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"Inequality and inclusive growth in the South Mediterranean region: Are education and innovation activities favoring firm performance and citizens' wellbeing?"

C. Real convergence between ENP and southern European countries: a cluster analysis

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Real convergence between ENP and southern European countries: a cluster analysis

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Abstract

This paper analyses the convergence pattern of GDP per capita, productivity, inequality and unemployment in both ENP and southern European (SE) countries. It follows the methodology proposed by Phillips and Sul (2007, 2009) in which different convergence paths can be distinguished among heterogeneous economies involved in a convergence process. This heterogeneity is modelled through a nonlinear time varying factor model, which provides flexibility in studying idiosyncratic behaviours over time and across section. The main results from the convergence analysis show that whereas there is convergence in unemployment, GDP per capita and productivity between EU and ENP countries, no convergence is found for inequality. Among the challenges of an evolving neighbourhood, inclusive economic development should be included in the new ENP approach.

Keywords: convergence; inequality; unemployment; productivity; ENP.

JEL classification: C32, C33, O47

1. Introduction

European Neighbourhood Policy (ENP) countries are involved in deep structural reforms and further economic integration to improve growth. The effect of this transition process on growth, productivity, unemployment and inequality are uncertain: in order to be sustainable, this growth needs to be based on productivity improvements but it also needs to be inclusive and create job opportunities.

The link between inequality and growth has been long studied in both the theoretical and the empirical literature with controversial results. On the one hand, several authors suggest that high inequality might be good for growth if it provides the incentives to work harder and invest to take advantage of high rates of returns (Mirrlees, 1971, Lazear and Rosen, 1981); also if higher inequality fosters aggregate savings and capital accumulation (Kaldor, 1955, Bourguignon, 1981). On the other hand, greater inequality may reduce growth if higher taxation and regulation implemented to reduce inequality reduce in turn the incentives to invest (Bertola, 1993, Alesina y Rodrick, 1994, Perotti, 1996), if inequality implies under-investment by the poor in the presence of financial market imperfections (Galor and Zeira, 1993) or in the presence of skilled-biased technical change (Murphy, 1989, Krueger, 2012). It is possible then to conclude that the causal relationship between growth, inequality and unemployment is, at least, controversial.

One of the causes suggested in the literature to explain inequality is the fostering of globalization and economic integration, which is of special importance in ENP countries. The empirical findings in the related literature are mixed. Whereas some authors conclude that globalization increases inequality

(Firebaugh, 2003; Wade, 2004), others suggest that economic integration has played an important role in closing the inequality gap (Dollar and Kraay, 2002).

Despite the conflicting results, it seems clear that economic growth, productivity and convergence on the one hand and inequality on the other are related, although the direction of causation is far from being clear. To gain insights on the role of economic integration and growth on inequality we propose to analyse the convergence pattern of GDP per capita, productivity, inequality and unemployment in both ENP and southern European (SE) countries.

The neoclassical growth models originally set out by Solow (1956) and Swan (1956) predict conditional income convergence. In this theoretical framework, convergence occurs when the growth rate of an economy is positively related to the distance between said economy's level of income and its own steady state. Bénabou (1996) pointed out that the neoclassical growth model predicts convergence in income per capita not just in the first moment, the mean, but also in higher moments. According to this author,

"Once augmented with idiosyncratic shocks, most versions of the neoclassical growth model imply convergence in distribution: countries with the same fundamentals should tend towards the same invariant distribution of wealth and pretax income." (Bénabou, 1996, p. 51).

This means that the neoclassical growth models predict convergence not only in income per capita but also convergence in income distribution¹. However, the literature on inequality convergence is scarce. Among the related studies,

¹ We acknowledge that in this paper do not test for convergence in income distribution but convergence in Gini indexes. Although closely related they are not strictly the same thing, and the theoretical bases for income distribution convergence may not hold for the Gini. However, convergence in inequality is still an empirical issue. Bearing this in mind, we let the "data speaks first".

Quah (1996) explores the link between convergence in income per capita and income distribution, showing that economic convergence is not only about the aggregate level of income but it also related to how income is distributed across countries or regions. According to this author, what matters for convergence is the relative performance of poor and rich economies or, in other words, how economic progress occurs differently in poorer economies than in richer ones. The traditional question about convergence between rich and poor countries (or regions) needs therefore to be re-specified in terms of convergence between poorer, high-inequality economies and richer, low-inequality ones.

In this paper, we test for the predictions of the neoclassical growth model by examining convergence in GDP per capita, productivity as well as unemployment and inequality for the ENP and SE countries. The main question to answer is whether such transition has had an effect on the evolution over time of these variables.

To evaluate the existence of convergence, we follow the methodology proposed by Phillips and Sul (2007, 2009) in which different convergence paths can be distinguished among heterogeneous economies involved in a convergence process. This heterogeneity is modelled through a nonlinear time varying factor model, which provides flexibility in studying idiosyncratic behaviours over time and across section.

The main results from the convergence analysis show that whereas there is convergence in unemployment, GDP per capita and productivity between EU and ENP countries, no convergence is found for inequality.

The remainder of this paper is organized as follows. Section 1 presents the clustering methodology. Section 3 shows the results and the final section concludes.

2. Methodology: convergence and cluster tests

The time series approach to study convergence can be found in the seminal papers by Carlino and Mills (1993) and Bernard and Durlauf (1995, 1996). These authors have developed the concept of stochastic convergence, based upon the stationarity properties of the variables under analysis. Thus, two non-stationary variables converge if there is a cointegrating relationship between them. In other words, two non-stationary series converge if they share the same stochastic trend.

This definition of convergence can be empirically tested by means of time series econometric techniques. However, as pointed out by Phillips and Sul (2009), traditional convergence tests are inadequate when technology is heterogeneous across countries and the speed of convergence is time-varying. To account for temporal transitional heterogeneity, Phillips and Sul (2007) and (2009) introduced cross-sectional and time series heterogeneity in the parameters of a neoclassical growth model. The starting point of the test is the following time varying representation:

$$X_{it} = \delta_{it}\mu_t \quad (1)$$

where δ_{it} is a time-varying factor-loading which captures convergence to a common factor μ_t . The simple econometric representation in (1) can be used to analyse convergence by testing whether the factor loadings δ_{it} converge. Phillips

and Sul (2007) proposed to model the transition elements δ_{it} through the construction of a relative measure of the transition coefficients:

$$h_{it} = \frac{X_{it}}{\frac{1}{N} \sum_{i=1}^N X_{it}} = \frac{\delta_{it}}{\frac{1}{N} \sum_{i=1}^N \delta_{it}} \quad (2)$$

where the loading coefficient, δ_{it} , is measured in relation to the panel. The variable h_{it} is called the relative transition path, and traces out an individual trajectory for each i relative to the panel average.

To formulate a null hypothesis of convergence, the authors proposed a semiparametric model for the time-varying behaviour of δ_{it} as follows:

$$\delta_{it} = \delta_i + \delta_i \varepsilon_{it} L(t)^{-1} t^{-\alpha} \quad (3)$$

where δ_i is fixed, $\sigma_i > 0$, ε_{it} is i.i.d (0,1) across i but weakly dependent on t , and $L(t)$ is a slowly varying function for which $L(t)$ tends to infinity as t also goes to infinity. Following Phillips and Sul (2007), the $L(t)$ function is assumed to be $\log t$; ξ_{it} introduces time-varying and country-specific components to the model; and the size of α determines the behaviour (convergence or divergence) of δ_{it} . The null hypothesis of convergence can be written as:

$$H_0 : \delta_{it} = \delta \text{ and } \alpha \geq 0 \quad (4)$$

and the alternative:

$$H_A : \delta_{it} = \delta \text{ for all } i \text{ with } \alpha < 0 \quad (5)$$

or

$$H_A : \delta_{it} \neq \delta \text{ for some } i \text{ with } \alpha \geq 0, \text{ or } \alpha < 0 \quad (6)$$

The alternative hypothesis includes divergence, as in (5) and (6), but can also consider club convergence. For example, if there are two convergent clubs, the alternative is:

$$H_A : \delta_{it} \rightarrow \begin{cases} \delta_1 \text{ and } \alpha \geq 0, \text{ if } i \in G_1 \\ \delta_2 \text{ and } \alpha \geq 0, \text{ if } i \in G_2, \end{cases} \quad (7)$$

where G stands for an specific club.

Phillips and Sul (2007) show that these hypotheses can be statistically tested by means of the following 'log t' regression model:

$$\log(H_1/H_t) - 2\log(\log(t)) = a + b \log t + u_t \quad (8)$$

for $t=[rT], [rT]+1, \dots, T$ with some $r > 0$ and is H_1/H_t the cross-sectional variance ratio.

The convergence patterns within groups (that is, the existence of club convergence and then clustering) can be examined using log t regressions. The so-called 'core group', G_k , is chosen by maximizing t_k over k individuals according to the criterion:

$$k^* = \arg \max \{t_k\}, \text{ subject to } \min \{t_k\} > -1.65$$

The convergence approach by Phillips and Sul (2007) presents clear advantages. First, it is a test for relative convergence, as it measures convergence to some cross-sectional average, in contrast to the concept of level convergence analysed by Bernard and Durlauf (1996). Second, this approach outperforms the standard panel unit root tests since in the latter case $X_{it} - X_{jt}$ may retain nonstationary characteristics even though the convergence condition holds. In other words, panel unit root tests may classify the difference between gradually converging series as non-stationary. As a further problem, a mixture of stationary

and non-stationary series in the panel may bias the results of unit root tests. Finally, sometimes these test results are not particularly robust. This is in contrast to the Phillips and Sul (2007) test, which does not depend on any particular assumption concerning trend stationarity or stochastic non-stationarity of the variables to be tested.

3. Data and empirical results

3.1 Data

In this paper we use GDP per capita, productivity, unemployment and income inequality to test for real convergence within the following countries: Albania, Algeria, Armenia, Azerbaijan, Belarus, Cyprus, Egypt, Georgia, Greece, Israel, Italy, Jordan, Lebanon, Moldova, Morocco, Portugal, Spain, Tunisia and Ukraine. Data on GDP per capita, productivity and unemployment are taken from the World Development Indicators database from the World Bank. GDP per capita corresponds to real GDP (constant 2010 US dollars) divided by midyear population and covers 1990 to 2015. Productivity is obtained as real GDP divided by total employment in the economy and runs from 1991 to 2016. Finally, unemployment is calculated as a percentage total labour force, ILO estimate, with a sample from 1991 to 2016. Inequality is measured using the Gini net, that is, income inequality post-taxes and post-transfers. Data on Gini coefficients are taken from the Standardized World Income Inequality Database (SWIID) developed by Solt (2009, 2014). We use annual data on inequality from 1985 to 2010.

Table 1 shows the change in unemployment and inequality between the beginning and the end of the sample. The countries are split between ENP and SE countries. On average, the first group of countries has been favoured for a

decrease in unemployment whereas the opposite is observed for the SE countries. For the ENP countries unemployment decreased on average by 20 percent, in contrast to the almost 60 percent increase in SE countries. Regarding inequality, ENP countries show an increase over time in the GINI, but less pronounced than for the SE countries. In particular in ENPs inequality raised 11 percent over fifteen years, compared to more than 18 percent increase in SE countries. These trends leave the SE countries not only as a more unequal area than the ENP ones, but also with higher unemployment rates.

The empirical literature has supported the existence of a positive link between unemployment and inequality. There are, however, at least two reasons that point out for a more complex relation between these two variables. First, in economic downturns, high unemployment increases inequality with declining employment opportunities for the least skilled, and a wider dispersion of earnings (OECD, 2015). And second, economic growth no longer seems to be associated with improved equality since strong growth may coexist with persistent labour underutilisation and raising inequality (OECD, 2008). As a consequence, the expected trade-off between unemployment and equality appears to be unclear. This seems to be the case for the sample of countries analyzed. According to Table 1, on average, the change in inequality has been a third of the size of the unemployment change.

Table 1. Unemployment rate and Gini net index

| | Unemployment rate (%) | | Inequality | |
|-------------------|-----------------------|------|------------|------|
| | 1991 | 2016 | 1985 | 2010 |
| Algeria | 20.6 | 10.5 | - | - |
| Armenia | 19.0 | 16.7 | 29.0 | 34.0 |
| Azerbaijan | 5.0 | 5.1 | 25.0 | 29.6 |
| Belarus | 0.64 | 0.53 | 25.3 | 27.2 |
| Egypt | 9.6 | 12.0 | 33.1 | 27.2 |
| Georgia | 12.3 | 11.6 | 29.8 | 46.7 |

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| | | | | |
|--|-------------|-------------|-------------|-------------|
| Israel | 13.4 | 5.6 | 47.9 | 50.2 |
| Jordan | 15.4 | 13.2 | 37.3 | 36.6 |
| Lebanon | 8.53 | 6.8 | - | - |
| Moldova | 7.3 | 5.0 | 22.5 | 36.0 |
| Morocco | 17.3 | 10.0 | 41.8 | 43.2 |
| Tunisia | 14.4 | 14.8 | 41.4 | 40.6 |
| Ukraine | 7.6 | 8.9 | 28.7 | 29.6 |
| <i>ENP countries average</i> | <i>11.6</i> | <i>9.3</i> | <i>33.3</i> | <i>37.1</i> |
| Albania | 9.1 | 16.3 | - | - |
| Cyprus | 7.9 | 11.7 | 36.8 | 45.8 |
| Greece | 7.6 | 23.9 | 48.3 | 51.3 |
| Italy | 10.1 | 11.5 | 43.4 | 49.1 |
| Malta | 7.6 | 5.3 | - | - |
| Portugal | 3.9 | 11.1 | 45.7 | 52.5 |
| Spain | 15.9 | 19.4 | 36.9 | 51.1 |
| <i>South European countries average</i> | <i>8.9</i> | <i>14.2</i> | <i>42.2</i> | <i>50.0</i> |

Table 2 presents the change in GDP per capita and productivity between the beginning and the end of the sample. Similarly to Table 1, the countries are split between ENP and SE countries. The average figures show increases in GDP per capita and productivity in both groups of countries. However, some ENP countries have experimented decreases in productivity, as Algeria, Lebanon and Ukraine.

Table 2. GDP per capita and productivity.

| | GDP per capita | | Productivity | |
|-------------------------------------|----------------|-------------|--------------|--------------|
| | 1990 | 2015 | 1991 | 2016 |
| Algeria | 3550 | 4784 | 51043 | 50782 |
| Armenia | 1793 | 3796 | 9821 | 18877 |
| Azerbaijan | 3118 | 6117 | 21618 | 33241 |
| Belarus | 2995 | 6174 | 15634 | 32111 |
| Egypt | 1588 | 2707 | 23237 | 35954 |
| Georgia | 3529 | 3969 | 13158 | 17707 |
| Israel | 20469 | 33117 | 59911 | 76566 |
| Jordan | 2586 | 3976 | 34262 | 45844 |
| Lebanon | 4230 | 7045 | 40119 | 38389 |
| Moldova | - | - | 10265 | 12460 |
| Morocco | 1715 | 3239 | 15675 | 23288 |
| Tunisia | 2227 | 4272 | 21861 | 34710 |
| Ukraine | 3965 | 2825 | 21281 | 15844 |
| <i>ENP countries average</i> | <i>4313</i> | <i>6835</i> | <i>25991</i> | <i>33521</i> |

| | | | | |
|--|--------------|--------------|--------------|--------------|
| Albania | 1879 | 4543 | 8017 | 31256 |
| Cyprus | 21156 | 27587 | 45753 | 47532 |
| Greece | 19385 | 22579 | 58254 | 72584 |
| Italy | 30841 | 33889 | 81311 | 93232 |
| Malta | 12026 | 24320 | 48541 | 78109 |
| Portugal | 16688 | 21969 | 45514 | 60609 |
| Spain | 22466 | 30465 | 70713 | 85273 |
| <i>South European countries average</i> | <i>17777</i> | <i>23621</i> | <i>51157</i> | <i>66942</i> |

The simple correlations between the target variables is shown in Table 3, and indicates positive and significant correlations between GDP per capita and inequality, GDP per capita and productivity, inequality and productivity and inequality and unemployment, whereas GDP per capita and unemployment and productivity and unemployment show negative correlations, but the latter is not statistically significant.

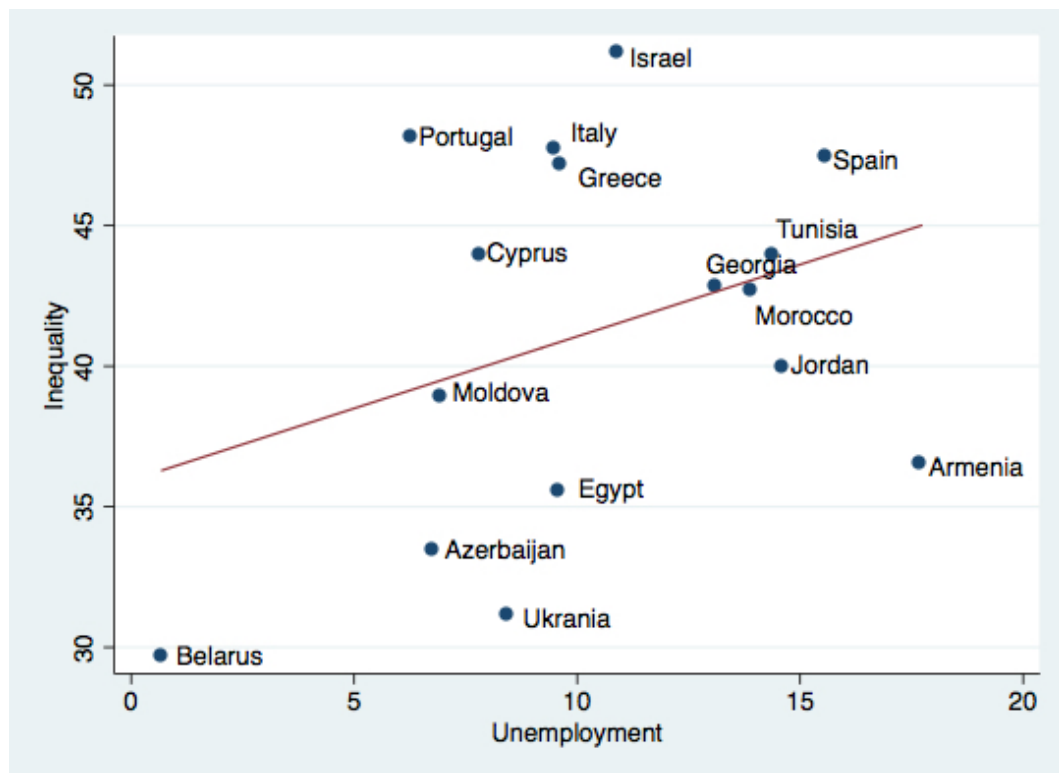
Table 3. Pairwise correlation

| | GDP per capita | Inequality | Productivity | Unemployment |
|----------------|--------------------|-------------------|---------------------|--------------|
| GDP per capita | 1.0000 | | | |
| Inequality | 0.6129 (0.0000) | 1.0000 | | |
| Productivity | 0.8955 (0.0000) | 0.5815 (0.000) | 1.0000 | |
| Unemployment | -0.2141 (0.000) | 0.2576 (0.000) | -0.0208 (0.6790) | 1.0000 |

Note: Significant levels in parentheses.

In order to show graphically the relationships between pair of target variables, country-averages of the unemployment rates and Gini coefficients are used to draw scatter plots. Figure 1 illustrates the simple correlation between inequality and unemployment and a regression line showing a linear and positive relationship between the two variables. In particular, Tunisia and Morocco are close to Georgia and Spain in the graph, whereas Egypt figures are closer to countries such as Moldova or Azerbaijan. The cluster analysis will reveal whether the analyzed countries present similar convergence patterns in these two variables.

Figure 1: Unemployment-inequality patterns (1991-2010).

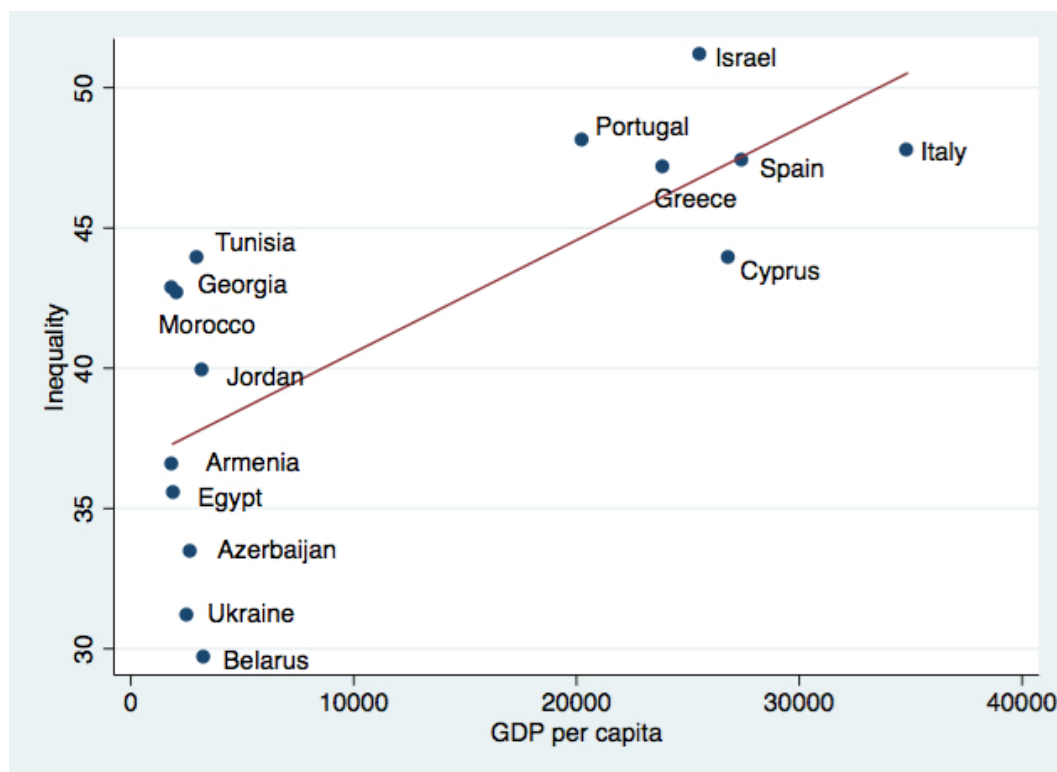


Note: The vertical axis depicts the average Gini net value in 1991-2010; the horizontal axis shows the average unemployment rate in 1991-2010.

Figure 2 shows the scatter plot for GDP per capita and inequality and the corresponding regression line. A positive linear relationship is observed, with three clearly separated groups of countries. The first group is comprised by SE

countries and Israel, all with higher levels of inequality and higher levels of GDP per capita. In the second group, with low GDP per capita and low inequality we find mainly Eastern and Central Europe countries and Egypt and the third group contains Tunisia, Morocco, Jordan and Georgia, all with GINI levels higher than 40 and low GDP per capita levels. Basically, the positive cross-country correlation would not hold if we exclude SE countries from the sample.

Figure 2: GDP per capita-inequality patterns (1991-2010).

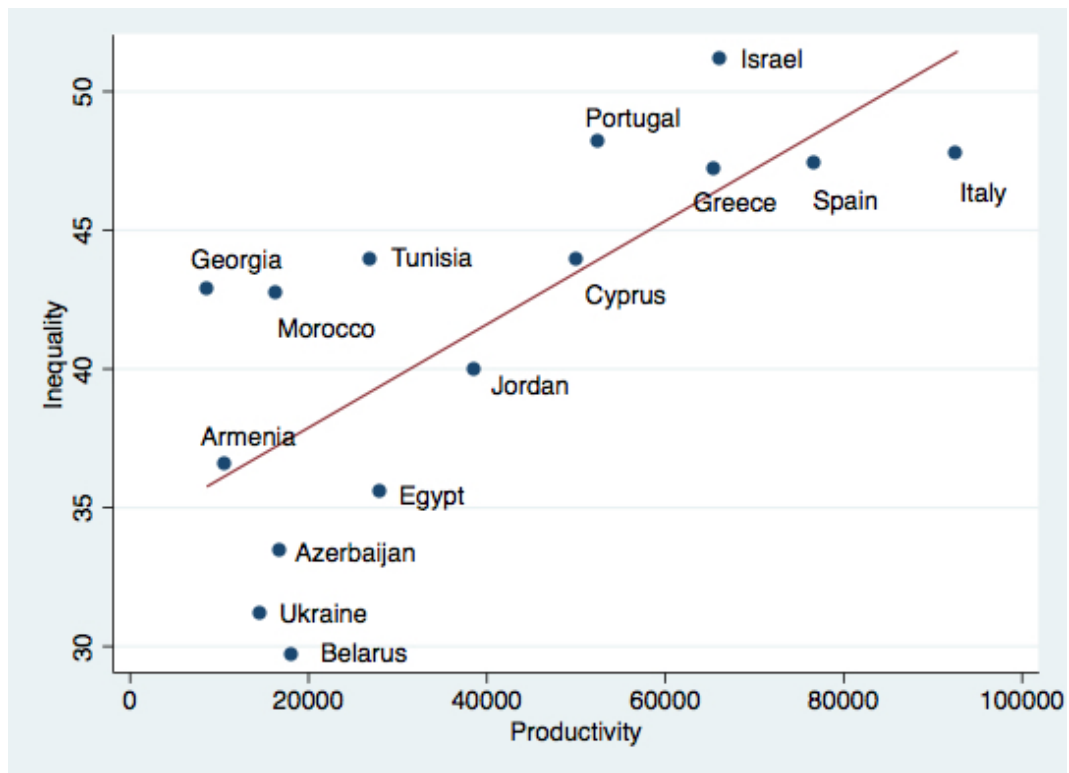


Note: The vertical axis depicts the average Gini net value in 1991-2010; the horizontal axis shows the average GDP per capita in 1991-2010.

Finally, Figure 3 shows the scatter plot using productivity and inequality average figures over the period 1991 to 2010. In this case, there is a clear positive correlation, with most countries close to the regression line, with the exception of

Belarus and Ukraine. The first country business cycle is more connected to Russia than to Europe and Ukraine suffer from the war with Russia and its consequences.

Figure 3: Productivity-inequality patterns (1991-2010).



Note: The vertical axis depicts the average Gini net value in 1991-2010; the horizontal axis shows the average productivity in 1991-2010.

Figure 3 will support the view that there is a trade-off between increases in efficiency, measured as productivity, and decreasing inequality, given that the most productive countries seem to be on average the most economically unequal ones.

3.2 Empirical results

The results from the cluster analysis are shown in Tables 4 to 7 for unemployment, inequality, GDP per capita and productivity, respectively.

Table 4 shows that Tunisia is the only MENA country in cluster 1, together with SE countries (Cyprus, Greece, Portugal and Spain) and some ENP in Europe

and Central Asia. Most MENA countries are grouped in cluster 2, together with Italy, Malta and Ukraine and finally, cluster 3 only contains 3 remaining countries and Belarus remains an outlier.

Table 4: Unemployment cluster analysis (1991-2016)

| <i>1st cluster</i> | | |
|--|---------------|-------------|
| | b coefficient | t statistic |
| log t | 1.515 | 6.244 |
| Members: Albania, Armenia, Cyprus, Georgia, Greece, Portugal, Spain, and Tunisia | | |
| <i>2nd cluster</i> | | |
| | b coefficient | t statistic |
| log t | -0.132 | -1.244 |
| Members: Algeria , Egypt , Italy, Jordan , Lebanon , Malta, Morocco , and Ukraine | | |
| <i>3rd cluster</i> | | |
| | b coefficient | t statistic |
| log t | 0.682 | 4.566 |
| Members: Azerbaijan, Israel, and Moldova | | |
| Divergent economy: Belarus | | |
| Note: MENA countries in bold. | | |

Table 5 shows the clusters for inequality, measured with the GINI net coefficient. In this case, the first cluster contains only countries in the European continent, whereas cluster 2 contains three of the four MENA countries for which comparable inequality data are available, together with Armenia and Moldova, both ENP European countries. Egypt is however member of the third cluster together with countries in Central Asia.

Table 5: Inequality cluster analysis (1985-2010)

| <i>1st cluster</i> | | |
|--------------------|---------------|-------------|
| | b coefficient | t statistic |
| log t | 1.220 | 4.988 |

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Members: Cyprus, Georgia, Greece, Israel, Italy, Portugal, and Spain

| | <i>2nd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.380 | 2.078 |

Members: Armenia, **Jordan**, Moldova, **Morocco**, and **Tunisia**

| | <i>3rd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | -0.122 | -0.274 |

Members: Azerbaijan, Belarus, **Egypt**, and Ukraine

Note: MENA countries in bold.

Table 6 show the countries included in each cluster for the GDP per capita. In this case there are four clusters, the first two formed by EU countries and Israel. In the third cluster four MENA countries join the group with five ENP European countries and the fourth cluster comprises Egypt and Morocco together with Ukraine. The result for this variable indicates that MENA countries still present very different patterns in terms of development paths in comparison to EU countries.

Table 6: GDP per capita cluster analysis (1990-2015)

| | <i>1st cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.185 | 1.125 |

Members: Cyprus, Israel, Italy, and Spain

| | <i>2nd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.513 | 3.378 |

Members: Greece, Malta, and Portugal

| | <i>3rd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.103 | 0.552 |

Members: Albania, **Algeria**, Armenia, Azerbaijan, Belarus, Georgia, **Jordan**, **Lebanon**, and **Tunisia**

| | <i>4rd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.210 | 1.482 |

Members: **Egypt**, **Morocco**, and Ukraine

Note: MENA countries in bold.

Table 7 list the countries for each cluster obtained when analysing productivity. With this variable only two clusters result. The first contain most MENA countries with the exception of Morocco and together with SE countries. This result indicate that whereas Algeria, Egypt, Jordan, Lebanon and Tunisia seem to converge in relative terms to similar productivity levels as SE countries, the path for Morocco is more similar to non-EU EPN European countries.

Table 7: Productivity cluster analysis (1991-2016)

| | <i>1st cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | -0.360 | -1.627 |

Members: Albania, **Algeria**, Azerbaijan, Belarus, Cyprus, **Egypt**, Greece, Israel, **Jordan**, **Lebanon**, Malta, Spain, and **Tunisia**

| | <i>2nd cluster</i> | |
|-------|--------------------|-------------|
| | b coefficient | t statistic |
| log t | 0.269 | 0.859 |

Members: Armenia, Georgia, **Morocco**, and Ukraine

Divergent economies: Italy, Moldova, and Portugal

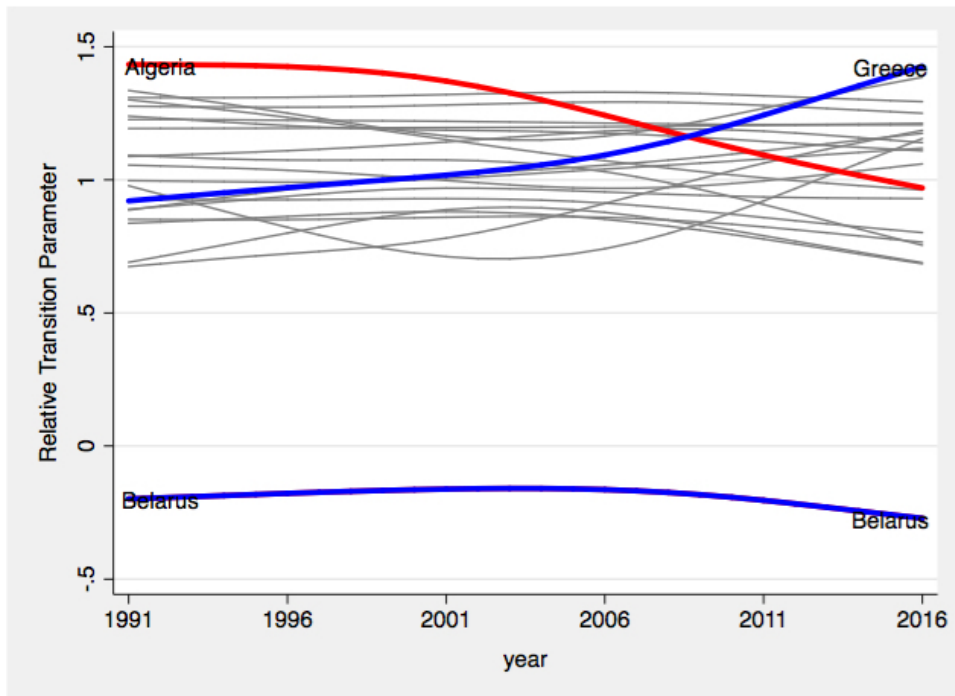
Note: MENA countries in bold.

Finally, figures 4 to 7 show the transition paths corresponding to the each of the analyzed variables. To interpret these graphs consider, for example, panel (a)

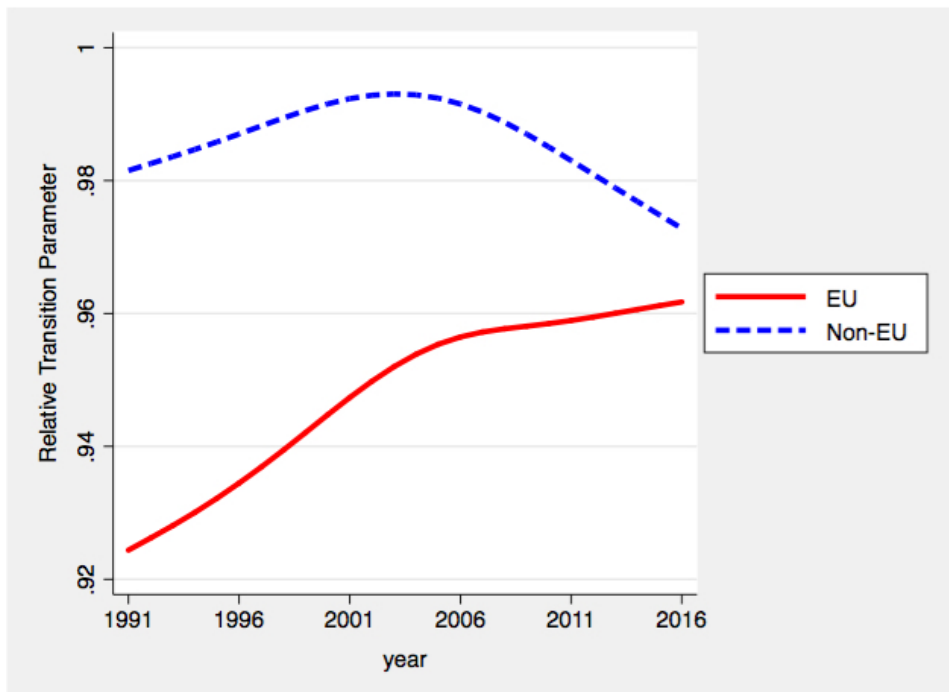
in Figure 4 where the time path behaviour of unemployment is shown for a specific country *relative* to the whole panel, with the whole panel average represented by the unit horizontal line. These transition paths are depicted separately for each of the countries in the panel. A decrease in the transition path of unemployment for a given country cannot be interpreted as a decrease in absolute unemployment, but rather as a decrease in unemployment *relative* to the behaviour of the whole panel. Therefore, the graphs are useful to gauge the degree of convergence among countries and to determine when and for how long this convergence has taken place.

Panel (b) in Figures 4 to 7 present the transition functions for the EU countries and ENP countries as a group using Spain as a benchmark. In this way it could be seen whether there is convergence or divergence for the ENP countries with respect to the corresponding figures in EU countries. **Convergence between EU and non-EU countries is observed only for unemployment. This can be the result of the sharp increase in unemployment experienced by some EU economies - namely Portugal, Greece and Spain - as a consequence of the recent economic crisis. Convergence in inequality is observed only until 1998, whereas convergence in GDP per capita and productivity is weak. Overall, the results point to a lack of convergence between the EU and the non-EU countries.**

Figure 4: Unemployment transition functions (1991-2016)

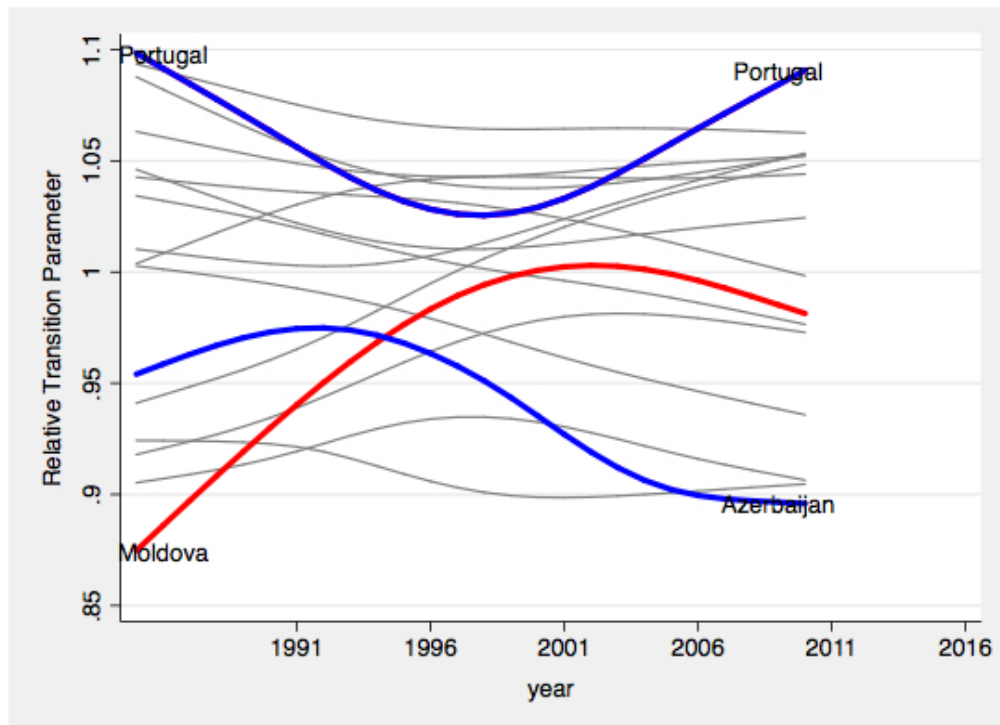


(a) Transition function per country

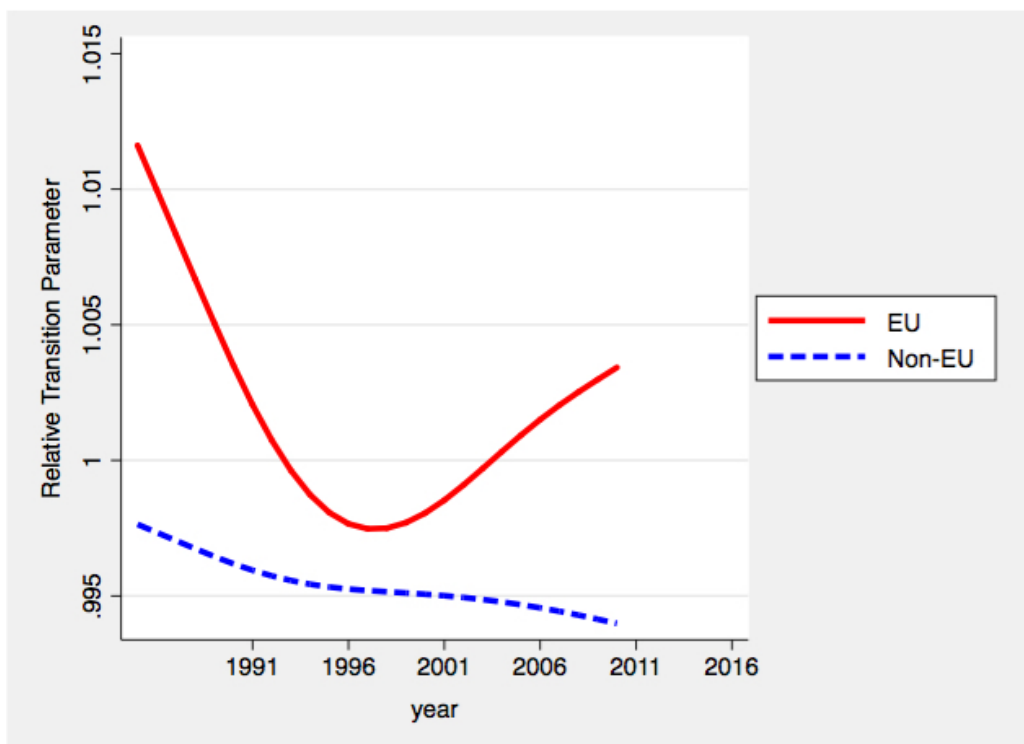


(b) Transition function per group

Figure 5: Inequality transition functions (1985-2010)

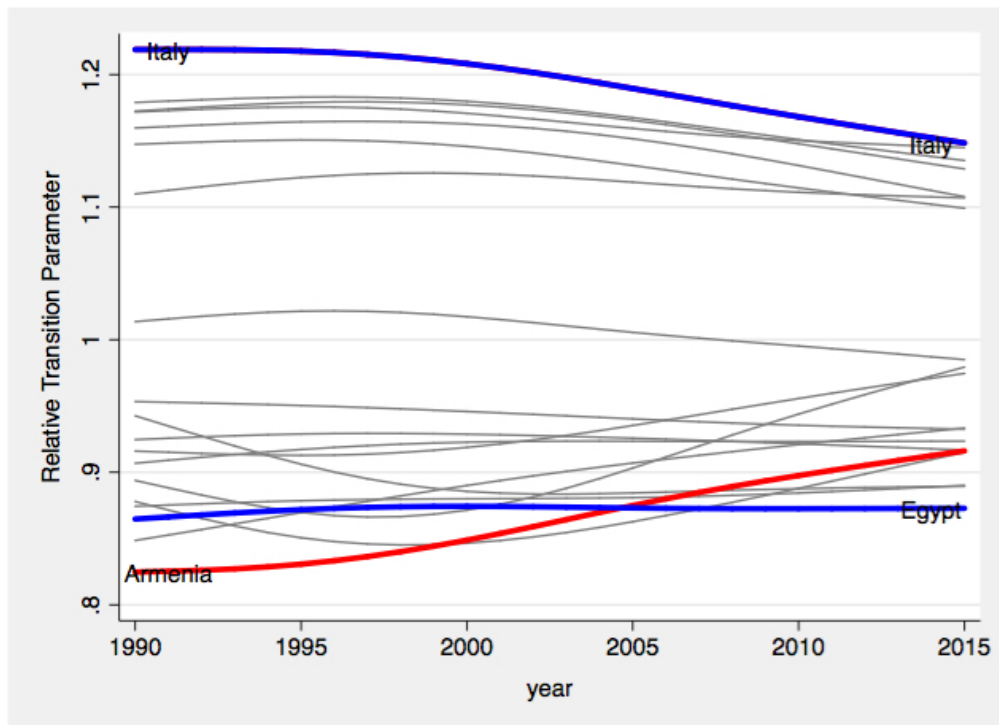


(a) Transition function per country

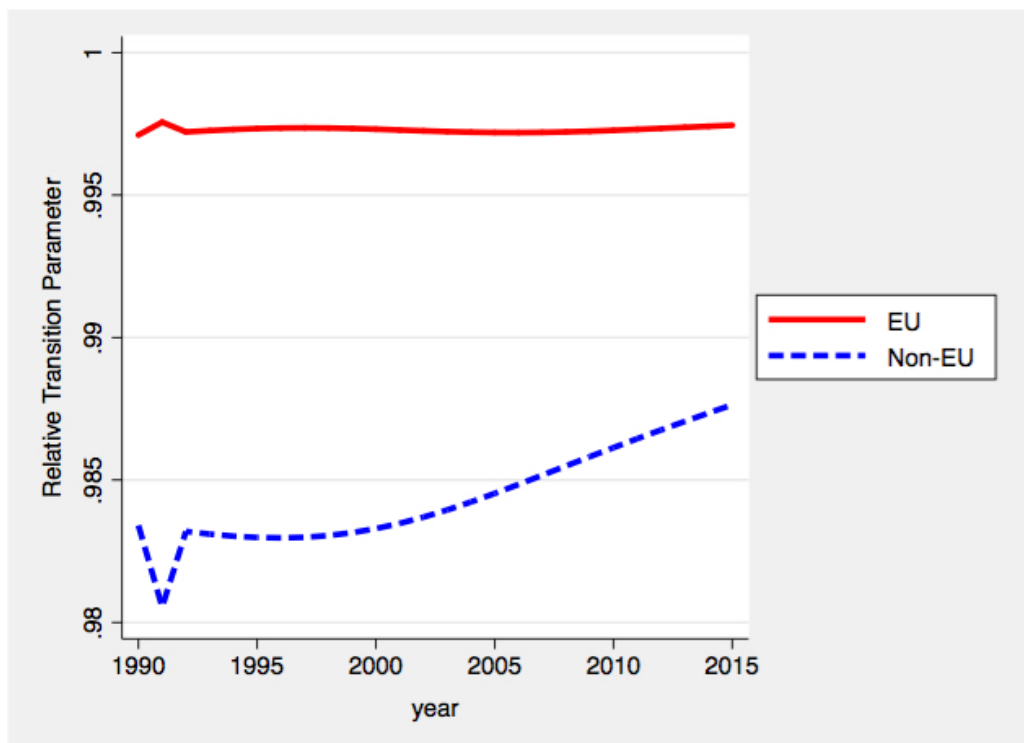


(b) Transition function per group

Figure 6: GDP per capita transition functions (1990-2015)

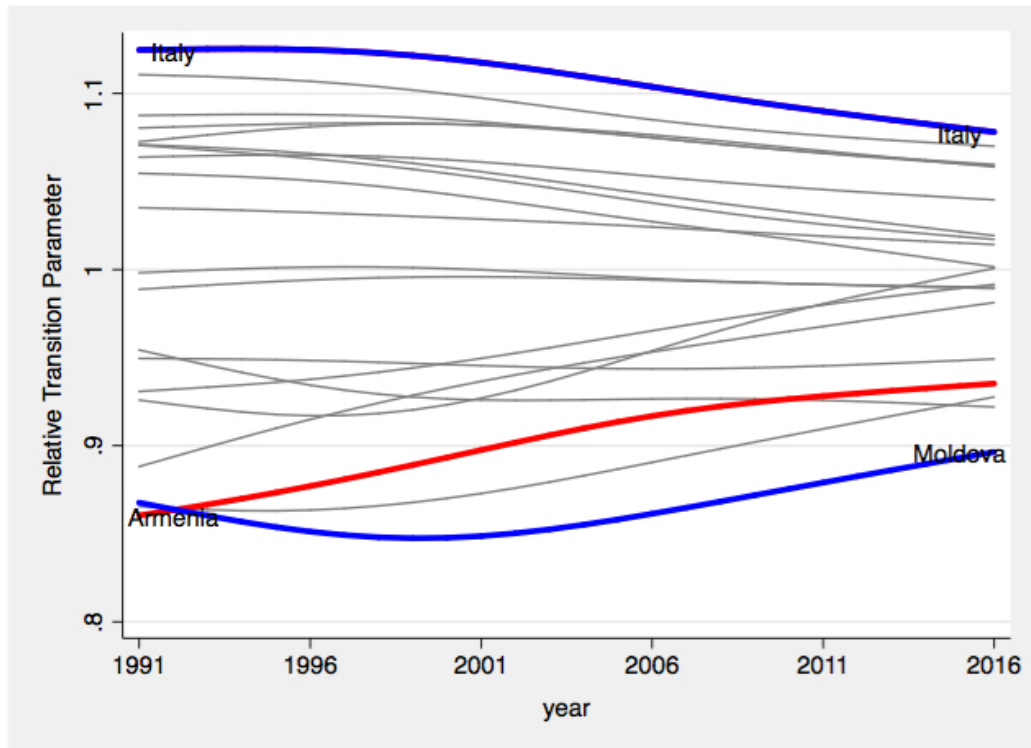


(a) Transition function per country

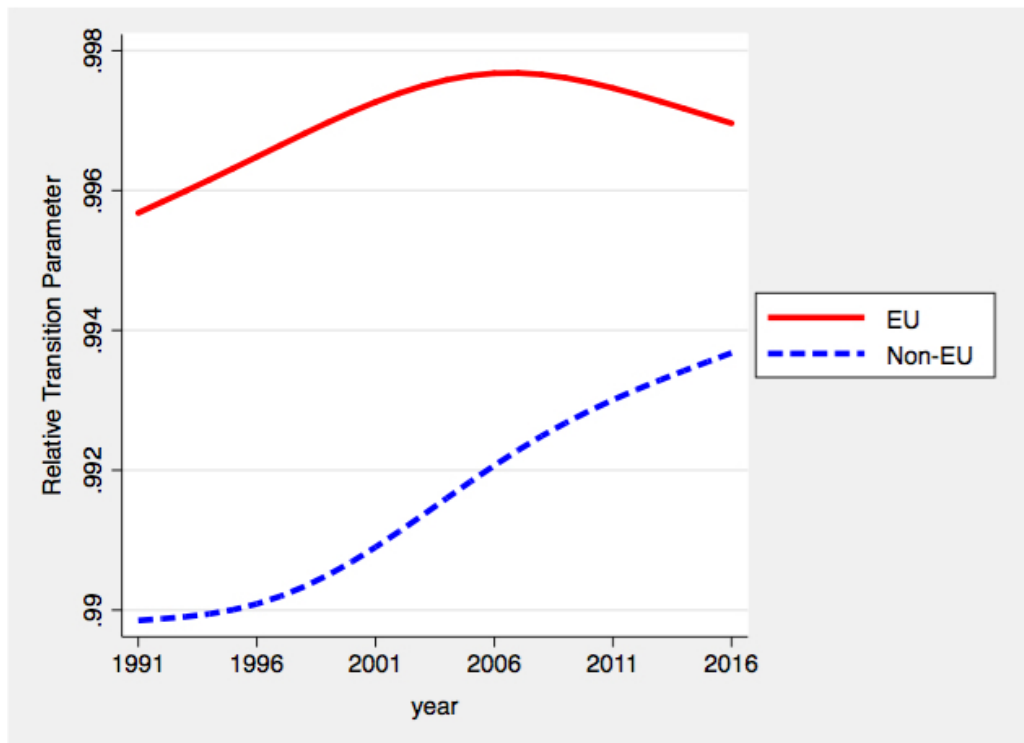


(b) Transition function per group

Figure 7: Productivity transition functions



(a) Transition function per country



(b) Transition function per group

4. Conclusions

To gain insights into the role of economic integration in growth and inequality, this paper analyses the convergence pattern of GDP per capita, productivity, inequality and unemployment in both ENP and southern European (SE) countries. A convergence analysis helps to identify which countries have performed better and which are lagging behind. It should thus be understood as a necessary starting point to address the effects and consequences of economic integration. The fact that countries belong to different clusters implies that they have different steady states and require different policies to promote sustainable and inclusive growth.

In this paper, we use the methodology proposed by Phillips and Sul (2007, 2009), through which different convergence paths can be distinguished among heterogeneous economies involved in a convergence process. This heterogeneity is modelled through a nonlinear time-varying factor model, which provides flexibility in studying idiosyncratic behaviours over time and across sections.

The main results of the convergence analysis show that convergence between EU and non-EU countries is only found in unemployment. This is most likely the result of the sharp increase in unemployment experienced by some EU economies—namely Portugal, Greece and Spain—as a consequence of the recent economic crisis. Therefore, despite the implementation of the ENP policies, it is hard to find convergence among these two groups of countries.

The composition of each cluster provides further interesting insights. First, in terms of inequality and GDP per capita, there is a sharp distinction between SE and ENP countries. In other words, these two groups of countries are

converging to their own steady states. Given this clustering, economic growth theory would suggest that improving growth and income distribution in ENP countries will require deep economic reforms to allow them to catch-up with the most advanced economies in the region. The ENP policy should therefore help to promote these reforms. Second, and despite the lack of convergence in growth and inequality, some MENA countries (Algeria, Egypt, Jordan, Lebanon and Tunisia) and some other ENP countries (Azerbaijan, Belarus and Israel) have converged in terms of productivity with Spain and Greece. Although the latter are not the best-performing EU countries in terms of productivity, this result offers reason for optimism in terms of future catching-up.

Concerning the policy implications of this paper, it is worth mentioning that through the ENP policy, the EU has been continuously supporting reforms in four priority areas: good governance, democracy, rule of law and human rights. Notwithstanding the importance of these areas, inclusive and sustainable growth should also be at the heart of EU efforts to achieve resilience in the ENP countries. The main policy recommendation is that, in order to address the challenges of an evolving neighbourhood, inclusive economic development should be central to the new ENP approach.

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