

# Converging Economies of a Diverging Union: A Sub-systemic Analysis of Income Inequalities and Economic Growth across the E.U. Member States

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## Abstract

The effects of the recent economic recession of 2008 on a global scale revealed a high degree of economic dependency between all sovereign states of the European Union. Some research has been conducted on the impact of the great recession on developing countries, yet very few have examined the consequences of the economic recession on income disparity, and its effect on income convergence across the peripheral and core states of the E.U. In this paper we rely on the theoretical grounds of world system theory to explain the structural arrangements of the Union, and we test for unconditional  $\beta$ -convergence between the advanced and less advanced European countries. Results from our analysis are similar to former studies of economic growth stating that less advanced economies tend to grow at a faster pace than the advanced ones. Specifically we found that lagging E.U. economies tend to grow at a 2.5% higher pace than most advanced economies within the Union.

**Keywords:** world system theory, unconditional beta convergence, income disparities, economic growth, European Union

## 1. Introduction

### 1.1 Background

The effects of the recent economic recession of 2008 on a global scale revealed the impact of monetary policies -adopted by sovereign European countries- on the process of the European integration. The dire negative consequences have impacted mostly the European periphery for an extended period of time jeopardizing the procedures of integrative practices between the European core and the European peripheral countries. The national governments of Europe's south appeared vulnerable to the imposition of monetary policies directly impacting people's life chances. Several social scientists have been dealing with conceptual and methodical challenges identifying the causal mechanism of the global recession. Most research endeavors focused on the consequences of the great recession to the developing world. Massa, Keane and Kennan (2012) discussed and analyzed the implications of the E.U. debt crisis and its sincere negative consequences on the developing countries, they stated,

The global economy has entered a new and dangerous phase. On the heels of the 2008–2009 financial and economic turmoil the global economy is experiencing a sovereign debt crisis which is spreading across the E.U. region, weakening the moderate economic recovery in the developed world and raising fears of a double-dip recession. This poses important challenges for developing countries, which risk being affected by the euro zone crisis through three transmission channels: financial contagion, Europe's fiscal consolidation effects, and exchange rate effects (p. 58).

Massa, Keane and Kennan (2012) supported the notion of an internal structuration of a unified global system which created a stratified structure based on the level of dependency between developed and developing world. Their theoretical claim seems to be complementary to world systems theory framework. Some research has been conducted on the impact of great recession on income inequality at micro and macro scales (Jenkins et al., 2012; Krugman, 2009). Yet very few have examined the consequences of the Great Economic Recession on income disparity across the E.U. member states.

Relying on the grounds of world system theory, our paper aims to analyze the effect of the recent debt crisis on the

process of economic convergence between Europe's core and peripheral economies. We revisit the perspective of world systems arguing about its applicability to sub-systemic settings. Also we examine the general theoretical argument stating that less advanced economies tend to grow at a faster pace (Baumol, 1986). Finally we conduct analysis detecting the progression of income inequality gap between the citizens of the European core and the European periphery for the time period 2005-2011.

In summary, our paper serves three objectives: (1) to discuss the theoretical grounds of the world systems theory that could be applied to describe the sub-systemic structures of the European Union, (2) to detect evidence of economic convergence between the European countries -based on Baumol (1998) and Barro and Sala-i-Martin (1992) we expect that lagging countries in per capita income show higher productivity growth than the core national economies-, and (3) to examine the effects of the European fiscal financial crisis on income inequality among the citizens of the core and peripheral European states.

### *1.2 Research Hypotheses*

In this paper we are going to test two research hypotheses deriving from the theoretical and empirical studies in the fields of convergence theory, economic growth, and income inequality

- i. There is statistical evidence of convergence in economic growth rates across the developed and less developed European states.
- ii. Income inequality has a negative impact on the economic growth in the European Countries.

## **2. Literature Review and Theoretical Framework**

### *2.1 Dependency Theory and the World System*

The structure of the modern world system is based on the division of labor in spatial entities. The hierarchical structure of the three different regional classifications, core, semi-periphery and periphery, is determined by a zero sum game with regards to the control over the factors of production, capital, labor, land and technology. Wallerstein (1974) defined world system as a unified multicultural territorial division of labor in which production and exchange of raw materials and basic goods take the form of a structural stratification system. The degree of a country's control over the factors of production, labor relations and geographic position compose a stratified structure of nations at a global scale. Peripheral states are constituted by traditional, less developed economies primarily based on agricultural production. Peripheral countries tend to be abundant in labor force, raw materials, and natural resources. Semi-periphery is another category of the world classification constituted by countries that are considered developing countries. They fall into the category of industrial or commodities-trade based economies serving the economic interests and practices of advanced post-industrial societies. Finally countries of the core are technologically advanced, post-industrial, consumption based economies, with highly skilled labor employed predominantly at the service sector.

The internal structural classification of the modern world system entails the hegemonic aptitude of core states against peripheral economies. Core countries tend to exploit the factors of production (e.g. labor, natural resources, etc.), as well as to interfere with the policy making, of sovereign peripheral states affecting internal social structures and commodifying local cultures. As a result, countries of the core set policy constraints to weaken peripheral states aiming to perpetuate the subordination, as well as to increase the degree of economic and political dependency. Chase-Dunn and Grimes (1995) noted that most peripheral countries stagnate due to lack of capital accumulation. Core countries tend to consolidate international market regulations to their favor. Such regulations with neoliberal foundations tend to widen the productivity gap between the developed and developing economies. With regards to the unequal income distribution between the core and the periphery, Wallerstein (1984) argued that, "The consequent periods of stagnation both reduce overall production and lead to class struggles which force a redistribution of world income to lower strata within the world-economy" (p.6).

World Systems perspective has been employed by social researchers aiming to identify and explain the classification of modern world systems. However, many researchers agreed that using theories of social evolution for understanding, predicting or influencing social changes involves long crude practices (Chase-Dunn and Hall, 1993; Granoveter 1979; Lenski 1976; Nisbet 1969; Sanderson 1990). Several scholars recognized the deficiencies in the systematic theoretical approach of world systems theory in terms of the units of analysis (Zougris et al., 2015). Focusing on single societies could create implicative and theoretical gaps in any attempt of study of inequality (Chase-Dunn and Hall, 1993). Hence, the theoretical and empirical inquiries should involve the comparative perspective of the regional inter-societal perspective.

Dunn and Hall (1993) rejected the assertion that the world systems between global and regional societies can be operationalized in a cross sectional static module. They argued that the best methodological strategy detecting social change is to systematically compare case studies employing perspectives on the world system. The theoretical grounds

of world-systems theory could be substantive only in cases where time and space are taken under consideration. Systematizing the relativistic empirical implications of the world systems theory can reveal patterns in a scalar frame of dynamic adjustments of global structures. Hitherto theoretical frameworks explaining global inequality in spatial settings emerged with the longitudinal methodological practices.

To summarize, given the degree of dependency, and the degree of socioeconomic solidarity of the western world, it appears that wealth has been concentrated to western countries that succeeded to establish economic colonies (neo-colonialism) taking advantage of the unstable economic and social systems of the least developed countries (Milanovic, 2005). The interaction within the framework of dependency theory justifies the evolution of inequalities in the global spectrum. Economic hegemonic practices of the west to the pre-modern societies, the path to materialization, and the conceptual relevance between modernization and westernization, have led to cultural and structural dominance of the core countries in global, as well as in local settings.

### *2.2 Dependencies in the European Sub-system*

Not so much attention has been given to the applicability of world system perspective on internal structuration of politico-economic sub-systems. We argue that the internal structural dynamics within the core and the peripheral economies shall be examined in a sub-systemic mode. As we discussed in the previous section, the world system is classified as the core (highly developed), semi-peripheral (developing) and peripheral (underdeveloped) countries. Each classification is attributed by an internal sub-system resembling the structural arrangements of the world system as a whole. For instance, the core is constituted by advanced post-industrial economies; however the most dominant countries of the core intervene to and exploit weaker economies that are classified as developed or part of the core of the world system as well. Therefore, we propose an internal sub-systemic classification where the countries of the core can be classified as advance core economies, and less advanced core economies. The economically subordinated-core states are the ones showing volatile structures, difficulty to monetary policies adaptability. Such economies tend to be most turbulent during in times of economic crisis due to frequent structural monetary changes imposed to them by dominant core economies (Zougris et al., 2015).

The formation of the internal structures of less advanced core states is associated with the degree of their dependency to the most advanced core states. Europe is a great example of a sub-systemic structural arrangement. One can argue that the recent economic debt crisis revealed that advanced economies of the European North attempted to dominate less advanced core countries' economies of the south. Hence, an internal structural conflict was directly linked to hegemonic practices of the dominant European states affecting economic growth and prosperity of the European south. In other words, a paradigm shift of the economic relations in Europe has affected per capital income inequality dynamics within the European Union states. Henceforth, an internal structural conflict juxtaposes former practices aiming to solidify and prevent the establishment of a unified European federation.

In the last 10 years' European citizens have experienced a paradigm shift in economic relations affecting their well-being, prosperity and life chances. Capital accumulation of the core and national account deficits of the periphery have established a relationship of economic dependence, hence a relationship of exploitation among member states of the Union. Despite the overall steady growth path of the majority of the European nation states, the disproportionate rates of growth created the issue of a relativistic path to modernity. Rostow (1956) identified five stages of growth for all societies; traditional societies, the precondition for take-off, the take-off, the drive to maturity and age of mass consumption. In the last 20 years the vast majority- if not all- of the European states have completed the transition to modernity by reaching and experiencing the age of mass consumption demonstrating prosperity and high levels of quality of life.

Traditional economic growth literature emphasizes the dire negative consequences of the post-consumption stage which several European countries experience nowadays. On the same note, Kuznets (1955) concluded that the dynamics of income inequality at cross-regional level would eventually shape an inverted U-shaped distribution. That is, the level of income inequality would increase for newly industrialized regions, then it would reach its peak as growth rates increase following by a declining pattern at later stages of development (maturity period). In 1970's the U.S. experienced a rapid inequality within the country (Bluestone and Harrison, 1988; Glickman, 2000). They both argued that the income inequality could rapidly increase on advanced societies due to the shift from industrial to post-industrial or service based economy. Finally the neoclassical economic growth theory suggests that regions experiencing high rates of economic growth will eventually experience declining returns to capital. As a result, capital based economies are more likely to increase the capital flow to labor abundant developing regions leading to convergent growth paths where less advanced economies tend to grow at a faster pace than highly developed ones.

### *2.3 Divergence and Convergence in Economic Growth*

Pritchett (1997) offered a pessimistic view suggesting that in the long run divergence of economic growth rates between

the developed and underdeveloped countries is inevitable. In periods of extensive economic shocks, the discontinuity of business cycles establishes a new mode of redistribution of limited resources. Henceforth, the comparative notion of pre-recession versus post-recession economic conditions shall be addressed in order to identify the evolution of income inequalities in times of diminishing economic growth rates (shocks, recession, depression, economic turmoil, etc.). Prior research suggested that at the national level, increasing income inequality and declining productivity in lagging regions shall be a rational expectation (Young et al., 2008; Abramowitz, 1986; De Long, 1986; Fingleton, 1999). Baumol (1986) found that lagging regions tend to develop at a faster rate (approximately at a 2% higher rate of growth) in terms of their aggregate productivity- than economically leading regions. Supporting this notion, Firebaugh (2000) disputed the notion of widening gap between rich and poor countries and he claimed that income inequality is an inevitable outcome in the long run.

Former studies employed per capita income as a proxy measuring economic performance in a given region (Mannion and Zougris, 2009; Young et al., 2008; Cherodian and Thirlwall, 2015). An assumption of the unconditional  $\beta$ -convergence is that the initial incomes of lagging countries shall be growing more rapidly due to the economic phenomenon of diminishing returns to capital. By regressing the rate of a country's growth over time to the initial income per capita -at a given base year-, the  $\beta$  coefficient or the rate of change of the standard deviations of growth should be negative. In this paper we seek evidence for unconditional  $\beta$  convergence across the 28 member states of the European Union. To do so, we employ a model to test for unconditional  $\beta$ - convergence between the advanced core and less advanced core states of the European Union. We expect that even though the member states of the E.U. are considered to be advanced economies – in global systemic settings- evidence of unconditional convergence could indicate the internal classification of the core countries to advanced core and less advanced core countries within the Union.

### 3. Data and Methods

#### 3.1 Data Collection

Our data were collected by Eurostat (2012) for the period 2005-2011. This time period includes data measuring the economic performance and the levels of inequality 3 years before, and 3 years after the global economic recession's peak. The limited availability of time series data raises some concerns over the reliability of our dataset. Our analysis focuses on the effects of the recession on the process of economic convergence between the advanced and less advanced economies of the E.U. member states. As we discussed in the previous section, we seek evidence for unconditional  $\beta$ -convergence across the 28 E.U. countries. We expect that despite the recent economic downturn, less developed lagging economies would still be able to eventually catch up with the most developed member states of the Union.

#### 3.2 Measurements and Analytical Techniques

Several former studies employed  $\beta$ -convergence models to detect evidence for rising or declining inequality based on the rate of regional economic growth (Baumol, 1986; Barro and Sala-i-Martin, 1992). Following Baumol's (1998) and Sala-i-Martin's (1995) model utilizing  $\beta$ -convergence technique, income growth rates is the dependent variable of the model, while income per capita -in 2005 market prices- serves as the independent variable signifying whether or convergence occurs on per capita income across the member states.

The model takes the following form:

$$\text{Income growth rates} = a + \beta [\ln(\text{per capita income}) \text{ base year 2005}] + e \quad (1)$$

where income growth rate is conceptualized as the annual percentage change of the Gross Domestic Product (GDP) by country. GDP is a measure of the overall economic performance defined as the value of all goods and services produced less the value of any goods or services used in their creation within a given country. The calculation of the annual growth rate of GDP is intended to allow comparisons of the dynamics of productivity both over time and between economies of different sizes. For measuring the growth rate of GDP we consider the chain-linked series method (Eurostat, 2012). Finally per capital income is defined as a country's aggregate GDP divided by the total population of a country.

The second model examines the effect of income inequality measured by the Gini index (1921) on aggregate economic growth across all the countries of the E.U (N=28). The dependent variable is the union's annual GDP growth rate and the independent variable is the Gini Index.

The model takes the following form,

$$\ln \text{ Economic growth} = a + b_1(G) + b_2[\ln(\text{income})] + e \quad (2)$$

where,

$a$ : constant

G: Gini coefficient

ln income: The natural logarithm of income per capita

N: number of residents within a county

X: cumulated proportion of the population in a given area

Y: cumulated proportion of personal per capita income in a given areas

#### 4. Results

The results of our analysis show that on average 1% annual change in standard deviations on income per capita causes an average of 2.5% decline in standard deviation of income growth rates. The results indicate evidence for unconditional  $\beta$ - convergence across the advanced and less advanced economies of the European Union (see table 1). Therefore as former studies suggested, less advanced or lagging economies tend to grow at faster pace than more advanced ones do (Solow, 1956; Baumol, 1998; Barro and Sala-i-Martin 1992; Dvorokov á 2014.)

As we mentioned above, highly developed countries in the E.U. tend to develop and lower rate than less developed countries indicating a path to an eventual equality in productivity in the long run (Firebaugh, 2000). Noticeably, Baumol's assertion that in macro systems, developing nations, tend to grow 2% faster than developed nations seem to apply in the internal structure of the European Union subsystem.

Table 1. Testing for unconditional  $\beta$ -convergence: Income Growth rates and Initial Per-capita from 2005-2011

Predictors	$\beta$
Constant	60.564 (51.589)
Per Capita Income	-0.025(0.0026)*
R <sup>2</sup>	0.05

N=28

\*p<0.05, \*\*p<0.01

Table 1 describes the results of the sum of least squares regression model that tests the unconditional  $\beta$  convergence between the developed and less developed member states of the E.U. Our results are prominent to our theoretical proposition of world systems and sub -systems structural equivalence. In other words, there is an indication that within the sub-systemic structures of the 28 E.U. countries, which are considered to belong to the core, there is hierarchical structure similar to the one discussed in the world systems perspective. Our results indicate that less advanced European countries tend to increase the economic performance at higher rate. Also we test for potential income convergence relying on the unconditional beta convergence. The  $\beta$  parameter of -2.5%, is very similar to Baumol's results indicated that the economic growth standard deviations tend to decrease by 2% between less advanced economies and advanced economies. In other words, lagging economies tend to grow at a higher rate than more advanced economies do so. With that being stated, the results of our model confirm that unconditional  $\beta$  convergence occurs across the lagging and the leading national economies of the E.U. Also our results support Dvorokona's (2014) conclusions suggesting converging economic levels of the 28 E.U. countries for the time period 2001-2012. Her results indicated a  $\beta$  parameter = -2.7% which is very similar to the result of our analysis ( $\beta$  parameter=-0.025).

Our second model predicts the effect of income disparity on economic growth among the E.U. countries. Economic growth rates were standardized by taking the natural logarithm of growth rates across all countries in the E.U. Similarly, income per capita was also log transformed so as to present the correlation of aggregate economic growth and income per capita. The log transformation allows us to interpret the results as the effect of a percentage change of the income per capita on the percentage change in economic growth.

The coefficient Gini (1921), a very common measure of inequality, serves as the independent variable of our second model predicting economic growth. Former studies supported that less developed countries experience a high degree of income inequality in the stage of rapid growth followed by an eventual decline once their economy stabilizes to higher levels of development. With that being said, in times of economic recession there is much ambiguity with respect to what happens to the progression of income inequalities.

Interpreting the results shown in table 2, we can conclude that there is a significant positive relationship between initial income and economic growth. On average European countries with higher initial income appeared to have higher probability to economically grow. The variable initial income was included in our analysis in order to identify the economic potential for growth for the most countries in the E.U. in times of the recent economic turmoil. Our results of our model do not support our research hypothesis stating that there is a statistically inverse relationship between

economic growth and income inequality across the E.U. members states. This result may be explained that most, if not all, European economies have reached later stages of economic development where more proportionate distribution of income occurs.

Table 2. Income Inequality and Economic Growth

Predictors	Model 1	Model 2
Constant	-0.019(1.218)	
Initial Income	0.306 (0.240)*	
Gini Coefficient		0.008(0.019)
Log Income		0.073 (0.104)*
N=28		

\*p<0.05, \*\*p<0.01

Furthermore, as expected, there is a statistically significant relationship between the individual income levels and the overall economic growth of a country. *Ceteris paribus* on average 1% increase on individuals' income signals for approximately 0.07% increase on the aggregate economic performance of the European Union.

In summary, our results confirm findings of former studies on economic growth stating that beta convergence occurs between lagging and leading economies. Identical conclusions are drawn even in cases of structural dependencies of territorially entities operating in sub-systemic settings. Our analysis indicated that within the E.U. subsystem-constituted by advanced economies-the internal structural classification divides Europe in two categories: the European core, and the European periphery. Less advanced countries of the E.U. appear to grow at a faster pace than the advanced ones, which is contingent to former studies focusing on evidence of convergence at economic levels among the member states of the E.U.

## 5. Conclusions

In this paper we argued that the structural arrangements classifying the world systems do not apply only in a unified holistic structure of the global system, but they could also apply in regional subsystems. For instance, in sub-systemic settings there are structures shaping the core and peripheral economic zones of the E.U. We proposed an alternative explanation of the structural arrangement of the E.U. sub-system relying on the regional classifications of the world systems framework.

Our analysis revealed evidence of income convergence among the core and the peripheral states of the union. It appears that the regional discrepancy in labor productivity diminishes over time. One could argue that in times of economic turmoil income convergence could be the result of a higher rate of productivity of leading economies, rather than the increasing growth rate in overall productivity of lagging economies. Another important result is that the individual income distribution is not associated to the degree of economic growth among economies that reached maturity or a considerably high level of development. We found that the distribution of income per capita across the E.U. countries appears to fairly proportionate. Future research should be focusing on the practices leading to convergence, the description of the structural arrangements consolidating the E.U. monetary policies in the path of an economic integration across the member states into one federal economy. Also more thorough studies should be conducted on the impact of the austerity measures, imposed as memorandums, on the process of economic convergence between the peripheral and the core economies of the E.U.

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