CHAPTER 6

CONCLUSIONS

How can one measure the rate of economic growth and development in an economy? The answer to this question is provided by the various theories of economic growth and development developed from time to time. The advancements on the statistical front have made it possible to test these theories empirically. Economic models were developed in order to account for economic growth in an economy. These economic growth theories and models provide with the basic ingredients essential for the process of economic growth in a country. With the passage of time new dimensions in measuring economic growth of a nation has emerged. These newer dimensions have been empirically tested from time to time for different countries with differing conclusions. The factors put forth by the various theories of economic growth can significantly explain the disparities in economic growth across the nations of the world.

However, the conventional variables put forward by the earlier growth theories tend to explain major variations in the economic growth of any nation even during recent times. These conventional variables viz. income inequality, physical and human capital accumulations, technology and research and development, international trade and foreign investments, institutions and policies and economic growth among others are analyzed and examined in the present research.

In view of this, the thesis intended to examine disparities in economic growth across the European Union member nations using the conventional dummies.

European Union is selected for analysis purpose because the existing economic literature, testified empirically, states that economic integration tend to escalate the rate of economic growth in its member economies (see deMelo et.al.: 1992; Landau: 1995; Henrekson et.al.: 1997; Vanhoudt: 1998). This is validated and substantiated by examining the theories of Customs Union along with the economic literature on economic integration. Further, the existing economic literature on international trade states that with the liberalization of trade, it is possible for an economy to enjoy comparative and at times even absolute advantage in the international market. This (liberalization of trade) would further lead to increased welfare in the domestic economy.

In light of this, the objective of the thesis is also to examine whether the membership of European Union has increased the economic rate of growth in the member nations or not? For this purpose, Germany, Italy, the United Kingdom, Portugal, Spain and Finland are selected for analysis from different phases of development of the European Union. Moreover, the drivers of economic growth in the countries selected for analysis, for the period 1971-2009, are also analyzed. The distinctive drivers of economic growth in each economy would assist in explaining the disparities in economic growth among the EU member countries selected for the analysis.

With this objective of research in mind, stepwise linear regression is estimated for each individual country selected for the study for the period 1971-2009. This time period is considered for the study because internationally comparable data are available since 1970. Moreover, the 1970s is followed by end of the golden age of economic growth in most of the European nations.

The time-series regression is estimated using the conventional variables explaining the economic growth of a nation. The rate of economic growth in an economy is measured by the (annual growth rate of) per capita GDP. The variables employed to estimate the economic growth in a country are physical capital described by domestic investment, human capital described by secondary school enrolment rate, openness described by total trade as ratio to GDP, annual growth in total residential and non-residential patents and trademarks which is the result of research and development activity, foreign direct investment flow and total government consumption. Furthermore, in order to estimate the impact of economic integration on the domestic country, a dummy variable (EU) is later added in the time-series linear regression model.

In accordance to the literature review in Chapter 3, it is expected that

a. Physical capital i.e. domestic investment is expected have a positive and significant effect on the rate of growth of the economy. It is because, an increase in the domestic investment would lead to an increase in the levels of output and incomes thereby improving the conditions of growth in a country.

b. Human capital is expected to have a positive and significant impact upon the rate of economic growth of a nation. This may be due to the reason that better educated and more skilled, thereby, more productive labor force in the economy would assist in increasing the level of output in the economy. This would further enhance the economic growth of the nation.

c. From the times of Smith and Ricardo, liberalization and opening of an economy are considered as momentous factors leading to increase in trade of a country. Further, increase in trade is expected to boost the rate of growth of a nation. As a result, openness is expected to have a positive and significant effect on the rate of growth of a country.

d. Foreign investment is expected to create the spillover effect thereby escalating the rate of economic growth of an economy.

e. Technological developments direct the increment in the total factor productivity, inducing capital accumulations, thereby, increasing the levels of output and income in a country.

f. Government consumption, on the other hand, is expected to impair the rate of growth in an economy.

g. Economists advocate economic integration as regional integration allows a country to trade preferentially in the international market. As a result it is expected in my study that the membership from the EU should have a positive impact in the rate of growth of the countries under study.

The data is compiled from World Bank, World Intellectual Property Organization (WIPO), Organization for Economic Cooperation and Development (OECD), International Monetary Fund (IMF) and United Nations Conference on Trade And Development (UNCTAD).

The stepwise linear regression aided in recognizing the factors/variables which have acted as drivers of economic growth in each of the individual country under study. These factors are summarized in the Tables A and B

TABLE: A

COUNTRY	GROWTH DRIVERS (1971-2009)
Germany (1971-2009)	Domestic Investment
Germany (1991-2009)	Government Consumption and Domestic Investment
Italy	Government Consumption
The UK	Government Consumption and Technology
Portugal	Domestic Investment
Spain	Government Consumption, Human Capital and Technology
Finland	Technology, Openness, Government Consumption and Domestic Investment

TABLE: B

COUNTRY	GROWTH DRIVERS POST-EU MEMBERSHIP
Portugal(1986-2009)	Domestic Investment
Spain(1986-2009)	Government Consumption, EU Membership and Technology
Finland(1995-2009)	Technology, EU Membership and Government Consumption

The above Tables A and B demonstrates different factors which drive the economic growth of the countries under study. The consequences of these differing economic drivers lead to differences in the rate of economic growth across the countries under study. This is evident from Table C which provides the results of a linear regression ln (GDPpc) = B_0 + B_1 (Time).

TABLE C

COUNTRY	ANNUAL GROWTH RATE (%)
Germany(1971-2009)	1.9
Germany(1991-2009)	1.3
Italy(1971-2009)	1.9
The UK(1971-2009)	2.1
Portugal (1971-2009)	2.5
Portugal (1986-2009)	2.2
Spain(1971-2009)	2.2
Spain (1986-2009)	2.3
Finland(1971-2009)	2.2
Finland (1995-2009)	2.9

It is noticed from the above table that Germany and Italy are growing at an annual rate of 1.9% from 1971-2009, while from 1991-2009 Germany observed an annual growth of 1.3% in its economy. The United Kingdom is observed to grow at 2.1% rate of growth annually from 1971-2009. On the one hand, Portugal is found to grow at a comparatively higher growth rate of 2.5%

annually, while on the other hand, Spain and Finland are observed to grow at an annual rate of 2.2% over the time period 1971-2009. Since its membership in the EU in 1986 Portugal is growing annually at 2.2% and Spain is growing at 2.3% p.a. Finland depicts a very high rate of growth (2.9%p.a.) since 1995.

The disparity in the above depicted rate of economic growth is due to the factors listed in Tables A and B. It can be observed from Tables A and B that:

1. In Germany, over the period 1971-2009, domestic investment has positively affected the economic growth rate. This is in agreement to the conclusions drawn by various research like Solow: 1956, 1957; Landes: 1969; Barro: 1991; Benhabib & Spiegel: 1994, Sala-i-Martin: 1997; Plumper & Graff: 2001, which states that domestic investment has positive impact on the rates of growth of per capita GDP. The policies that were formulated to uplift the East German economy after the reunification of 1990 suffocated the working of industries in the German economy. As a result major portion of the domestic savings was invested abroad. Despite of this, domestic investment depicts a positive impact upon the rate of growth of the German economy since its reunification in 1991. Moreover, government consumption depicted a negative impact on economic growth of the German economy during 1991-2009. This is a much expected result and falls in line with the existing literature viz. Grier: 1989; Barro: 1991; Barro: 1992; Easterly: 1993; Devarajan, Swaroop & Zou: 1996.

2. Government consumption is the only factor which exhibits a significant impact upon the rate of growth of the Italian economy during 1971-2009. No other factors, selected for the study, were found to impact the economic

growth of the Italian economy over 1971-2009. Moreover, the impact of government consumption on economic growth is in accordance to the expectations i.e. government consumption is negatively affecting the rate of economic growth in Italy.

3. The economic growth in the UK, who has, at most times, stayed aloof from the policies of the European Union, was found to be affected significantly by its technological advancements and government consumption. As per the theoretical expectations, technological advancements are augmenting the rate of growth of the British economy, whilst government consumption shows a negative impact.

4. For the Portuguese economy, over the entire time span of 1971-2009, the only factor that significantly affected the economic growth is domestic investment. Domestic investment is found to improve the rate of economic growth in Portugal. All other explanatory factors have no significant role to play in the process of economic growth in Portugal. The positive and significant impact of domestic investment on economic growth rate of the country may be attributed to the improvements made since the 1980s and the 1990s with respect to the liberalization of the economy (Ram: 1987; Knight, Loayza & Villanueva: 1993; Frankel & Romer: 1999; Pomeranz: 2000; Afonso: 2001; Galor & Mountford: 2003). Further, Portugal has modernized its industrial sector which have led to improved policies and working of institutions in the economy. As a result of better infrastructural facilities, it is possible for the economy to enlarge its domestic investment thereby improving economic growth of the economy. Even after its membership in the European Union, the factor that drives the economic

growth of Portugal has not changes. Domestic investment, nevertheless, is observed to be the only factor driving the rate of economic growth of the Portuguese economy.

5. In case of Spain, government consumption, human capital and technological advancements have driven the rate of economic growth of the country over 1971-2009. The impact of these driving forces is as per the expectation from the theoretical view point. Government consumption is negatively affecting economic growth, while human capital and technological advancements are positively affecting the growth rate. I agree with Romer & Weil: 1992; Mankiw: 1995; Glodin & Katz: 2001; Mitch: 2001 who proved that educated and skilled human capital assist in enhancing the rate of economic growth of an economy. However, since its membership in the EU in 1986, the drivers of economic growth have changed considerably. Earlier human capital was one of the explanatory factors explaining the growth rate of the country, and since its membership in the EU, human capital is no longer the driving force of economic growth in the Spanish economy. Rather, the drivers of economic growth now are government consumption (whose negative impact on economic growth after the EU membership has reduced by 0.44 percentage points), EU membership, and technological advancements (whose positive impact on economic growth since the membership in the EU has increased by only 0.01 percentage points). In fact, more than 5 percentage points of economic growth of Spain is accredited to its membership in the EU.

6. The drivers of economic growth in Finland for 1971-2009 have been (i) technological advancements, (ii) openness, (iii) government consumption

and (iv) domestic investment. Finland is the only country, among the other selected for the study, whose growth rate is positively and significantly affected by openness. This is in agreement with the existing economic literature which establishes a positive relationship between openness of a country and its economic growth rate (Ram: 1987; Knight, Loayza & Villanueva: 1993; Frankel & Romer: 1999; Pomeranz: 2000; Afonso: 2001; Galor & Mountford: 2003). Government consumption is found to affect negatively on the growth rate, once again, a much expected result; while technological advancement is one of the major drivers of economic growth depicting a positive and significant impact on growth rate. This result is in affirmation to the economic literature that shows a positive linkage between technological progress and economic growth (see Fagerberg: 1987, 1988; Grossman & Helpman: 1991; Aghion & Howitt: 1992; Jaffe & Trajtenberg: 2002; Jones: 2002; Frankema & Lindblad: 2006). However, domestic investment showed an unexpected result. Unlike Landes: 1969; Barro: 1991; Benhabib & Spiegel: 1994, Sala-i-Martin: 1997; Plumper & Graff: 2001; domestic investment, in Finland during 1971-2009, is found to affect the rate of economic growth in a negative manner. Finland's drivers of economic growth have changed considerably since its membership in the EU in 1995. Earlier openness and domestic investment had a significant impact upon the economic growth of the economy; however, since its membership in the EU, they no longer affect the rate of economic growth. The factors which have acted as drivers of economic growth for the Finnish economy, since its EU membership, are technological advancement, EU membership and government consumption. The affects of these variables are as expected. Nearly 3

percentage point growth in the Finnish economy is accredited to its membership in the EU. Hence, technology has played a major role in driving the economic growth of Finland during the pre-EU and post-EU.

Succinctly, the disparities in economic growth of the nations under study can be observed from the differences in the factors that have led the path to economic growth in an economy. The present research calls for government consumption and domestic investment, among others, as principal factors affecting the rate of economic growth of the nations under study. Moreover, significant and higher impact of EU membership on economic growth of Spain and Finland could be observed. No growth effects of EU membership were observed for Portugal.

The disparities in economic growth among the member nations of EU is there to prevail and stay even if the efforts are made to take the EU towards a more positive integrated market economy. Doubts are felt whether the economic growth in the long-run can survive with the prevalence of common currency (the Euro) and increasing members in the EU. This formulates the area for further research. Furthermore, the policy impacts of economic integration on the variables employed in the present research forms a part of future research too.