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The Role of Education in Economic Development in Ireland and Spain after EU Integration

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Abstract

Erin C. Masterson: The Role of Education in Economic Development in Ireland and Spain after EU Integration
(Under the direction of John Stephens, Gary Marks, and Liesbet Hooghe)

In this paper I will examine the role of education in determining the progress of economic development in Ireland and Spain after their respective integration into the European Union. Some factors to be examined in this study are a comparison of each country's economic state at the time of EU integration, the rate and shape of progress since EU integration, the general role of education in economic development, and the influence of the European Union on education policy. I will then examine the specific effects of education on economic development in both Ireland and Spain. A theoretical framework provided by Joseph Stiglitz is used as the rationale behind this study, as he explains the purpose of reforming the education system and creating 'knowledge capital' in order to prepare for economic change. Finally, some comparisons will be made between the two countries to discern some general trends between education policy and successful economic development.

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Introduction

Thesis Statement

A study of the effects of the education system on economic development must naturally include the nations of Ireland and Spain, given the significant progress each country has made economically and educationally after EU integration. Although the two nations differ in geographic size, population, and present economic status, they are remarkably similar in their earlier economic structures and their quick progress after EU accession. During the first half of the twentieth century, Spain and Ireland were both considered poor nations with largely agrarian-based economies, and the Roman Catholic Church played a significant role in the state and economic affairs of each country. Further, each nation endured conflict and civil war in the twentieth century, as Ireland fought and gained independence from the United Kingdom in 1922 and Spain suffered a brutal civil war in the 1930s and the subsequent dictatorship of Francisco Franco from 1939 to 1975.

Ireland became known in the mid 1990s as the "Celtic Tiger" due to its rapid economic progress fueled by technological prowess and high levels of Foreign Direct Investments. Spain followed a slightly slower trajectory, no less remarkable given its repressive, decades-long dictatorship. One important facet of each nation's economic development is the influence of education policy on economic development, given the critical role that education plays in forming the knowledge base of industrialized nations. Further, with increasing demands on the ability of a nation's scholars to compete internationally, governments are increasingly depending on different sectors of higher education to improve worker skills and the use of technology, therefore enhancing productivity and a nation's economic position.[1] *In this study I will examine the influence of each nation's educational system on the rate and shape of economic development in order to determine how education can drive a country's economic progress*. Given the differences in size and structure of each nation, natural divergences will be expected, but general trends can be noted in the manner in which education policy influences economic development.

[1] Alexander, 2000, p. 412

Economic state of each nation at time of entry into the European community

Ireland

Ireland entered the European Economic Community in 1973 with hopes of great progress. The Irish government had begun a program of "industrialization by invitation" in the late 1950s and foreign capital became an essential factor in Irish economic growth.[2] As a result, the decades of stagnation that had continued through the early 1960s came to an end when the Irish economy began to improve with the help of increasing foreign investments, lowered tariff barriers, and a free trade agreement established with the UK in 1965. Additionally, government-driven efforts to entice foreign investments (particularly American) led to the establishment of 350 foreign companies to aid in the export sector. However, emigration remained high, employment rates stagnated through the early 1970s, and unemployment increased as the number of agriculture jobs declined faster than the increasing number of industrial jobs. But when Ireland joined the EEC in 1973, it finally gained the opportunity to establish valuable trade ties outside those with the UK and the United States. Immediately after entry into the EEC, Ireland was transformed into a nation with soaring export revenue, increased GNP, and high levels of foreign investment, albeit with high inflation, labor strife, and a lack of political leadership.[3]

Spain

Spain entered the European Community in 1986, less than ten years after the democratic transition following the end of the Franco dictatorship and the establishment of a democratic constitution in 1978. The nation had long been characterized by dramatic variations in economic development within its borders, as poor agrarian regions like Galicia lagged far behind industrialized ones like Cataluña, the Basque Country, and Madrid.[4] These economic divergences have lessened over time, but Spain remains a nation of diverse cultures, social structures, languages, and people, and this is reflected in its rather tumultuous economic history.

The nation began industrializing in 1959, as rising unemployment and inflation forced Franco to recognize the need for international integration and relaxed trade barriers. Other factors that contributed to the opening up of the economy were changes in the

[2] Holmes, 2005, p.24
[3] Burnham, 2003, p.540
[4] At the turn of the twentieth century, Galicia had a GDP that was half of Cataluña, despite the fact that their population sizes were almost the same (Bollen and Medrano, 1998, p.589)

political outlook of the country and the desire of Spaniards for modernization, in addition to an end to the autarchy and isolation of the previous decades.[5] Spain became a member of the World Bank in 1958 and a member of the International Monetary Fund in 1959. The Stability Pact of 1959 led to wide changes in the economic structure of the country in the 1960s, including a rapid increase in the GDP[6] and direct foreign investments. Direct foreign investment in Spain between 1960 and 1979 totaled about $5.5 billion, with nearly $5 billion from majority foreign capital [7]

The progress of Spain throughout the 1960s is characterized by some as the "Spanish Miracle," illustrated by the fact that the average annual growth of the GDP in Spain between 1959 and 1971 was 7%, a rate second only to Japan at the time. Progress was made even more rapidly in the average annual GDP, which grew at an average rate of 9.6% between 1960 and 1973.[8] The 1960s also witnessed growth in other areas of the Spanish economy, most notably in the tourism sector, increased foreign trade and foreign investments, and new agricultural and industrial developments. However, Spain still faced difficulties through this decade, including a lack of technological innovation in the steel and textile industries, mass emigration, and an imbalance in the growth of industry across geographic regions, as Madrid and Cataluña received most of the foreign investments.[9]

Additional changes were made throughout the 1970s to balance the economic disparities between regions in Spain, including state grants and subsidies for factory development in the poorer regions, and the redistribution of regional tax receipts.[10] Spain did suffer along with the rest of the global market with the oil crisis of 1973, especially given the nation's dependence on foreign oil due to its lack of domestic energy sources. Inflation and stagnation peaked in 1977 at 37% and unemployment increased rapidly in this decade, as a reflection not only of a stumbling economy but of new social changes which brought more women, immigrants, and young people into the labor market.[11] Spain was also struggling to deal with massive political and social changes, as the dictatorship of General Franco came to an end with his death in 1975, and the country

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[5] Salmon, 1995, p.3
[6] Real GDP growth reached an accumulated rate of 7.6% between the years of 1960 and 1973
[7] McMillion, 1981, p. 295
[8] Salmon, 1995, p.5
[9] Salmon, 1995, p.6
[10] McMillion, 1981, p.302
[11] Salmon, 1995, p.8-9

experienced a three-year transition into democracy before the ratification of a new constitution in 1978. By the time Spain entered the EEC in 1986 as part of the "southern enlargement" (with Greece in 1984 and Portugal also in 1986) it seemed to signal the end of a nation's struggle for recognition as a legitimate democratic nation and the beginning of the next stage of economic development.

I. Theoretical framework

The concept of education as a tool of economic development and the formation of a type of "knowledge capitalism" has been discussed in various ways in recent decades. According to Peters and Besley, the term "knowledge capitalism" is a recent concept that is used to describe "the transition to the knowledge economy, which we characterize in terms of the economics in abundance, the annihilation of distance, the deterritorialization of the state, and investment in human capital."[12]

One take on the topic is that of Joseph Stiglitz, former Chief Economist of the World Bank, Nobel Peace Prize winner, and an open critic of globalization. Stiglitz (1999) views the idea of a knowledge economy as one that runs contrary to the normal characteristics of a desirable good in an open economy. In contrast to the normal pattern of economic processes, in which the value of a good increases as the supply decreases, education behaves differently because the spreading and sharing of education and ideas may add to their value rather than diminish it.[13] Stiglitz writes that "A public good has two critical properties, non-rivalrous consumption--the consumption of one individual does not detract from that of another--and non-excludability--it is difficult if not impossible to exclude an individual from enjoying the good."[14]

While education is not technically a public good because it can be excluded from those who cannot pay for it (in states where all education is provided privately), it does have spillover effects in that it allows the whole society to benefit from those who receive it. The spread of knowledge capital, therefore, is desirable because it has the potential to multiply exponentially the economic power of a nation without adding any marginal cost. Further, because knowledge is non-excludable, it can be provided to anyone, and the free availability of such knowledge will drive its price to zero. These properties do not imply that knowledge cannot be provided privately, or that it cannot be protected (through patents and trade secrets, for example). But the universal application of knowledge is such that it automatically drives up the value of a nation's economy in which it is widely spread.[15] In addition, Stiglitz (2002) argues that education policy and information economics require the constant rethinking of ideas and methods of operation. Stiglitz emphasized

[12] Peters and Besley, 2006, p.52
[13] Peters and Besley, 2006, p.51
[14] Stiglitz, 1999
[15] Stiglitz, 1999

> The necessity for increased transparency, improving the information that citizens have about what these institutions do, [and] allowing those who are affected by the policies to have a greater say in their formulation.[16]

This observation is most significant in the case of Spain, as the decades-long Franco dictatorship suppressed the very processes necessary to improve the economy. Only in the 1960s did Franco begin to open up the Spanish economy, social structure and education system so that Spanish citizens could take an active role in their nation's economic transformation.

For nations like Ireland and Spain, where education policies have been geared towards the spread of knowledge capital, significant economic progress has resulted. In contrast, less-developed nations where higher education is not a priority continue to suffer economically as well as academically. Poor countries must focus first on developing a stable infrastructure, health care system, and basic primary education, and the nurturing of a strong university system is a much later step. Furthermore, reaping the benefits of a well-developed university system can take decades, a process which many lesser developed countries (including a few recent additions to the European Union) have not yet begun to experience. Because the investments in higher education are not immediately apparent, it takes considerable public patience and political support to make them a priority, which is why many Latin American countries and post-colonial nations choose instead to focus on primary education development.

In other cases, university education and primary education receive the most funding, at the considerable expense of secondary education, which then leads to a significant gap in the preparation of young people for any schooling beyond primary.[17] The increased emphasis on the concepts of "knowledge capitalism" and knowledge economy" are important in a study of economic development because they represent a significant change in the nature of capitalism. The emerging theories involve a rethinking of economic fundamentals in which new forms of knowledge capitalism promote "knowledge creation, acquisition, transmission, and organization." Therefore, economic policies are no longer restricted to the school districts or universities in which they are implemented, but have far-reaching cultural and regional effects.[18]

[16] Stiglitz, 2002, p xii
[17] Jones et al, 2005, p.21-22
[18] Peters and Besley, 2006, p.51

II. Why is education significant in economic development?

According to the World Bank, "Education is the principle means of developing highly skilled and flexible human capital for effective competition in global markets."[19] In other words, today's world economy has made education a principle player in determining a country's global economic position. Further, Séamus Puirséil writes that "there is now a consensus among economists that investment in education and training is at least important as investment in buildings, plant, equipment, and other physical infrastructure in determining long-term economic growth."[20] Therefore, a national investment strategy must necessarily include the allocation of money and resources to higher education, given its potential to affect international competitiveness and choice of industrial location.

The evolving society that produces a highly educated and skilled workforce is dependent on the development of a strong tertiary level education system. According to Ray Marshall, former U.S. Secretary of Labor (1995), "In this more competitive world, dominated by knowledge-intensive technology, the keys to economic success have become human resources and more effective population systems, not possible new organizations of production, not natural resources and domestic economies of scale."[21] Because governments are depending so much more on their institutions of higher education to produce internationally competitive human capital, universities are simultaneously forced to drastically increase their population sizes[22] (a trend known as "massification") while losing much of their autonomy.[23] In addition, universities are now encouraged to develop links with business and industry, as well as promote new skills in entrepreneurship and membership in "national systems of innovation."[24]

Referring again to Joseph Stiglitz, he argues that the new role for universities may not simply be to serve as traditional, isolated institutions of knowledge, but as the leading future service industries that should be more fully integrated into the prevailing mode of production.[25] Stiglitz writes that "We now see economic development as less like the

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[19] Peters and Besley, 2006, p.64
[20] Ward and Doonney, 1999, p.141
[21] Alexander, 2000, p.412
[22] Universities in Western Europe have increased their student enrollment sizes by approximately one-third since the early 1980s.
[23] Alexander, 2000, p.415
[24] Peters and Besley, 2006, p.83
[25] Stiglitz, 1999, p.2, cited in Peters and Besley, 2006, p.91

construction business and more like education in the broad and comprehensive sense that covers knowledge, institutions, and culture."[26]

[26] Ibid.

III. Education Policy and EU Integration

The evolution of the European Union from a cooperation of several member states with loose economic ties to an immense territorial expanse with deep and far-reaching unifying mechanisms has occurred simultaneously with this movement around the world, in such a way that EU integration can serve as a miniature representation of globalization. In a study of education policy as an influential factor in economic development in the EU, it is also helpful to examine the relationship between education and globalization. The changing structure of education has been both a driver and a beneficiary of the movement of globalization that has been taking place over recent decades.

The term *globalization* refers to "the process whereby countries become more integrated, mainly via movements of goods, capital, labor, and ideas."[27] Higher education has the potential to drive globalization because it can stimulate growth and enable countries to make better informed decisions concerning global integration. Further, countries with highly educated populations are better able to attract foreign capital. Ireland is one example of this, as well as India. Both English-speaking nations have taken advantage of their high levels of technologically educated professionals to attract software development centers and the IT service industry.

Higher education also allows countries to take advantage of the rapid movement of labor in the global market. This movement is noticeable in the European Union, which has seen significant numbers of workers cross country lines for jobs since the common labor market was established with the Treaty of Maastricht in 1992. In the area of higher education, the mobility of persons applies to academic professionals and students that teach or study abroad, sometimes never to return to their country of origin.[28] A final way in which education drives globalization is in the movement of ideas, especially advances in information and communications technology. Although wealthy nations have thus far been the leaders in the development of new technological innovations, the spread and improvement of quality higher education may be the key for developing countries to gain ground in this area.

Higher education has also been a beneficiary of the globalization movement. Globalization forces individual nations to constantly update their teaching methods,

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[27] Jones et al, 2005, p.22
[28] Jones et al, 2005, p.24

technologies, and skill sets if they wish remain competitive globally. It also offers the institutions in these countries the tools to implement these changes. For example, increased communication within and between countries has expanded the base of problem solving capabilities.[29] Teachers have instant access to new materials, curricula, newly published works, and innovative teaching methods from around the world. Contrary to the belief that globalization will reduce linguistic and cultural diversity by promoting the spread of a uniform, European-style education experience, the fact is that globalization has created new capabilities in the publishing industry that allows for the spread of multiple languages and teaching methods.[30]

The traditional university experience is now being replaced by a variety of new education styles, including online degrees, distance education, and non-traditional student demographics. The increased mobility of teachers and students has created a more international perspective on teaching and learning, and in addition to providing students and scholars with significant life experiences, has led to the broadening and strengthening of the educational experience. The EU has served as a key impetus in the growth of the sector of international education, and today the Erasmus/Socrates International student exchange program has 2199 participating institutions across 31 countries, and 1.2 million students have participated in the program since its creation in 1987.

Much in the way that globalization contributed to the elimination of barriers to movement and communication across the world, several important events have taken place during the course of European integration that have led to the creation of EU-wide education. This process is also known as the "Europeanization" of education. The first step in this process took place at the Conference at Paris, a meeting that was held in May 1998 at the Université de la Sorbonne in Paris, France. During the conference, the Ministers of Education from France, Germany, Italy, and the United Kingdom formed a declaration with the endeavor "to create a European area of higher education, where national identities and common interests can interact and strengthen each other to the benefit of Europe, of its students, and more generally of its citizens."[31] Three important elements that contribute to this objective are:

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[29] Jones et al, 2005, p.30
[30] Jones et al, 2005, p.52
[31] http://www.bologna-berlin2003.de/pdf/Sorbonne_declaration.pdf#search=%22sorbonne%20declaration%22
Accessed on 23 august 2006

1. The creation of a universal cycle of undergraduate and graduate education, in which the European Credit Transfer and Accumulation System[32] would play a role in the validation of credits among multiple European universities.
2. The establishment of a common system of degrees, including a first cycle (undergraduate) and second cycle (post graduate)
3. The improvement and facilitation of mobility of professors and students, with the requirement that students should spend at least a semester studying abroad, the elimination of obstacles to mobility, and improving the recognition of degrees and academic qualifications.

Following the Sorbonne Declaration, a second conference was held in Bologna, Italy in June 1999 to form the preliminary framework for the establishment of a European Higher Education Area by the year 2010. A second objective of the Bologna process was to promote the system of European higher education on a global scale. The specific goals of the Bologna Declaration were:

1. The establishment of a system of easily comparable degrees
2. The establishment of a system with two distinct cycles (undergraduate and graduate)
3. The establishment of a system of credit transferal, like ECTS

Three additional conferences took place after those at Paris and Bologna. A conference in Prague in 2001, attended by the Ministers of Education of many EU countries, reaffirmed the commitment to the objectives in the Declaration of Bologna and emphasized the three objectives of the European Commission in regards to higher education: 1) To add a European dimension to education; 2) To encourage Life Long Learning (LLL); and 3) To design high-quality educational programs. A conference in Berlin in 2003 led to the creation of three intermediate objectives for a European education system. These objectives included the ensuring of quality education, the establishment of the two cycles of higher education, and the recognition of various degrees and periods of study.

A final important event in the Europeanization of education in recent years is the Lisbon Agenda, a document developed by the EU Heads of States and Governments at a summit in Lisbon, Portugal in 2000. The document emphasized a key objective, "to make the EU the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion." Three steps were outline as part of an overall strategy of achieving this goal:

[32] A program that was established as a pilot project of the European Commission in 1988-1995, in which it is possible to identify the academic credits awarded by each European institution as units of value of work earned by the student (also known as ECTS)

1. Preparing the transition to a knowledge-based economy and society by better policies for the information society and R&D, as well as by stepping up the process of structural reform for competitiveness and innovation and by completing the internal market
2. Modernizing the European social model, investing in people and combating social exclusion
3. Sustaining the healthy economic outlook and favorable growth prospects by applying an appropriate macro-economic policy mix.

Since the report's publication in 2000, little progress has been made towards achieving the stated objective. A significant increase in the pace of advancement must be made in order to reach the stated goal by 2010. European Commission reports identify the causes of this lack of progress as "an overloaded agenda, poor coordination and conflicting priorities."[33] Much of the blame has been placed on the member states, and they have been encouraged to improve their credibility in this process by introducing a more immediate focus to the process at national and European levels, encouraging labor market participation of older people, and strengthening competitiveness in industry, services, and environmental technology.[34]

[33] The Kok report, presented to the European and the European Council in November 2004
[34] http://www.euractiv.com/en/agenda2004/lisbon-agenda/article-117510 25 August 2006

IV. Important issues concerning each country's economic development

Ireland

Before we can examine the role of education policy in a nation's economic development, it is important to identify some key factors in the economies of the case studies of Ireland and Spain. Ireland has indeed made impressive economic strides in the past decade, but it is necessary to recognize the whole picture behind this progress. The real key to Ireland's economic success lies in the rapid increase in foreign direct investments and not a huge increase in productivity. Additionally, an increase in the size of the population at work, resulting from the change in demographic trends and a decrease in unemployment, contributed to the economic boom.[35]

Until recently, Ireland had one of the highest birth rates in Western Europe, which led to large numbers of young people entering the job market after finishing school in the later decades of the twentieth century. While this trend led to high unemployment and the resulting high levels of emigration, it also created a large surplus of workers that were able to support the rapid and sustainable economic growth that took place in the 1990s. Women also began entering the Irish work force in increasing numbers in the late 1980s and early 1990s, which allowed for further job market expansion.[36]

Ireland has also become the destination for many immigrants from other EU countries, especially the CEE countries that entered in 2004. More than 20% of immigrants to Ireland now come from countries in the EU outside of the U.K., compared to less than 15% in the early 1980s.[37] Another reason behind the Irish "miracle" of the late 1990s is the fact that poor fiscal choices during the 1980s (like wage pressures, high tax and interest rates, and a spiraling debt) forced the fiscal turnaround into a much shorter and somewhat more "miraculous" time period.[38]

One potential concern in regards to Ireland's economic development is its reliance on foreign investments as the main source of employment in the country. A major reason why Ireland became so successful in the 1990s is a causal event outside of its control: an event known as "death of distance" that began in the late 1980s. This term, coined by *The Economist* in 1995, refers to the fact that over a short period of time, "modern

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[35] Honohan and Walsh, 2002, p.1
[36] Burnham, 2003, p.551-552
[37] Burnham, 2003, p.552
[38] Honohan and Walsh, 2002, p.6

technology (and fierce competition in the marketplace) essentially has eliminated distance as a cost factor for data, images, voice, music, engineering or architectural drawings, books, control of instruments or machinery—anything of value that can be created and 'digitized' or transmitted electronically."[39] Ireland happened to be supplied at the time with a large number of educated native English speakers, a key element in the success of international telecommunications. By the late 1980s, Ireland had captured the attention of computer software companies who then set up call centers in the country, as well as new investors that were reassured of the desirability of the location. This is known as "demonstration effects," in which new investors are spurred to establish local offices by the large number of companies already present in a country, a practice known as "clustering."[40]

Today in Ireland Multinational Enterprises (MNEs) provide 40% of the employment in the manufacturing sector and more than two-thirds of manufacturing output. In the technology sector, where Ireland's dominance has been a crucial part of its economic success, the role of foreign MNEs is even more significant. Employment with foreign MNEs in Ireland accounts for more than 90% of employment with computers and pharmaceuticals, more than 87% in instruments engineering, and 80% in chemicals. Additional investors in Ireland include e-commerce companies, information and communications technology, and internationally traded services, including financial services, customer contact centers, and shared service centers.

The major companies invested in Ireland today include the pharmaceutical companies of Bristol Meyers Squibb, Pfizer, Novartis and Merck, as well as the software companies Adobe, Apple, Dell, and Hewlett Packard, and international service providers like Accenture, ebay, AOL, Yahoo and Google.[41] These statistics combine to make Ireland one of the most dependent countries on foreign capital among all OECD economies.[42] The risk with such dependence on foreign investments lies in the possibility that the foreign companies could eventually gravitate towards the new EU countries that are already beginning to follow the pattern of Irish economic development with considerably less costs in capital and labor. Given that Ireland has set such a shining example for rapid economic progress, some of the processes for the Irish developmental model are already

[39] Burnham, 2003, p.554
[40] Burnham, 2003,p.554
[41] http://www.idaireland.com/home/index.aspx?id=3 5 November 2006.
[42] Holmes, 2005, p.24-25

being put in place by some of the new members of the European Union, including the Czech Republic, Hungary, Poland, and Slovenia.[43]

Spain

Spain has made important economic progress in the past two decades since integration, especially in a simple examination of GDP growth. For example, in 1959 the Spanish GDP per head was 58.3 % of the EU average; in 1985, 70.6 %; and, in 2000, 86.6%.[44] Spain has already achieved the EU-25 mean, and if the annual GDP growth rate is maintained, it would match the EU-15 mean by the year 2020.[45] However, economic problems still plague the country today. High levels of instability in employment and high inflation are some of the barriers to full economic progress in Spain. Furthermore, with the recent addition of ten new members to the European Union in 2004, Spain lost its status as an EU member on the lower tier on the economic scale, as the new countries generally have significantly lower GDP per capita, higher unemployment, and considerably less technological infrastructure than Spain. More worrisome for Spain is the fact that many of the new countries are due to receive a large portion of the agricultural subsidies from the EU through the Common Agricultural Policy (CAP) Program, of which Spain was previously a significant beneficiary.

Spain has also experienced considerable pressure from population change over the past few decades. The country has always been characterized by uneven distribution of the population, and today the provinces of Madrid and Barcelona, despite covering just 3.1% of Spain's total territory,[46] are home to one quarter of the national population of nearly 40 million.[47] Nearly 60% of Spain's population is clustered around the coastline, and outside of the central province and capital city of Madrid, Spain's interior territory outside of major towns is sometimes called a "population desert." This population imbalance, combined with rough topographic characteristics, has the potential to significantly affect the nation's technological and industrial infrastructure. Spain is now also experiencing high levels of immigration, especially from Africa and Latin America, which may help to offset the declining fertility rate and aging native Spanish population.

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[43] Holmes, 2005, p.14-15
[44] Luis Moreno, personal comments 6/5/06
[45] Ibid.
[46] Total geographical area of Spain is 504,750 sq. km
[47] Salmon, 1995, p.24

However, the general result has been population upheaval and rapid political, economic, and social change.[48] Fertility rates dropped rapidly in the late 1970s and early 1980s, from a rate of 2.2 in 1980 to 1.2 in 1994, one of the lowest birth rates in all of Western Europe.

The social changes that are reflected in this transformation include the increasing participation of women in the Spanish labor force, the urbanization of the population, the break-up of the extended family network, the widespread use of contraceptives, and the delaying of childbirth until much later in life. At the same time, Spain is also experiencing a universal demographic aging, as the percentage of the population over 65 went from 6.4% in 1960, 11.3% in 1981, 13.8% in 1991, and 15% in 2000. The economic effects of this population change will include an increase in demand of services by the elderly population, more public expenditure for this sector of the population, and a greater strain on the government expenditure and pension systems.[49]

The Spanish economy today remains concentrated in the manufacturing and service sectors, especially in activities with low capital intensity and low technical intensity. This area is dominated by specialization in food, beverages and tobacco, non-metallic minerals and mineral products, textiles and clothing, and leather and footwear. While Spain's share of activities with high technological intensity has increased, it has not maintained speed in relation to the increase in the EU as a whole.[50] Consequently, the share of services related to high capital intensity technology (transport, communications, and financial services) remains below the EU average, while the share of services related to low capital intensity technology (like tourism-related lodging and catering) remains above the EU average. Therefore, the areas which can expect the strongest rate of growth, those with a high concentration of technological activity, remain underdeveloped in Spain.[51]

The construction sector also carries a large importance in the Spanish economy, especially when compared to the EU average.[52] This may be due to major investment in this sector during the 1980s to make up for Spain's underdeveloped infrastructure. In general, we can conclude that the progress made in Spain since EU integration, though impressive, remains offset by the lack of technological progress compared to the EU as a whole and the considerable social changes that are now taking place in the country.

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[48] Ibid.
[49] Salmon, 1995, p.28
[50] Martin, 2000, p.16
[51] Martin, 2000, p.19
[52] In 1997 the weight of the construction sector in Spain was 3.0 percentage points over the EU average.

V. Influence of Education on Economic Development in Ireland

In the case of Ireland, education policy of the past three decades has been geared towards creating a more knowledgeable human capital base in order to support Ireland's role in the foreign market. As Ireland has made the transition from a poor agrarian nation to a strong economic powerhouse in less than 50 years, it can serve as an important model for other developing nations. The evolution in the Irish school system has coincided with the nation's significant economic transition, as education has been both a driver and a recipient of Ireland's new economic position.

Irish education policy has changed rather significantly in the past few decades. Until the 1970s, the Irish higher education system was structured around public research institutions that were somewhat separate from the university center. Many postgraduate students in Ireland were drawn to universities in the United Kingdom and the United States, and thus the knowledge base of Irish society was not fully exploited. Rapid expansion of the university population from the 1970s through the 1990s forced the country to reform its higher education system to meet the demands of its citizens. In the early 1960s, about 10% of the university-age population went on to higher education, by 1980 this figure was 20%, by the mid-1980s it was 30%, by the early 1990s it was 40%, and by 1998 it was nearly 50%. Today about 100,000 students are enrolled in Ireland's university system. In the last two decades of the twentieth century, the proportion of eligible students sitting for their leaving certificates[53] rose from 60% to 80%, and the newly created Post Leaving Certificate courses now attract an additional 20% of that age bracket.[54] Ireland now has a total of 7 universities, 74 colleges, and 16 Institutes of Technology, a sizeable number considering the geographic size and population of the country.

As Ireland has made advances in the quality of higher education offered within its borders, the pace of economic development has followed suit. Although unemployment rates peaked in 1985 and rose again in the early 1990s, Ireland responded to these

[53] The established Leaving Certificate is assessed through a written examination at the end of the two-year program of Irish secondary school. Normally six to seven subjects are studied during this program and there are practical examinations and project work in certain subjects, such as Art, Construction Studies and Engineering. There are oral examinations in Irish and continental languages. The practical and oral tests take place during the final year of the program. The written examination is held in June each year. The results of this exam are used for university entrance, job applications, professional organizations, and living and traveling abroad.

[54] Ward and Dooney, 1999, p.19

pressures with rapid job creation (50,000 jobs in the technology sector alone), which created a force for immigration to the country. The population flow to Ireland during this time included returning Irish emigrants, EU nationals, and a number of immigrants from Eastern Europe. Centralized wage bargaining agreements, which occurred in stages from 1988 to 2005, helped to maintain the economic stability that might have been endangered by rising wage demands.[55]

The schools in the Irish university system also began to recognize in the 1970s and 80s the need for including technological education as part of their university curriculum, and funding (from both private and public sources) was rapidly increased for this sector of education. Though Ireland struggled economically through the 1980s with rising unemployment and inflation rates along with spiraling tax rates, the need for expanded and improved higher education did not go ignored. Additional funds went towards the construction of two universities as well as the expansion of Regional Technical Colleges (RTCs),[56] a system of schools begun in the 1960s where programs in engineering and information technology were emphasized in order to train students to work for the foreign computer firms (like Apple and Wang) that had settled in the country.[57] By 1993, Ireland had the highest share of science and technology graduates of the 25-34 age group of all 25 OECD countries.[58] A large part of this student body was concentrated in the RTCs, which saw a population increase from 1,000 in 1965 to 35,000 in 1995.[59]

With the spread of globalization at such a rapid pace in the late 20th and early 21st century, skills in science and technology appear to be a key indicator to a country's future economic viability, and the Irish recognized this as a factor in their economic success. Changes in the course offerings in Irish higher education institutions occurred simultaneously with the enormous changes in the economy, as education and training were improved and expanded in areas such as electronics and chemical industry as well as biotechnology and software development. The success of these courses has subsequently encouraged further investment in the country.[60] Stiglitz himself writes that science and technology are vital, but it is important that they are taught at international standards so a

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[55] Honohan and Walsh, 2002, p.31
[56] Now called the Institutes of Technology
[57] Burnham, 2003, p.546-547
[58] Ibid.
[59] Ward and Dooney, 1999, p.198
[60] Ward and Dooney, 1999, p.201

country can compete globally. In addition, what is also essential is the dissemination of knowledge throughout the country, as "the movement of ideas within a country is affected by the effectiveness of its communication system."[61] This observation is especially significant in Ireland, as the nation remained largely tied to industrial centers in Dublin and Cork up through the mid-twentieth century, and infrastructure was lagging in the central and western regions. However, soon after the first RTCs were established in Dublin and Cork, they were joined by new institutions in Tallaght, Blanchardstown, Dun Laoghaire, Tipperary and Castlebar. Further centers of development were centered in Galway and Limerick.

The focus on technological development is notable in the effects it had on the rapid enlargement of the high-tech sector in Ireland, enabling the country to be a global leader in this area. Recent initiatives, including the Technology Foresight Initiative of 1999, the Science Foundation of Ireland (reestablished in 1999), and the Irish Research Council for the Humanities and Social Sciences founded in 1998, have all contributed to the changes in the Irish education system that have the potential to contribute to economic development. The Technology Foresight Initiative, whose goal is to anticipate the advances in technology through 2015, is representative of the role of higher education in the Irish economy. Panels of experts drawn from the top Irish universities participated in a range of discussions on computer hardware, software, and communications technology, natural resources, chemicals and pharmaceuticals, health and life insurances, construction and infrastructure, energy, materials and manufacturing, and transport and logistics.[62]

Another example of how Ireland is taking advantage of technology in the education sector is through its use of the internet as an education aid. Some institutions of higher learning offer courses to be taken entirely through the internet, while others have downloadable programs that provide audio-visual or explanatory aids for lessons. Courses are also offered community centers and libraries so that more rural communities can benefit from higher education.[63] Ireland is also preparing for future economic challenges by anticipating the skill shortages that may develop in certain sectors of the economy. The Expert Group on Future Skills Needs and the Task Force on Supply of Technicians to the Irish Economy serve to address this problem. However, Ireland still

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[61] Stiglitz, 1999
[62] Ibid.
[63] Ward and Dooney, 1999, p.138

ranks behind some other European countries in the number of graduates it produces in science and technology, and also in the percentage of GDP devoted to research and development, despite annual growth in these areas.[64] In addition, throughout the 1990s Ireland consistently scored lower than the median literacy score of all OECD countries, across all levels of literacy (prose literacy, document literacy, and quantitative literacy). Top scorers were Sweden, Norway and Denmark, while bottom scorers were Poland, Portugal, and Chile.[65] The nation has indeed made progress regarding the quality and competitiveness of its higher education system, but it is also clear that the role of education policy is not the sole reason for Ireland's economic success.

With the recent introduction of the CEE countries, especially the economically advanced Czech Republic and Hungary, Ireland must now prove that it possesses a reserve of human capital superior to that of countries in Eastern Europe in order to maintain its position as an FDI headquarters. In a study of the top three CEE countries (Czech Republic, Hungary, Poland) and Ireland, Ireland ranked equally or below the other three countries in the levels of education, and in a study of total illiteracy (prose and quantitative), Ireland's levels were as high as 50%.[66] Ireland performed much better on a study of other innovation indicators, such as the number of scientists and engineers in research and development, gross levels of tertiary enrollment, total numbers of high-tech exports, and number of scientific and technical articles published.[67] Despite this, it can be observed that the leading countries of the new EU-10 have made great strides after entering the EU in 2004, much as Ireland did in the 1990s, and therefore the very real threat exists that the foreign direct investments that are so vital to Ireland's economy may migrate east in the near future.

[64] Hayden, 2002, p. 138-145
[65] *Literacy in the Information Age*, 2000, p.40-43
[66] Holmes, 2005, p.28
[67] Holmes, 2005, p.2

VI. Influence of Education on Economic Development in Spain

The role of the education system in Spanish economic development is rather different than that of Ireland. During the thirty-plus years of the dictatorship, the repression of the Franco regime extended to the education system, and therefore schools and universities were strictly regimented and restricted by the central government. This included the elimination of studies that could be seen as in opposition to the regime, and also to the prohibition of the use of a minority language (such as Catalan or Basque) in any public space. Correspondingly, the Spanish economy during this time was excluded from many of the European recovery and development programs, despite the fact that Spain was in desperate need of internal infrastructure funds after the destruction of the Civil War and the poverty and famine of the 1940s.

The United Nations instituted an economic boycott of Spain from 1946 to 1953, and the nation was excluded from the European Recovery Programme (Marshall Aid) in 1948. During the 1940s and 1950s, Spain struggled against massive population losses from the Civil War, widespread damage to buildings and infrastructure, raw material shortages, and poor communications, combined with rising inflation (peaking at 15.5% in 1957), balance of payment deficits, and an overvalued currency.[68] However, by 1960, significant changes began to take place, and education laws were relaxed at the same time that the rigid isolationist economy began to be open to international trade. Important reforms were made in the education system, allowing for the freedom of studies, the right of all students to a free and compulsory education, and the new autonomy of the university system from state control.

The first law in this reform process was the General Law of Education (LGE- Ley General de Educación) of 1970. This law represented the first attempt by the Spanish government to create a universal education system at the pre-university level. It provided basic compulsory education for children ages 6-14, and established two courses of schooling that took place after the primary level. These courses were offered in secondary schools that specialized in either an academic or vocational route, both of which allowed students an eventual route to university. This law also established a system of pre-school education for the first time. Also under this act, university studies were structured around three cycles and University Schools were established along with

[68] Salmon, 1995, p.3

the Institutes of Educational Sciences.[69] The LGE set the basis for a complete reform of pre-university education, and the OECD would later consider the expansion of education in Spain as the most spectacular among the member countries.[70]

After the death of Franco in 1975, Spain embarked on a transition to democracy that would last for three years. The Constitution of 1978 would establish three key aspects of the current education system in Spain. These include the acknowledgement of the right to education as one of the fundamental rights that the state must guarantee, other basic rights to education, and the sharing of the educational powers by the Central Administration and the Autonomous Communities.[71] The Constitution helped to resolve some of the arguments over the control of education that had troubled Spain for decades.

A second reform of the Spanish education system was the Law of Educational Rights (LODE- Ley Orgánica del Derecho a la Educación) of 1985, which attempted to address the problems of management and funding in the pre-university school system. The LODE sought to erase the differences between the quality of public and private education, establish universal state subsidies to all schools, both public and private, and to establish minimum academic standards on entry and identical admission requirements for all students. The LODE was controversial because it addressed the role of the church in education, one of the most sensitive issues in the history of Spanish education policy.[72]

Despite the passage of two reforms towards improving the quality and equality of the Spanish education system, there were still glaring deficiencies in the system throughout the 1980s. The system of compulsory education ended for students at age 14, unlike at age 16 like most other European countries. In addition, Spain had a high dropout rate and rate of failure for students, leading to high rates of grade repeating. Further, Spain had significant number of disadvantaged students, including those from rural backgrounds and those of the Romany (gypsy) population.[73] The lack of funds devoted to education was a significant factor contributing to these problems, but the budget was not increased until the late 1980s.[74] In 1990 the Organic Law on the Generalization of the Education System (LOGSE- Ley Orgánica de Ordenación General del Sistema Educativo) was established, with the goals of establishing compulsory education up to age 16 and

[69] Egido, 2005, p.6
[70] Lawler and Rigby et al, 1998, p.204-205
[71] Egido, 2005, p.8
[72] Lawler and Rigby et al, 1998, p.205-206
[73] At the end of the 1980s, only 3 out of 5 children from rural backgrounds and of the Romany children in Spain were attending school
[74] Lawler and Rigby, 1998, p.207

determined that primary education and compulsory secondary education constituted basic education (compulsory and cost-free). It also established two stages of pre-school education (0-3 years and 3-6 years) and created a new separate system for primary education from 6-12 years.[75] A third organic act, the Organic Act on Participation, Evaluation, and Administration of the Educational Establishments (LOPEG) passed in 1995.

Several more reforms took place following the LOGSE, including The Organic Act on Universities (2001), which repealed the LRU, the Act on Vocational Training and Professional Qualifications (2001), which modified the LOGSE, and the Organic Act on the Quality of Education (2002), which modified the LODE, the LOGSE and the LOPEG. In addition, the university system was modified with the Organic Act on Universities (LOU) in 2001, and this reform helps to strengthen the cohesion of the university system and its relationship with the State Administration and the Autonomous Communities, as well as increasing university autonomy.[76]

Education policy has influenced economic progress in Spain as it has contributed to the development of a new generation of educated workers with a broader knowledge base than those of the previous generation. As the Spanish university system was expanded into a strong network of internationally recognized schools, a post-graduate degree became the norm for students looking to improve their marketability in the Spanish labor market. For example, Spain has been producing high numbers of law graduates, who then matriculate at the leading Spanish business schools. Three of the private business schools which specialize in Masters Programs[77] have been classified among the fifteen best business schools in the world, on a list that includes INSEAD, Harvard, MIT, and The London Business School.[78] Additionally, the education reforms have included new programs of international exchange and study,[79] which encourage the transferal of students and scholars within the European Union and the future augmentation of knowledge capital in Spain. The country can now boast a strong university system of 72 institutions, composed of long-standing traditional institutions, like the Universidad de

[75] Egido, 2005, p.8-9
[76] Egido, 2005, p.9
[77] IESE (Barcelona), ICADE (Madrid), and the Instituto de Empresa (Madrid)
[78] Lawlor and Rigby et al, 1998, p.214
[79] Programs like Erasmus, Socrates, Leonardo da Vinci, Human Capital and Mobility, and Jean Monnet Action Project

Salamanca, founded in 1218, and the Universidad Complutense in Madrid, founded in 1502, along with contemporary and specialized schools.

The new recognition of the Spanish education system as having the potential to influence economic development in the country has been concurrent with the increased integration of Spain into the global economy and as a member of the European Community. Spain increased trade with the European Community, so that imports from within the EC increased from 37% in 1985 to 61% in 1993 and exports to the EC rose from 52% to 68% in the same time period. Capital flows also increased dramatically after 1986, and the removal of investment controls (due to membership in the EC) led to Spain being the fourth most attractive in the world for foreign direct investment in the 1980s.[80] Foreign direct investment purchases rose from a value of 194 billion pesetas in 1985 to 1,257 billion pesetas in 1990. Foreign direct investors saw Spain as an attractive destination country because of expectations about the strength of the domestic economy, the profitability of fixed investments based on relatively low labor costs, and the position of Spain within the EC.[81]

Although Spain has made much progress in the field of higher education since European Union integration, problems still remain, just as the nation's economy continues to struggle with reducing unemployment rates[82] (especially among women and young people) and reforming labor laws to lower inflation.[83] Despite the fact that Spain has one of the highest proportion of university students to population of any Western European country, spending per student is only one-third of the average, leading to poorly paid faculty (normally the salary is between US$20,000 and $25,000 per year).[84] The lack of funding also leads to poor quality facilities, like laboratories and libraries. Most students are encouraged to attend the university which is closest to their home, unless they can show that they are interested in studying a subject not offered at their local university. The university system in Spain is not styled around a community structure, and therefore residential halls and college housing are scarce.

Due to cultural reasons and the high cost of housing in Spain, many students remain at home living with their parents, which then has a negative effect on the graduates entering the work force as they expect well-paid occupations as first time job seekers. The

[80] After the much larger countries of the U.S., the UK, and France
[81] Salmon, 1995, p.17
[82] Average unemployment levels in 2005 were 8.42%
[83] http://www.state.gov/r/pa/ei/bgn/2878.htm Accessed on 9/2/06
[84] Müller and Gangl, 2003, p.222

unemployment rate for school leavers in Spain is around 40%, compared to an EU average of 21%. (The rate is about 10% in Germany, 18% in Ireland). To further exacerbate the problem, about 75% of school leavers in Spain who do obtain a job after graduation are employed in temporary jobs, compared to about 23% in Germany and 15% in Ireland with temporary jobs.[85] Once graduates do enter the labor market, job instability is high, further weakening the education to work transition. Further, the delayed entrance into the work force and prolonged stay of children in their parents' homes has delayed the marriage age, thus leading to the declining fertility rate. With all of these changing social conditions Spain will necessarily experience a change in the welfare state, as the aging population will pose a strain on the labor force and government assistance rates increase.

[85] Müller and Gangl, 2003, p.187-188

VII. Similarities between the two countries

Although Spain and Ireland began their memberships in the European Community under very different conditions, and today remain two quite distinct countries, it is possible to infer some similarities in the way their education policies have affected their economic development of recent years. One step taken in both countries is the reformation of the university systems in order to prepare for membership in the European Community. Ireland began devoting more funds to higher education after EU integration in 1973, and the establishment of the RTCs was a significant factor in building knowledge capital in the technology sector. Securing independence from the UK university system also helped to establish Ireland as a destination for scholars from within the country as well as students from other EU and Eastern European countries. Spain followed a similar path before and after EU integration, beginning with the educational reforms included in the 1978 Constitution and the subsequent Organic Laws on education. Spain is now a destination country for many European students through the Erasmus program, as well as for international students from around the world.

A second similarity between Ireland and Spain is the emphasis on the education system to produce highly educated workers for the nation's labor force in order to compete internationally. Although the process of creating a new workforce of highly educated young people is a lengthy process, both Spain and Ireland have worked to make this factor a priority in recent years. Ireland is finally able to retain much of its native population for university, as well as attracting students from around the world who remain in the country and enter the Irish job market after graduation. Spain has struggled more with the transition between education and work, and thus the number of temporary jobs and unemployed graduates is higher than in Ireland.[86]

A third similarity is evident in the emphasis of both nations on the role of technology education in increasing economic viability. Ireland became a magnet for foreign direct investment in parallel with strengthening its skills in technology, hardware and software production and development, and biotechnology. Once its role in the rapidly expanding technology sector was recognized by the late 1980s, the nation was able to attract both new students interested in the field and additional foreign direct investors who were encouraged by their predecessors. Ireland's levels of foreign investment peaked in the mid 1990s, leading them to a rapid rate of economic output in a short period of time.

[86] See page 28, paragraph 2.

Spain also began to attract foreign investors by the late 1980s, after its viability had been proven by recent induction into the European Union, profitability margins had been created by low labor costs, and improvements were gradually made in the industrial infrastructure and the service sectors.

VIII. Conclusions

A comparative study of Ireland and Spain helps to demonstrate the link between education policy and economic development as it relates to the creation of knowledge capital. As we have seen, some of the reasons behind Ireland's economic success are not directly related to education, and Spain still struggles economically despite making much progress and reforming its higher education system. In addition, the great differences between each nation's territorial and population sizes, as well as their individual experiences leading up to EU integration have had a profound effect on their progress since that event. Nevertheless, it is possible to discern both some general trends and some distinct differences between the two countries in their approach to education, in order to better understand the theory of knowledge capitalism and economic development.

Ireland and Spain are comparable countries to study in evaluating the role of education in economic development because of the similar challenges each faced before entering the European Union. Although they differ in size, population, and welfare model, each nation spent much of the twentieth century as a rural agrarian state with little infrastructure, a strong Catholic Church influence, civil strife, and a vast untapped potential. Each began attracting foreign investments as a result of the progress made before and after EU accession, and significant reform of the education system helped to make each country more attractive as a destination for both students and investors alike. Special focus on technology, especially in the case of Ireland, improved each country's economic viability, but continued improvement in infrastructure and research and development is needed in order to compete with new EU members from Eastern Europe.

Despite their similar emphases on improving infrastructure and the quality of university and technological education as a means of furthering economic development, Ireland and Spain remain relatively different in their approaches to education, work force participation, and the pattern of economic development. Ireland falls into the category of the "open market model" when speaking in terms of the different school to work transition patterns. Hannan et al (1999) distinguish two ideal types of this model: the German 'dual system' model and the Irish-British 'open market' model. The German model is characterized by strong links between education/training and the labor market, while the Irish model is a much more open market with weaker links between education,

training and the labor market.[87] However, much like the three types of welfare capitalism as identified by Esping-Andersen (1990), the Mediterranean states of Europe are excluded from these categorizations. Southern European countries differ from those in Northern Europe for several reasons, most importantly the stronger role played by the family in most welfare and economic arrangements. In addition, high unemployment rates, the more informal training and less clear transitions from education to the labor market, and a greater focus on informal economic activity and less welfare state provisions specifically addressed to young people are hallmarks of this model.[88] Spain also differs from its fellow Southern European states in the higher mobility of young people during the immediate transition from school to work.

What can be inferred from this analysis is that the system of higher education in a country is a key part of the larger process of economic development. Recognition of the role and value of higher education in the creation of a solid base of knowledge capital is therefore important if a nation wants to ensure long-term success. With competition from globalization arising from all corners of the world, from Eastern Europe to India to China, smaller nations like Spain and Ireland have recognized that they must make their base of knowledge capital unique to their own economic systems. Ireland has done so by exploiting its position as a small but mobile workforce of highly educated multilingual English speakers, especially focusing on software development and biotechnology to draw foreign investors. Spain has also drawn foreign investors, but its strengths lie in manufacturing, tourism, and small industry. In reforming their higher education systems and participating in EU wide educational integration processes, both Ireland and Spain have proven their willingness to adapt and improve their education systems in just a few short decades since integration. Continued progress in this area will contribute to the economic success of the European Union in general, as well as providing support to international development, health and science research, progress in industry and production, and the creation of a new generation of international citizenship.

[87] Cited in Müller and Gangl, 2003, p.213
[88] Ibid.

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