1257
R-sq: within = 0.0327 F(4,187) = 4.88
between = 0.4586 Prob > F = 0.0009
overall = 0.4169

lrealimp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	1.824	0.569	0.002	*
lgdpcons_p	-0.399	0.791	0.614	
rta	0.172	0.228	0.450	
lhdi_p	1.161	3.784	0.759	
cons	-2.043	2.593	0.432	

Effect of education index

Fixed-effects (within) regression
Number of obs = 1257
R-sq: within = 0.0326 F(4,187) = 5.03
between = 0.4852 Prob > F = 0.0007
overall = 0.4422

lrealimp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	1.881	0.566	0.001	*
lgdpcons_p	-0.229	0.570	0.688	
rta	0.168	0.229	0.463	
ledi_p	0.101	1.509	0.947	
cons	-2.648	2.025	0.193	

Effect of health index

Fixed-effects (within) regression				
Number of obs = 1281				
R-sq: within = 0.0400			F(4,187)	= 6.63
between = 0.4417			Prob > F	= 0.0001
overall = 0.3970				
lrealimp	Coef.	Robust Std. Err.	P>|t|	
lgdpcons_r	1.983	0.529	0.000	*
lgdpcons_p	-0.656	0.530	0.217	
rta	0.122	0.202	0.548	
lhi_p	5.259	4.973	0.292	
cons	-1.774	1.726	0.305	

3. Exports of Mediterranean countries to the EU

Effects of migration and human development index

Fixed-effects (within) regression				
Number of obs = 512				
R-sq: within = 0.0623			F(5,127)	= 4.97
between = 0.5093			Prob > F	= 0.0003
overall = 0.4168				
lrealimp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.461	0.240	0.057	*
lgdpcons_r	1.302	0.867	0.135	
lgdpcons_p	-0.105	1.127	0.926	
rta	0.486	0.370	0.191	
lhdi_p	0.809	5.755	0.888	
cons	-1.792	3.654	0.625	

Effects of migration and education index

Fixed-effects (within) regression				
Number of obs = 512				
R-sq: within = 0.0622		F(5,127)	=	5.54
between = 0.5358		Prob > F	=	0.0001
overall = 0.4427				
lrealimp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.474	0.240	0.051	*
lgdpcons_r	1.370	0.881	0.122	
lgdpcons_p	0.062	0.793	0.938	
rta	0.478	0.372	0.201	
ledi_p	-0.137	2.421	0.955	
cons	-2.422	2.931	0.410	

Effects of migration and health index

Fixed-effects (within) regression				
Number of obs = 516				
R-sq: within = 0.0717		F(5,127)	=	4.57
between = 0.4901		Prob > F	=	0.0007
overall = 0.3953				
lrealimp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.405	0.236	0.088	*
lgdpcons_r	1.428	0.874	0.105	
lgdpcons_p	-0.303	0.748	0.686	
rta	0.514	0.359	0.155	
lhi_p	4.277	7.266	0.557	
cons	-1.556	2.438	0.525	

4. Imports of Mediterranean countries from the EU

Effects of migration and human development index

Fixed-effects (within) regression				
Number of obs = 519				
R-sq: within = 0.1915			F(5,128)	= 16.74
between = 0.7967			Prob > F	= 0.00
overall = 0.7299				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.522	0.207	0.013	*
lgdpcons_r	0.757	1.168	0.518	
lgdpcons_p	1.007	0.837	0.231	
rta	-0.190	0.204	0.353	
lhdi_p	1.124	3.914	0.774	
cons	-2.885	3.298	0.383	

Effects of migration and education index

Fixed-effects (within) regression				
Number of obs = 519				
R-sq: within = 0.1912			F(5,128)	= 16.97
between = 0.7979			Prob > F	= 0.00
overall = 0.7326				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.533	0.209	0.012	*
lgdpcons_r	0.811	1.174	0.491	
lgdpcons_p	1.177	0.657	0.075	*
rta	-0.196	0.207	0.346	
ledi_p	0.066	1.633	0.968	
cons	-3.489	2.820	0.218	

Effects of migration and health index

Fixed-effects (within) regression				
Number of obs = 523				
R-sq: within = 0.1976		F(5,128)	= 16.59	
between = 0.7871		Prob > F	= 0.00	
overall = 0.7185				
lrealexp	Coef.	Robust Std. Err.	P>|t|	
lmig	0.490	0.206	0.019	*
lgdpcons_r	0.750	1.116	0.503	
lgdpcons_p	0.741	0.593	0.214	
rta	-0.213	0.170	0.211	
lhi_p	6.087	4.673	0.195	
cons	-2.130	2.460	0.388	