



LUND UNIVERSITY
School of Economics and Management

**Master Programme in Economic Growth,
Innovation and Spatial Dynamics**

Labor, Finance,
and Economic Growth in Europe.
Panel Data Evidence From 13 European Union
Countries.

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Abstract

During the contemporary crisis in Europe, a heated debate has started as how Europe has to become more efficient and what Europe has to do to improve its position and achieve economic growth again. The sector that has received much attention is the financial one, while in the “real” economy, labor rigidities have been thought for many years as an obstacle to European economic growth. The study examines the interrelationship between financial sector internationalization and labor market structures, in an attempt to examine their combined impact upon economic growth. Some evidences that financial internationalization and labor market rigidities work in opposite directions were found.

Keywords: Financial Integration, Institutions, Labor Markets, Economic Growth, European Union

EKHR 22

Master Thesis (15 Credits ECTS)

June 2011

Supervisor: Lennart Schön

Examiner: Jonas Ljungberg

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1 Introduction

The financial sector has been for a while now the sector that everybody sees as the major under-minor of Europe's lifestyle, and as the major force behind the austerity measures over the continent that threatens the welfare state policies Europe-wide. As the current crises goes on, the discussion of the relationship between credit and productivity dominates the public debate in popular and scientific media alike. The increased financial activity that mobilizes enormous amount of money, coexists in Europe with a persistence of unemployment and other distortions in labor markets. In that respect, the present thesis has as an aim to investigate the possible existence, size and effect of an interrelationship between the financial sector and the labor market, in a group of thirteen European countries that were European Union members before the 2004 EU enlargement. The main focus of the present study is to investigate the finance-growth nexus by putting the emphasis on labor market structures and their interplay with the financial sector.

1.1 Scope of the Research

The scope of the research is to examine the combined effect that labor and financial markets' internationalization can have upon economic growth. While both those markets have been separately examined extensively in the past for their impact on economic growth through different channels, the mechanics of their interaction remain much of an uncharted area. The thesis starts its quest from the observation that financial markets when they function effectively have the effect to expand total output in an economy, increase levels of investment and increase employment. On the other hand, finance through its reallocation process can force inefficient firms to shut down or undergo heavy restructuring. Those two functions though have quite different effects, with the first effect been in favor of and the second effect been against of labor interests. The present thesis has as an aim to shed some light in the relationship between those two elements, and how differences in European labor markets affect this relationship.

1.2 Research Question

In that respect, the present thesis is going to look in the relationship and dynamics between financial internationalization of an economy and its interaction with the labor market, and how those elements affect the growth dynamics of the European economy. The main research question the present study is aiming to answer is whether or not this relationship has any significant impact upon growth rates, and which element play the most crucial role in defining that impact. In that respect, the findings of the present study can be used not only to enhance the body of knowledge regarding the interplay between financial and labor markets, but it can also provide policy makers with useful insights regarding the scope aims and targets of several reform efforts in the markets under consideration. Results from the current thesis could be used to clarify the expectations of reforms in either of the two markets under consideration. It should be noted however, that making inferences of the results of the current study for less developed countries is not directly applicable, since the countries under consideration here have specific institutional arrangements that less developed ones do not possess.

The present study will focus on 13 countries that were part of the European Union before 2004¹. The selection of those countries was made on the basis of excluding post-2004 members as well as countries that were significant financial centers in respect to their real economy, namely Ireland after approximately 1995 and Luxembourg for the whole of the period. Moreover, regarding the aspect of financial integration, the thesis is going to examine the aspect taking into account the total gross external position of an economy. This has been done with the aim to provide an economy wide picture of the interrelationship, and capture the impact of financial flows and openness rather than the impact of a nation being a net creditor or borrower.

The thesis will not look into the developments of nations that became members of the European Union after 2004. The exclusion of the newer members was decided on the basis that most of those economies were largely in transition for the most part of the period under consideration. The period of focus starts at 1980 and ends at 2004. The selection of those years as the starting and the ending point of the research was made on the basis that approximately in the end of 1970's we have a movement, in Europe and in other places as well, towards capital account liberalization (Eichengreen 2001). Capital account liberalization refers to the abolition of restrictions in the movement of capital by a sovereign government. This is another argument towards the exclusion of the post-2004 members of the European Union, since their capital liberalization is deemed as highly restricted during much of the period under consideration. The period ends at 2004, the year of the last major enlargement of the European Union. Thus, the current (2008+) financial crisis is not part of the project, but some of the conclusions may nevertheless apply.

1.3 Theoretical Framework regarding International Financial Flows

One of the fundamental suggestions of economic theory is that free and unhindered international capital flows can help towards a more efficient allocation of resources among nations, can enhance financial development, and can ultimately lessen the gap between developed and developing economies and reduce inequality within a given economy. Industrial countries were fast to realize those potential benefits and took steps to open up and integrate their capital markets. Many researchers and organizations advocate less developed countries to open up their capital accounts as a measure to boost development. Albeit, for developing countries the advantages of capital account opening are not evident since a large amount of literature devoted on the subject has produced ambiguous results. As Jagdish Bhagwati argued in 1998, "gains from capital account liberalization have been asserted, not demonstrated". Financial markets are divided into two broad categories. The first category called market-based refers to financial activities that take place mostly through equity transactions and make use of institutions like stock exchanges. The second category is called bank-based finance and it is mostly focused on instruments of debt and loans, and transactions are completed through banking institutions.

¹The countries under consideration and their respective ISO 3166-1 Alpha 3 coding are :Austria-AUT, Belgium-BEL, Denmark-DNK, Finland-FIN, France-FRA, Germany-DEU, Greece-GRC, Italy-ITA, Netherlands-NLD, Portugal-PRT, Spain-ESP, Sweden-SWE and Great Britain-GBR

1.3.1 The Finance-Growth Nexus

The relationship between financial development and economic growth has for a long time been the focus of a large number of researchers. Besides this extended focus though, there is no definite conclusion on the role of financial markets on economic growth. One school of thought supports the belief that financial markets and services always follow the development of the real sector. On the other extreme lie those who believe that the importance of finance for growth is very large. The ideas of such thinkers like Bagehot and Schumpeter though, suggest that the connection between financial and economic growth is quite substantial to be ignored. According to Levine (2005,p.5), a developed financial market performs the following functions:

- Produces information about possible investments and allocate capital
- Monitor investments and corporate management
- Facilitate the trade, diversification and management of risk
- Mobilize and pools savings
- Facilitates the exchange of goods and services

In that respect financial markets are influential upon the way societies allocate resources. Albeit, different financial markets in different places or in different points in time are expected to produce different results. International financial markets differ significantly from domestic ones in the amount of capital that they are able to mobilize and in the respect that their focus is on governments and large organizations.

International capital flows in the past were not involving the large sums of money that one encounters in the present, neither were international investments easy to take place. After the end of Second World War many countries implied restrictions on the movement of capital, and Europe was not an exception to that trend. Governments elaborated financial controls in order to prevent domestic savers from seeking higher returns abroad and in order to prevent foreign firms to compete with local ones for domestic markets. Despite the large increase of integration among geographically distant and diverse financial markets, imperfections in integration remain a central point that has receive the attention of various researchers. One major result of this imperfect integration is that developing countries have not been able to reap the benefits of this intensive trade. This results in investment per capita of \$6000 for developed countries, but only \$400 for developing ones as of 2000 (Stulz 2005), since capital moves are disproportionally large among industrial countries.

1.3.2 Economic Consequences of Financial Liberalization

A large body of literature suggests that financial constraints are quite harmful for economic growth through many channels. Acemoglu (2001) suggests that finance constraints play an instrumental role in hindering the creation of innovative firms. Since innovative firms are particularly significant in job creation but also are significant and instrumental in figuring out new ways to increase productivity, it follows that through this particular channel, capital constraints have a negative impact on growth. The European Union has capital liberalization as a prerequisite to grant membership in a candidate state, and freedom of capital mobility is one of the

cornerstones of European Union incorporated in each and everyone of the significant treaties that regulate European politics (in chronological order, Treaty of Rome, Maastricht and Lisbon). The argument behind the capital account liberalization was that it will enable capital to be better allocated and thus it will lead to lower interest rates that will be beneficially for economic growth.

1.3.3 Political Consequences of Financial Liberalization

One reason that states and governments had been eager to liberalize their financial sectors, is the fact that by doing so it enables governments of states with low savings rates to take advantage of foreign savings, without crowding out domestic savings. As evidence of this tendency can be seen the fact that after liberalization the public sector debt of OECD countries rose from an average of 15% in 1974 to an average of 40% in 1995 (Quinn and Inclan 1997). Besides the aforementioned evidence though, one should be cautious to blame the increase of public debt to financial liberalization alone. Given that the era of liberalization coincided with events with huge economic impact - like the two oil crises of the 1970's- the increase of public debt might reflect those developments. Moreover, the lower growth rates after the oil crises on the one hand and the existence of a stream of capital that was looking for investment opportunities on the other hand, coupled by the need to finance the European social state might as well explain much of the increase in public debt. It is thus quite possible for synergies to exist between those two events.

On the other hand, there are some political costs also that financial liberalization might bear. One problem is that with open capital markets it is easy for economic agents to undermine capital and wealth taxation policies by moving in and out of a country at will. This creates imbalances since companies will over-invest in countries with low taxation and under-invest in those with high taxation. By fully liberalizing capital movements, a government might surrender a significant tool of conducting macroeconomic policy and thus, national sovereignty and democratic choice might lose some of their importance if a government becomes overly dependent on the owners of capital.

Moreover, there are further political complications to add to the resistance of free capital flows. In an excessive review of the developments regarding financial liberalization during the twentieth century, Rajan and Zingales (2003) arrive in four conclusions. One is that there very well could be a reversal of financial liberalization with profound negative implications, like those after the first world war. Another significant finding is that financial liberalization has to be in parallel with trade liberalization in order to provide significant benefits. They also stress the fact, that from historical evidence, the factors that impede financial liberalization from succeeding is low institutional quality as well as resistance of certain interest groups.

1.4 Types of International Finance

1.4.1 Debt

Debt is a major instrument of finance for firms, individuals and governments. Governments and firms can engage in debt obligations through the issuance of bonds and loans in the case of

firms, in addition to treasury bills in the case of governments. Governments also can engage in debt through international agreements either with another sovereign state or through an international organization like the IMF. Individuals engage in debt contracts in the form of personal loans, credit cards, mortgages etc.

The basic function of a loan is to allocate resources from one economic agent with surplus capital to another with a need in capital. The usual arrangement implies that there will be a payment of a specified amount X from the creditor to the debtor at time t , for a return by the debtor to the creditor of an amount $X+r$, where r is the agreed interest rate. The rate of interest as well as the duration of credit contracts vary considerable and are subject to numerous determinants.

1.4.2 External Debt

In order to be able to make inferences regarding impact of debt, one has first to clearly define what external debt is. The thesis will follow the general guidelines regarding external debt as those have been laid out by IMF's handbook of external debt (2003). According to IMF, external debt is defined as

Gross external debt, at any given time, is the outstanding amount of those actual current, and not contingent, liabilities that require payment(s) of principal and/or interest by the debtor at some point(s) in the future and that are owed to non-residents by residents of an economy. (IMF,2003 p.7)

From the above definition we can extract that a liability, in order to be classified as external debt has to possess certain characteristics. First, it has to be an actual liability i.e. the creditor has to be able to prove that had provide credit to the debtor. Usually, there are legal documents that ensure the above condition. Credit can take several forms and is not confined to the form of financial assets like currency, but it can also be in the form of goods and/or services. Moreover, a liability has to be actual and not contingent. A contingent liability is one that requires one or more conditions to be fulfilled before the financial transaction takes place. Principal amount and/or interest have to be repaid for a transaction to be classified as external debt. The creditor has to reside to another country than the debtor.

External debt of a country can be separated into two broad and distinct categories as to who is the recipient of credit. One category is the public or sovereign debt which consists of obligations to international creditors by a sovereign government. The instruments through a government can borrow on international capital markets is through the issuance of bonds, treasury bills or other financial securities, through bilateral loans with other governments or international banks and through international organizations like the IMF and the World Bank. This kind of credit can further categorized to central government debt and municipal debt or state debt in the case of federal states (like the USA or Canada). Credit to the private sector that is guaranteed by the public sector consists of a contingent liability as explained above and can be thought as possible public debt.

It should be noted that public debt in general was traditionally viewed as a far more secure investment option than private credit². This perception of public debt as a 'safe asset' can have serious implications on the financial development of an economy and thus, a direct impact on its economic growth. One reason for that is that viewing public debt as a safe investment induces banks to over-allocate credit to the public sector. Such a tendency though turns the banking and financial system of an economy to suboptimal levels and has a negative impact on the growth of an economy by creating 'lazy banks' phenomenon (Hauner 2009). Besides that potentially negative effect of public debt, it is widely accepted that its use can have a significantly positive impact on the financial development of an economy. It can be used to overcome several institutional imperfections in an economy that often hinder the use of other collateral (De Soto H. 2000). Additionally, the availability of liquid collateral is a key prerequisite for the development of derivative markets and further financial deepening and public debt has been used substantially in that end. Also, another use of it is the provision of benchmark pricing for the yields of other entities and instruments like corporate bonds, and provides a strong asset on the balance sheet of financial institutions (Reinhart and Sack 2000). Those two views however, have not to be mutually exhaustive since there are evidence of non-linearity in the relationship between public debt and financial development.

There are two extreme views of debt that have traditionally dominated modern history. One conservative view is that debt is always harmful and governments and individuals should avoid indebtedness. The other view, often associated with Keynesianism, advocates that debt is in essence a resource or just another use of governmental policy and should be used when deemed necessary.

The other major category of external debt is credit allocated to the private sector. This category includes loans by international creditors to businesses located in a given economy as well as credit that goes towards final consumption like personal loans, credit cards and mortgages. Historically, the vast majority of external credit to the private sector went to the funding of relatively large projects like the construction of factories or the acquisition of ships and not to everyday retail banking activities.

1.4.3 Portfolio Equity

Equity is another channel through which an economy can interact with other economies. Equity transactions are performed through special markets known as stock exchanges. Financing through equity is usually called market based as opposed to bank based financing which refers to financing through (bank) loans. Those two ways of financing are considered substitute. When a country internationalizes its stock market it lifts all official barriers to foreigners that prohibit them from acquiring shares in that stock market. There are certain theoretical contributions that suggest stock markets may play a crucial role in promoting long-run growth. The arguments suggest that stock markets encourage specialization and lower information asymmetries. Moreover, their internationalization is seen as a good way to reduce the costs of savings mobilization and enhance corporate and management control by increasing transparency upon

²'Countries do not go bankrupt' as Citibank's CEO Walter Wriston famously declared in 1982, though he was proven wrong.

management's actions. Additionally, developed stock markets can secure investors from idiosyncratic risk³ and thus enable them to finance more risky companies that yield larger returns. For the above reasons, an increase in physical capital is expected to follow a stock market liberalization and generate larger growth rates. Atje and Jovanovic (1993) and Levine and Zervos (1998) are among a number of studies that have found that there is a strong correlation between various measures of stock market activity and real economic growth. Their evidence in the case of Levine and Zervos study is particularly strong for developed countries. Despite the above there are also evidences that their effect is quite weak and that banking based financial systems might perform better (Arestis et al. 2001). To add to the confusion regarding which kind of financial market has more significant effects on growth, Bekaert et al. (2001b) suggest that -at least for the emerging markets they focused on- the equity markets were more significant. A more concise insight on the aspect is provided in the literature review.

1.5 Theoretical Framework on the Structure of Labor Markets

The characteristics of a labor market has been thoroughly examined for their impact upon economic growth. The rigidity or not of a labor market has receive a lot of attention and labor markets are among the first areas governments consider for reform. Many economists stress out the relationship between the structure of labor markets and economic growth. The major function of a labor market is to allow people to find employment that best fits their talents and abilities. The rate of technological change also creates opportunities for some individuals and unemployment for others, challenges that can only be overcome with a competitive and well functioning labor market. In that respect, a well functioning labor market is considered one that posses the characteristic of free and easy labor mobility. Labor mobility enables people to voluntarily leave a stagnating sector for joining a thriving one or it forces them to do so through lay offs. The above policy recipe is heavily favored by economists and politicians of the neoclassical school. They claim that lifting labor market distortions and by abolishing labor protection laws will lead to an increased output as well as to a lower level of unemployment.

There are certain characteristics of a labor market that are thought to play a significant role in determining labor market's economic impact. The protection of labor can be seen as an aggregate that incorporates several characteristics of the labor market. The power of trade unions has been one of those elements of a labor market that is considered vital. Generally, the power of unions can be proxied with two measures, union density and union coverage. The first refers to the percentage of employees that are members of a trade union and the second refers to the percentage of employees that are covered by agreements signed by the union. Another aspect is if the unions are coordinated centrally and their decisions apply to the whole economy, or if their decisions are applied only to a specific sector or firm. This characteristic is significant since it can hinder stagnating sectors from lowering their labor cost or can induce sectors with little or negative gains in productivity to pay wages significantly higher than productivity gains would allow. A consensus seems to exist that at least in some countries a reduction in union density has take place. This reduction is generally thought to be the result of skill-biased technological change, since skillful employees are not in need of a labor union that generally compresses wages downwards and their skills makes them less prone

³Risk connected with a specific security

to unemployment Acemoglu et al. (2001).

Other labor market characteristics that have been considered to hinder economic growth are hiring and firing costs, since they hinder human capital flows. Minimum wage legislation since stagnating sectors have to pay larger wages and cannot move wages downwards. Also, unemployment benefits are considered to add to the distortion since they induce individuals to refrain from economic activity. The institution of unemployment benefits has received a lot of criticism in the public debate. One reason is that it reinforces wage inflexibility by providing an alternative source of income. A second channel is that it prolongs unemployment and results in depreciation of human capital. Additionally, the critics claim that unemployment benefits lighten the pressures on trade unions for measures that will favor re-employment. Hiring and firing restrictions have also been considered as an obstacle to economic growth as they disincentivize companies from hiring, since they cannot easily lay off additional labor in the case of an economic downturn.

The minimum wage legislation is also a characteristic that has been blamed for Europe's low growth. The reason is that it effectively puts a minimum in the cost of labor regarding labor's productivity. The reasoning behind this institution is social and not economical as its goal is to protect employees from unethical employers. The minimum wage has large disparities among European countries both in the way it is decided and on the portion of the labor force it covers. In France, the Netherlands, Spain and Portugal is the government that sets the minimum wage. In Belgium, Greece and Denmark is bargaining with the unions in national level. Austria, Germany and Italy have sectoral bargaining schemes. Some of the countries do not have an official minimum.

1.5.1 Rigid labor Markets

Labor markets that in general extent labor protection in large segments of their labor force are considered rigid. A rigid labor market is considered one where an employer has large transaction costs in order to dismiss labor. This kind of labor market is widespread in continental Europe, and its primary aim is to protect employees from employers potential harassment and unnecessary firing. The instruments and the specific rules through which labor laws rule the relationship between employer and employee differ wildly from country to country. Major instruments are prohibition of group lay offs, severance payments, justification of firing and a variety of other rules and prohibitions. Most of the opposition to the rigid labor markets claims that by taking away the fear of firing from employees and by hindering employers from firing unproductive employees, societies disincentivize workers and thus lower labor productivity. Additionally, with rigid labor markets employees engage in rent-seeking activities. Moreover, by hindering labor flow from one job position to another results in a non-optimal match of skills.

Proponents of the rigid labor market model claim that it has certain advantages over a complete free labor market. One argument suggests that it enables job relation to have a long term approach and thus enables trust between the parties. Moreover, the enhanced security of such a job incentivizes workers to acquire firm specific knowledge. This firm specific knowledge will result in increased productivity, albeit with a delay (Belot et al. 2007). Another line of

argument claims that even if a lawmaker lift up all the regulations, the impact upon the labor markets would be minimal since some of the rules are simply legal representations of informal institutions (Agell 1999). In addition, more stringent rules of firing may induce companies to better scrutinize candidates before hiring resulting in higher productivity as it is the claim by Lagos (2006). Another claim is that not all of the perceived distortions are in reality harmful for the economy, and many of them function as a counteraction to the absence of unemployment insurance markets.

1.5.2 Flexible Labor Markets

Reform of the labor markets towards a more flexible model have been proposed as a standard remedy for many of the maladies faced by the European economies. The neoclassical school of thought prevails in backing this view. There are some evidences though, that liberalization may be beneficial for a number of industry or countries. Cunat and Melitz (2007) among others, claim that liberalization of the labor market towards more flexible models could create comparative advantages for a country or industry in the sectors characterized by high variance of exports. In an influential study Botero et al. (2004), examined 85 countries and located significant differences between poor and developed countries. Specifically, their findings regarding labor markets were that less developed countries levy heavier regulation on their labor markets. They also claim heavier regulation to be parallel with higher unemployment, higher unofficial economy and lower labor force participation.

1.6 Possible Channels of Interaction between Financial and Labor Markets

The interaction of capital markets and labor markets have gave rise to a number of theoretical contributions in the literature. Despite their great potential, those theoretical concepts have seldom undergo empirical research. Some of the most significant theoretical views are described in this section.

Capital markets are also thought to be instrumental in determining the amount of human capital that an economy is bound to have. One paper that examines this line of interaction is Galor and Zeira (1993) which suggests that capital market imperfections can have substantial impact on human capital. The resulting inequality has also been further examined in Aghion and Williamson (1998) who further elaborate the effects more thoroughly and in interaction with additional factors like institutions. Another treatment in the similar line of thought is the one by Banerjee and Newman (1993) who provide a theoretical proposition of how imperfect credit markets can affect human capital investment and perpetuate an impediment to growth through that channel.

Further theoretical contributions on the subject comes from Acemoglu and Pischke (1999). In their paper they develop a model where tight labor markets combined with tight credit induces firm to invest in human capital. If correct, this model suggests that deregulation of both labor and credit markets might create losses in productivity since firms will become willing to pass some of the cost of human capital investments on employees. Unfortunately, an empirical investigation of this hypothesis has not been located.

Another effort to explain the impact of labor regulations upon productivity was undertaken by Saint-Paul (2002) who focus on the effect of labor market rigidities upon innovation. He suggests that a potential impact comes through the increased risk for a firm that derives from high separations or matching costs. The argument in this study is that such high costs might induce companies to invest more in existing products rather than introducing new, riskier and more productive ones.

Perhaps the major channel of interaction between financial and labor markets that has receive a lot of research focus is the one that examines the relationship between financial market development and unemployment. In that respect, both theoretical constructs but also many empirical studies have been conducted. A limited number of the empirical studies from this body of research are examined on the literature review section of the present study. The line of thought of the theoretical constructs that try to explain the relationship departure from the point that financial imperfections and institutions might have significant impact upon job creation. It is suggested that those imperfections bias the decisions of firm and job creation and through that process they impact unemployment. The theoretical assumptions are that the direction and size of that bias differs according to the institutional set of a given economy.

2 Literature Review

Despite the extreme importance of financial and labor markets, their interrelation has received only limited focus by researchers. Especially, the large body of literature is mainly focused on financial development and capital account liberalization, and their impact upon developing countries. Subsequently the developed ones have not been in the epicenter of research attention. Despite though the relative preference of researchers to focus on financial developments in developing countries, the body of literature that focus on the developed ones remains substantially large.

2.1 Literature Review of the Impact of financial opening on European Growth.

The interest of economists on the impact of financial markets upon real economy is quite old and can be traced back to the “Founding Fathers“ of the discipline like Adam Smith and David Hume (Churchman 2001). As the discipline of economics was developing a lot of interest concentrated on how initially debt and subsequently other financial instruments affect economic growth. Many variables that are counting for financial development and its dynamics are thought to have been examined thoroughly. Financial opening alone of course is not sufficient to initiate and sustain economic growth, since it needs an appropriate institutional framework in order to be beneficial. Such an institutional framework is thought to be largely lacking in developing countries but to be in place in developed ones like those of our interest (Easterly 2002). Economists try to measure the effectiveness of institutions of credit in an economy using the concept of financial deepening, which is approximated by the size of the financial sector relative to the GDP of a country (Mishkin 2007). Despite the large literature that tries to shed light in the relationship between financial development and economic growth, there are not conclusive evidence as whether financial development strictly benefits or works against economic development in a given economy. From the following literature review, which is by no means exhaustive, the conclusion is that financial liberalization alone could not work in a vacuum and promote growth. Clearly it needs synergies from other sectors of an economy.

One of the most influential studies that examined the role of capital account liberalization upon economic growth was the one by Quinn (1997). The approach Quinn elaborated was first to construct a dataset of variables that aim to capture the degree of financial openness of a country (most of the variables take the value of 0 for a completely closed country, and the value of 2 for a completely open country). The second step was to construct a growth regression augmented by some variable of his dataset. He used data for the period 1960-1989. The results suggest that an open has much to gain in terms of economic growth from opening up. The major fault of this study though is that it is impossible to distinguish the impact of financial and capital account liberalization from the impact of trade openness and current account liberalization. The reason for this is that Quinn has not include trade variables in his model, thus making the impact of financial development difficult to isolate.

A second study that supports the notion of a positive impact on financial liberalization and growth is the one by Klein and Olivei (1999). The basic finding in that study is that capital

account liberalization and financial deepening promotes growth in the already developed countries, but it does not do so in the developing ones. They followed an interesting two stages approach in first examining the effect of capital account liberalization upon financial development and then they examined the impact of financial development upon growth. Their focus were on 82 developing and developed nations over the period 1986-1995 and they found significant effects of capital account liberalization on financial deepening for a cross-sectional study of all of them, but this result was because of the presence of developed countries in the sample. In a cross-section of non-OECD countries no significant impact of capital account liberalization on financial deepening was found. The same was true also for a group of Latin American countries where capital account liberalization was the norm during their focus period. They conclude that liberalization is beneficial only in the presence of other institutions that facilitate a well functioning economy.

The conclusion that capital account openness is instrumental in developed but not developing countries is supported by further evidence from Edwards (2001). In his study, he finds that openness as captured by the Quinn variables had a positive and statistically significant impact on income per capita during the 1980's for a group of 60 countries. More specifically, his findings were a negative coefficient for the capital account openness, but a positive one when openness was interacting with initial income. His conclusion was that openness has a positive impact on already developed countries and a negative one in poor countries. The methodology used by Edwards has been thoroughly scrutinized and criticized by a subsequent study by Arteta, Eichengreen and Wyplosz (2001). In their study they point out to a number of methodological problems that Edwards study has. They suggest that his evidences are fragile to scrutiny and they dismissed the notion of different effects of capital account liberalization because of income differences. Instead they found that macroeconomic stability might play a more decisive role on determining the impact of openness on growth.

A paper that looks into a more specific aspect of financial opening is the one by Bekaert, Harvey, and Lundblad (2001). The element of financial liberalization that they were interested about was the stock market liberalization and its impact upon economic growth. Their conclusion was that stock market liberalization was enhancing growth and that this result was generally robust. On the same line of thought, Henry (2000) also concludes that stock market internationalization enhances economic growth through significantly boosting private investment.

A paper of great importance is the one by Pattillo et al. (2004). In their paper those researchers apply statistical tools in order to examine the interrelationship between debt and economic growth, putting special emphasis in the channels through which debt can have an impact i.e Total Factor Productivity, Capital Accumulation, as well as they tried to determine the form of the relationship, providing evidence of non-linearity

Another line of literature emphasizes the fact that openness has not the same impact nor the relationship seem to be universally linear for all countries, and aims to investigate this findings further. In that respect, Klein (2003) allows for nonlinear impacts for capital account liberalization and quality of governments variables and their interactions. His findings suggest

that in addition to rich countries, middle income ones can also benefit from opening but poor ones cannot do so. In another study by Chanda (2005), the findings are that the impact of opening up depends significantly on how homogeneous a country is. Additionally, he provides evidence that the presence of capital controls lower growth. The above body of literature can be seen as backing up the point made by Rodrik (1999), that countries need a functioning set of institutions in order to be able to take advantage of financial opening and integration. Rodrik (1998) elaborates a regression of 100 countries over the period between 1975 and 1989 and fails to find any significant effects stemming from openness to real per capita income growth. Additionally to proxies for openness he also uses proxies that capture the effect of quality of government, initial income level, literacy and regional dummies but nevertheless fails to find a connection between liberalization and development through any channel. Furthermore, Rodrik and Subramanian (2008) argue that there exist inconclusive evidences in favor of financial globalization. They demonstrate that many financially open countries failed to materialize any gains in growth while others that exhibit capital controls were able to attend higher growth rates.

Kraay (1998) also fails to establish a positive connection between capital openness and growth in output for the period 1985 to 1997. He also makes use of the Quinn indicator. Nevertheless, when the explanatory variable comes from statistics derived from balances of payments he finds some significant results.

2.2 Literature Review on the Impact of Labor Markets on European Growth.

The structure of the European labor markets have seen a lot of focus from economists and not only from those specializing in labor economics. The different labor market arrangements that had emerge in Europe in the post war period gave rise to a large and heterogeneous body of literature. Providing a literature review that could cover a small part of the research dealing with European labor markets would have been consider by many a futile exercise. Nevertheless, this section will attempt to provide a description of the main body of literature that deals with European labor markets. The major conclusion from the surveyed literature below is that contrary to the perceived wisdom regarding labor market rigidities, there is no definite answer among scientists whether those rigidities actually harm the efficiency of an economy.

Siebert (1997) is one study that looks into the persistence of unemployment in Europe and suggests that rigidities in its labor markets are the major culprit. The study is considered one of the first that point to labor markets as a potential explanation for Europe's lower growth. The line of reasoning is that Europe has been stuck with redundant institutions from the 'Golden Ages' which are no longer a proper approach for the era of globalization. He concludes that the labor market does not function for a lot of Europeans.

Another influential study in the same line comes from Elmeskov et al. (1998). Their purpose was to evaluate the results of policy implemented by OECD members and to explain some reductions in the level of unemployment. One significant characteristic of this study is that it uses annual data and several variables to proxy labor protection. Their finding suggests that

there is a statistically significant, positive and large impact of employment protection upon unemployment. They examine for Granger causality between unemployment and unemployment benefits. They generally found mixed results regarding causality which in some countries were running from high unemployment to unemployment benefits and vice-versa in others. Though they found a significant effect of employment protection upon unemployment, this effect can explain only a small fraction of the reduction and the rest is attributed to country specific effects.

On a similar line with Siebert (1997), Eichengreen and Iversen (1999) give us a comprehensive review of the role of labor market institutions on the economic development in Europe. In their review of the course of post war European economy, they assess that the institutions that govern the functioning of the labor market have been instrumental both in enhancing growth in the first half of the post war period but also in hampering growth as those institutions became subsequently obsolete but persistent.

Another study that added significantly to our knowledge of European labor markets comes from Blanchard and Wolfers (2000). The study focuses on the heterogeneity of European labor institutions and tries to shed light to the phenomenon of the very different levels of unemployment across the continent, as well as to the different reactions of European labor markets to exogenous shocks like the oil crisis of the 1970's. They concluded that differences in unemployment can be a product of differences of institutions. Nevertheless, they claim that those differences do not possess inter-temporal characteristics since labor market institutions and rigidities have not been stable in time and thus they cannot be held accountable for changes in the courses of unemployment and economic growth.

In another article by Blanchard and Giavazzi (2003) the experiment of deregulation of the labor market was carried out. The motivation behind this experiment was the widespread notion that for the European poor performance (in comparison with the USA) the over-regulated markets of goods and labor are to blame. They suggest that deregulation of the one or the other market would not work out since there would be friction and half reforms. They propose that the deregulation of the goods market has to come prior to that of the labor markets. In that way reforms will increase real wage and decrease barriers to entry in product markets. Then lower barriers to entry will lead to lower unemployment but it could result in unemployment in the now unprotected sectors or firms.

Ichino and Riphahn (2005) focus on the impact of job protection regarding office employees in Italy, in an effort to examine how job protection legislation could affect productivity. They count job security as the end of probation period for those office employees and they found that after the end of probation absenteeism increases. Despite the suggestive evidence, one should remember that they control only for job security through firing restrictions.

Djankov et al. (2006) are looking into general policies that regulate the economy and their impact on economic growth. Among a number of things that they are checking is the labor market rigidities. Some aspects of their indicators for labor market rigidities were found to be statistically significant obstacles to economic growth. Specifically for Europe they found a

negative impact on severances and firing restrictions. Some attention should be paid here since their sample of European countries might be different than that of the present study.

Bassanini et al. (2009) conduct a two level investigation for OECD countries from 1983 to 2003. They found that lay off protection legislation has a negative impact on productivity. They check their conclusion not only on the aggregate level, but they also used industry level data in order to examine how legislation that affects differently certain industries has a role on productivity growth.

One paper that comes close to the present study is the one from Cingano et al. (2010) which examines the impact of imperfect financial markets on investment for European countries. The main differences are that the above mentioned study focuses on firm level data while the present looks on macroeconomic aggregates and the present has as its prime interest the internationalization of the financial market rather its imperfections.

There is another body of literature that looks into the differences in labor markets between Europe and the United States. Although not of immediate interest for this thesis, some general findings might be able to account also for differences between European countries. For example, Alesina and Zeira (2003) suggest a model of technological bias that might be able not only to explain differences in technology used between United States and Europe, but also differences in technology used among different European countries. In the same line of thinking Nickell (1997) examine the differences in performance between European and North American labor markets, claiming that the view of inferior performance for European ones might have a base but one should be very cautious in making such inferences given the disparities among European labor markets. One of the main findings of his research is that many of the institutional characteristics that are pointed out as impediments to lower unemployment were present both in high and low unemployment European countries suggesting mixed and weak results regarding employment protection and unemployment. In a future attempt to shed lights on those results and to provide more evidence if institutions have something to do with unemployment in industrial countries, Nickell et al. (2005) suggest that indeed changes in unemployment were correlated with changes in institutions. Those changes were found to account for slightly more than half of the change in unemployment.

3 Data Sources and Variables' description

3.1 Sources

A variety of sources have been elaborated in the present paper. The major source for economic data is the World Bank Database. The main dataset used for the thesis was the World Development Index and Financial Development Index dataset which contains a vast array of variables spanning from the 1960's for some countries, and covering each and every country of the world.

While the World Bank Database provides a vast array of economic variables, it poses certain limitations regarding the goals of the present paper. Namely, the debt positions of industrial countries are not incorporated. The Quarterly External Debt Database (QEDS), although it includes data on industrial countries, has the deficiency of covering a very short period of time which varies from country to country. In order to overcome those problems, the thesis makes use of the *External Wealth of Nations Mark II* Dataset (Lane and Milesi-Ferretti 2007). This dataset has been constructed in order to overcome the above mentioned problems, and although not perfect in doing so, it significantly enhances our knowledge of the matters under question. The dataset reconstructs the financial positions of 178 countries by essentially working backwards from the declared figures and by taking into consideration a large number of parameters reconstructs data for the financial position of a given country back since 1970. The indicator variable for "Employment Protection" was taken for the relevant OECD table (Venn 2009) and the Union coverage variable was extracted from the ICWTSS dataset produced by the University of Amsterdam.

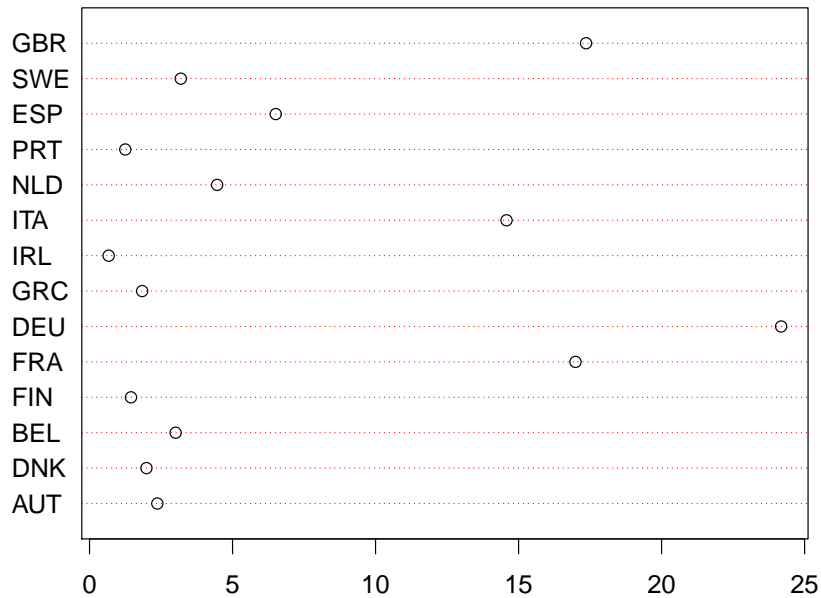
3.2 Dependent Variable

The variable of interest in this study is real GDP per capita growth. This is done in an attempt to examine the impact of financial and labor markets upon economic growth. The growth of Real GDP per Capita is going to be the first dependent variable elaborated in the study. This variable depicts the impact of financial and labor markets developments upon economic growth.

3.2.1 Real GDP per Capita Growth

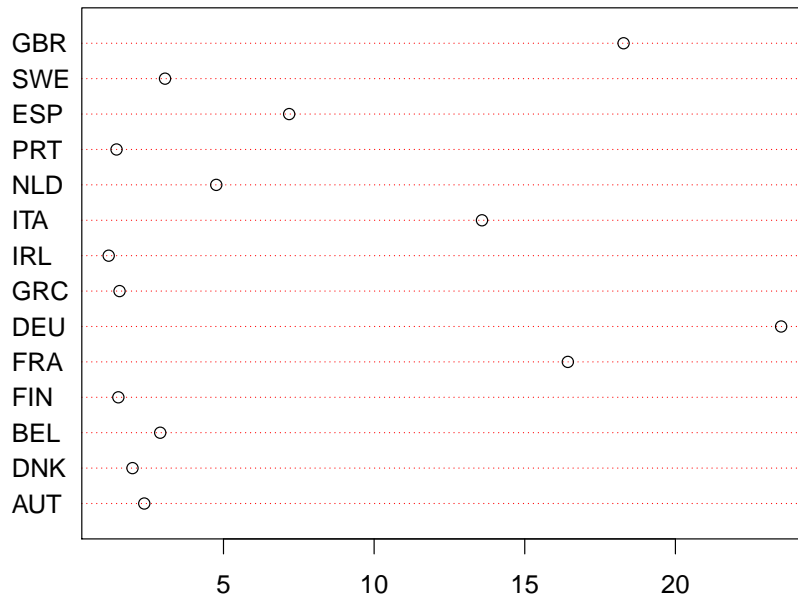
GDP per capita refers to the average final production of goods and services of a resident in a given economy. It has been used extensively in economic studies to allow researchers to study the process of economic growth. The aggregate GDP, GDP per capita and their respective growth rates are measurements of the level, direction and intensity of economic activity in a country. The source of this variable is the World Development Index.

Figure 1: Percentage Contribution to European GDP 1980



As we can see from the accompanying graphs, European countries contribute quite differently in the aggregate European GDP. This disparity of contribution seems quite resistant to time since the same countries that contributed the vast amount of EU-15 GDP in 1980, continued to do so in 2000. The implications of this vast differences in the relevant economic weight of each member-country has been historically a problem that hinders further integration since the bulk of the cost that integration requires come disproportionately from the economically larger countries. The political consequences of this fact have been the focal point of many European debates and are considered one of the major arguments of the so-called “Euroskeptics“

Figure 2: Percentage Contribution to European GDP 2000



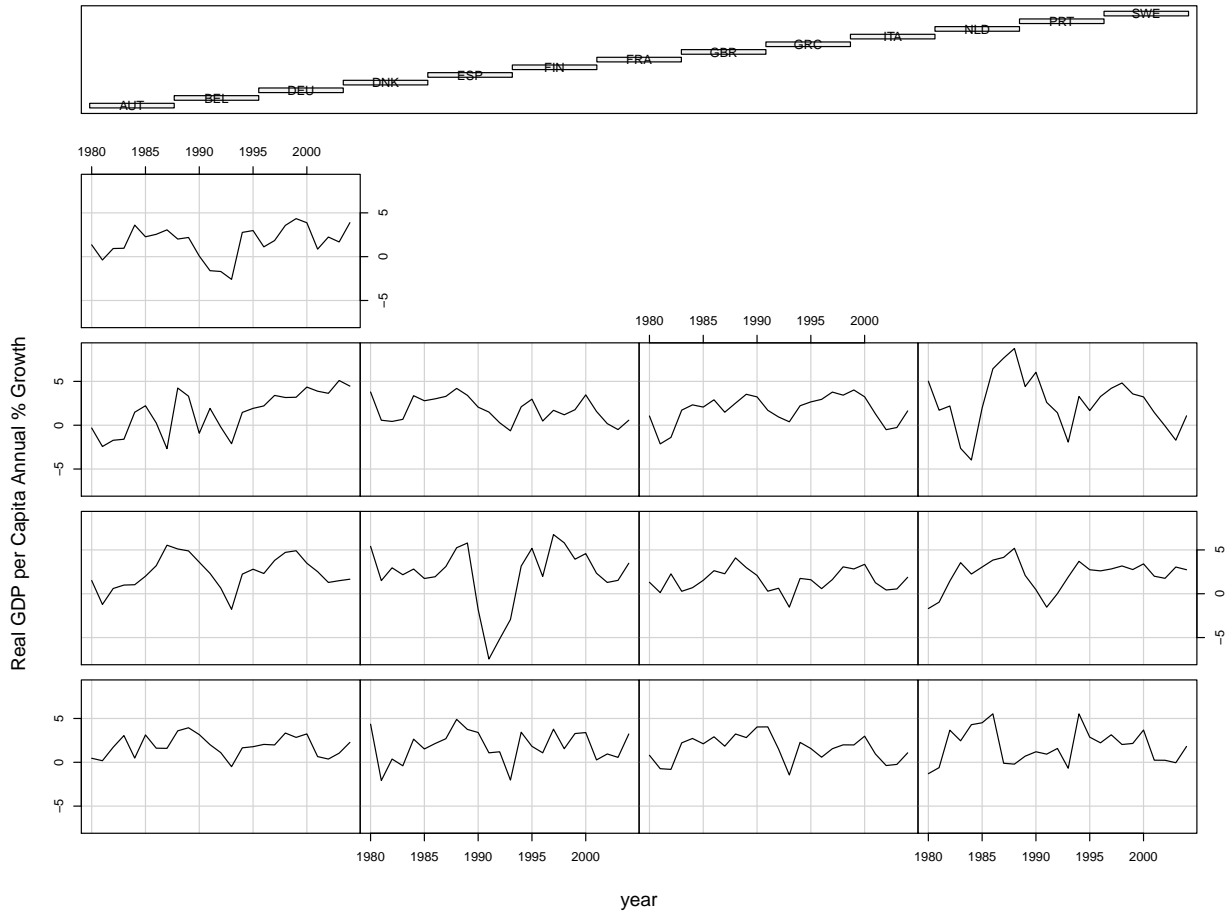
Moreover, as we can see from the following graph, the growth rates of per capita GDP for the countries in our sample show some differences but their behavior throughout the period under consideration seems to be affected by the same events, given their common peaks and troughs. As we can see from the accompanying descriptive statistics, the period was characterized both by strong growth rates but also by deep recessions, of which the largest took place in Finland with the demise of Soviet Union and the resulting disruption of the economic ties between the two nations.

Table 1: Summary statistics for Real GDP per Capita Growth

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|------|---------|--------|-------|------|
| 11 | AUT | 25 | 1.87 | 1.20 | 1.78 | -0.50 | 3.94 |
| 12 | BEL | 25 | 1.87 | 1.83 | 1.82 | -2.08 | 4.90 |
| 13 | DEU | 25 | 1.58 | 1.48 | 1.84 | -1.45 | 4.04 |
| 14 | DNK | 25 | 1.83 | 1.96 | 1.81 | -1.30 | 5.53 |
| 15 | ESP | 25 | 2.39 | 1.88 | 2.31 | -1.78 | 5.54 |
| 16 | FIN | 25 | 2.21 | 3.42 | 2.82 | -7.45 | 6.75 |
| 17 | FRA | 25 | 1.54 | 1.26 | 1.60 | -1.53 | 4.09 |
| 18 | GBR | 25 | 2.18 | 1.74 | 2.74 | -1.69 | 5.19 |
| 19 | GRC | 25 | 1.53 | 2.42 | 1.92 | -2.68 | 5.10 |
| 110 | ITA | 25 | 1.77 | 1.42 | 1.70 | -0.64 | 4.20 |
| 111 | NLD | 25 | 1.79 | 1.60 | 2.07 | -2.13 | 4.02 |
| 112 | PRT | 25 | 2.58 | 3.12 | 2.60 | -3.97 | 8.75 |
| 113 | SWE | 25 | 1.68 | 1.82 | 2.01 | -2.59 | 4.34 |

Figure 3: European Real Per Capita GDP Growth Rates

Given : country



3.3 Macroeconomic Variables

A set of macroeconomic variables are to be employed in this thesis in order to examine the several hypotheses. Unless otherwise stated, all of the variables included are in constant 2000 dollars. The inclusion of those variables in the models has the purpose to control for the different characteristics those variables capture, rather than make inferences about their impact. Omitting them would have lead their impact to be erroneously depicted by the remaining variables in the model.

3.3.1 Trade Openness

How open an economy is in terms of trade plays a significant role of how well it is integrated into the world's financial and economic system in general. Europe is considered as a paradigm of integration with the lack of border barriers and tariffs and with the introduction of the common currency in 2002. According to WTO (2009)⁴, Europe as a region is both the largest exporter and importer of the world. As a proxy to trade openness, the percentage of trade to GDP has been used. Trade openness as an economic characteristic has been long ago established as an element that has a significant impact on any given economy (Levine and Renelt 1992). It has to be noted that trade openness in an economy helps towards one of the crucial

Table 2: Summary statistics for Annual Trade Growth

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|--------|-------|
| 11 | AUT | 25 | 1.39 | 3.57 | 2.00 | -6.29 | 7.62 |
| 12 | BEL | 25 | 1.51 | 6.57 | 1.32 | -12.60 | 17.63 |
| 13 | DEU | 25 | 1.17 | 2.87 | 1.45 | -5.38 | 8.47 |
| 14 | DNK | 25 | 0.91 | 3.52 | 0.94 | -7.77 | 10.70 |
| 15 | ESP | 25 | 1.12 | 2.63 | 1.02 | -5.52 | 6.00 |
| 16 | FIN | 25 | 0.58 | 3.82 | -0.54 | -5.64 | 9.48 |
| 17 | FRA | 25 | 0.40 | 2.44 | 0.38 | -6.36 | 6.04 |
| 18 | GBR | 25 | -0.07 | 2.38 | -0.20 | -4.49 | 4.69 |
| 19 | GRC | 25 | 0.51 | 3.85 | -0.32 | -6.26 | 10.66 |
| 110 | ITA | 25 | 0.18 | 2.81 | -0.21 | -6.74 | 6.09 |
| 111 | NLD | 25 | 1.05 | 6.06 | 1.13 | -18.19 | 12.75 |
| 112 | PRT | 25 | 0.51 | 3.39 | 1.38 | -7.65 | 5.68 |
| 113 | SWE | 25 | 0.91 | 3.83 | -0.08 | -6.54 | 7.35 |

functions of finance. Namely, it helps to expose the sectors with a comparative disadvantage of the economy and reallocate their resources to more productive sectors. Another side effect of trade openness is that it creates the need for a government or economy to continue liberalization processes (Sachs et al. 1995).

⁴WTO provides figures only for the aggregate of EU27 and for some individual states, but the conclusion remains valid

3.3.2 Government Consumption

Another economic variable that has to be taken into consideration is the relative size of government in an economy. Thus, the percentage of GDP that corresponds to government consumption is used to facilitate how much of a role the public sector plays. It signifies the consumption of goods and services by a government. Government consumption has been found to be neg-

Table 3: Summary statistics for Government Consumption Growth,in pct of GDP

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|-------|------|
| 11 | AUT | 25 | 0.01 | 0.37 | 0.01 | -0.93 | 0.85 |
| 12 | BEL | 25 | -0.01 | 0.58 | -0.07 | -1.43 | 1.23 |
| 13 | DEU | 25 | -0.07 | 0.34 | -0.12 | -0.97 | 0.55 |
| 14 | DNK | 25 | 0.04 | 0.79 | 0.12 | -1.89 | 1.58 |
| 15 | ESP | 25 | 0.18 | 0.42 | 0.16 | -0.60 | 0.96 |
| 16 | FIN | 25 | 0.16 | 0.91 | 0.13 | -1.17 | 3.11 |
| 17 | FRA | 25 | 0.12 | 0.46 | 0.06 | -0.78 | 1.27 |
| 18 | GBR | 25 | 0.03 | 0.62 | -0.15 | -0.88 | 1.53 |
| 19 | GRC | 25 | 0.14 | 0.92 | 0.16 | -1.95 | 2.25 |
| 110 | ITA | 25 | 0.13 | 0.51 | 0.15 | -1.29 | 1.35 |
| 111 | NLD | 25 | -0.02 | 0.60 | -0.08 | -1.46 | 1.05 |
| 112 | PRT | 25 | 0.32 | 0.41 | 0.24 | -0.17 | 1.67 |
| 113 | SWE | 25 | -0.09 | 0.70 | -0.09 | -1.22 | 1.19 |

atively correlated to growth, since usually it implies a higher tax burden upon the production sectors of an economy. The negative impact of government consumption for GDP growth has been well established in a large and diverse literature that has focus extensively both on developing and developed countries (Barro 1991; Grier and Tullock 1989; Landau 1986).

3.4 Financial Variables

A set of variables with the objective to capture the impact of financial markets are elaborated in this study. There is one index for the aggregate financial activity as well as its components. This is done in order to examine both the aggregate effect of financial activity, as well as the effects specific to each subsector of the financial markets. In that way we have a better idea of the dynamics, and we can provide evidence towards the debate between market based and bank based finance.

3.4.1 International Financial Integration Index

This index is a simple approach to measure the degree of financial openness of an economy. It is simply the sum of foreign financial assets and liabilities divided by the current GDP. In that respect it can be seen as the financial equivalent of trade openness. That index has been used before in Lane and Milesi-Ferretti (2007) with the accompanying dataset to be its source.

Table 4: Summary statistics for Total Financial Growth, as pct of GDP

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|--------|--------|
| 11 | AUT | 25 | 12.28 | 19.71 | 9.45 | -18.64 | 60.93 |
| 12 | BEL | 25 | 26.54 | 30.49 | 29.15 | -30.12 | 77.73 |
| 13 | DEU | 25 | 10.86 | 15.32 | 7.68 | -9.99 | 49.51 |
| 14 | DNK | 25 | 12.88 | 19.27 | 11.29 | -19.69 | 60.06 |
| 15 | ESP | 25 | 9.80 | 13.33 | 4.81 | -7.57 | 43.14 |
| 16 | FIN | 25 | 13.98 | 32.43 | 9.56 | -53.42 | 123.89 |
| 17 | FRA | 25 | 14.65 | 15.96 | 8.01 | -10.46 | 43.67 |
| 18 | GBR | 25 | 20.25 | 27.99 | 24.08 | -37.86 | 90.02 |
| 19 | GRC | 25 | 6.27 | 8.40 | 6.22 | -8.09 | 34.71 |
| 110 | ITA | 25 | 7.03 | 10.56 | 7.14 | -11.70 | 34.45 |
| 111 | NLD | 25 | 25.90 | 32.02 | 20.62 | -20.15 | 93.51 |
| 112 | PRT | 25 | 13.80 | 21.73 | 13.16 | -32.28 | 63.58 |
| 113 | SWE | 25 | 14.52 | 15.13 | 11.37 | -10.49 | 42.03 |

3.4.2 Equity Integration Index

The Equity activity index is a part of the financial integration index, but it counts only the integration of the equity market of a country. Source for the computation of that ratio is also the Lane-Ferretti dataset. The use of this index is to investigate the effect of the equity market integration in isolation of the rest of financial instruments. Its conception is similar with the International Financial Integration index described above. It is the stock of foreign equity assets plus the stock of foreign equity liabilities divided by current GDP. Only the acquisition of less than 10—5 of the total stock of an entity is counted as portfolio equity investment. If otherwise, then the transaction is counted as Foreign Direct Investment.

Table 5: Summary statistics for Equity Activity Growth, as pct of GDP

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|------|---------|--------|--------|--------|
| 11 | AUT | 25 | 1.36 | 3.61 | 0.33 | -8.24 | 11.79 |
| 12 | BEL | 25 | 2.28 | 4.65 | 1.76 | -5.61 | 13.09 |
| 13 | DEU | 25 | 1.47 | 4.27 | 0.49 | -9.36 | 10.92 |
| 14 | DNK | 25 | 1.78 | 4.92 | 0.99 | -12.35 | 10.70 |
| 15 | ESP | 25 | 1.35 | 4.19 | 0.62 | -7.41 | 15.68 |
| 16 | FIN | 25 | 3.29 | 28.74 | 0.10 | -65.52 | 113.00 |
| 17 | FRA | 25 | 1.94 | 5.04 | 1.28 | -8.81 | 16.06 |
| 18 | GBR | 25 | 3.36 | 10.03 | 4.29 | -22.73 | 30.59 |
| 19 | GRC | 25 | 0.56 | 1.64 | 0.08 | -3.04 | 4.90 |
| 110 | ITA | 25 | 1.38 | 3.70 | 0.34 | -8.94 | 9.43 |
| 111 | NLD | 25 | 4.89 | 12.74 | 3.43 | -27.01 | 29.38 |
| 112 | PRT | 25 | 1.37 | 2.74 | 0.33 | -3.45 | 8.91 |
| 113 | SWE | 25 | 3.36 | 9.28 | 0.97 | -20.82 | 30.29 |

3.4.3 FDI Participation

FDI participation is an index similar to those described above. It consists of the sum of outflows and inflows of Foreign Direct Investment in a country divided by the GDP. It will be used to investigate the sole impact of FDI on the dependent variables. Source for its computation is also the Lane-Ferretti dataset. Lane-Ferretti defines FDI as the acquiring of controlling stakes in foreign firms. Their threshold stands at 10% which means that purchasing of shares of a firm above that level constitutes direct investment in a country. Otherwise the transaction is counted as portfolio investment. Greenfield investments as well as investment in property from foreign citizens are also included in that measurement.

Table 6: Summary statistics for FDI, as pct of GDP

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|------|---------|--------|-------|-------|
| 11 | AUT | 25 | 1.68 | 2.57 | 1.01 | -0.88 | 8.96 |
| 12 | BEL | 25 | 8.86 | 10.66 | 6.20 | -5.31 | 33.97 |
| 13 | DEU | 25 | 1.94 | 3.87 | 0.74 | -1.43 | 17.05 |
| 14 | DNK | 25 | 3.10 | 7.48 | 0.77 | -5.07 | 33.03 |
| 15 | ESP | 25 | 2.69 | 3.92 | 1.25 | -0.51 | 16.30 |
| 16 | FIN | 25 | 2.91 | 5.26 | 1.23 | -1.59 | 22.67 |
| 17 | FRA | 25 | 4.37 | 6.73 | 2.74 | -9.24 | 17.88 |
| 18 | GBR | 25 | 2.60 | 5.80 | 1.91 | -7.07 | 19.60 |
| 19 | GRC | 25 | 0.57 | 0.65 | 0.58 | -0.81 | 2.07 |
| 110 | ITA | 25 | 0.98 | 1.49 | 0.42 | -1.17 | 4.31 |
| 111 | NLD | 25 | 5.61 | 8.11 | 4.55 | -4.10 | 32.23 |
| 112 | PRT | 25 | 2.33 | 3.39 | 1.26 | -0.58 | 14.36 |
| 113 | SWE | 25 | 4.38 | 5.09 | 3.63 | -4.77 | 18.38 |

3.5 Labor Variables

3.5.1 Trade Union Participation

This variable is elaborated in order to examine how increases or decreases in union membership can affect the the performance of an economy. Its effects are going to be examined both separately but also in interaction with financial variables. It should be noted though that the variable is mostly a proxy for strength of trade unions , since the terms of a union contract or the results of negotiations with labor unions have consequences that reach beyond the members of a union. The variable is expressed as a percentage of participation of employees in unions and is characterized by great disparities among European countries.

Table 7: Summary statistics for Union Density Growth

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|-------|-------|
| 11 | AUT | 25 | -0.90 | 0.57 | -0.93 | -2.57 | -0.08 |
| 12 | BEL | 25 | -0.06 | 1.08 | 0.09 | -3.70 | 1.49 |
| 13 | DEU | 25 | -0.50 | 1.25 | -0.62 | -2.13 | 4.77 |
| 14 | DNK | 25 | -0.22 | 1.04 | -0.42 | -2.45 | 1.74 |
| 15 | ESP | 22 | 0.34 | 0.87 | 0.42 | -1.31 | 2.18 |
| 16 | FIN | 25 | 0.24 | 1.28 | 0.10 | -1.72 | 2.99 |
| 17 | FRA | 25 | -0.50 | 0.44 | -0.45 | -1.48 | 0.15 |
| 18 | GBR | 25 | -0.75 | 0.94 | -0.62 | -2.73 | 0.98 |
| 19 | GRC | 13 | -0.68 | 1.33 | -0.58 | -2.43 | 1.93 |
| 110 | ITA | 25 | -0.67 | 0.71 | -0.55 | -2.83 | 0.35 |
| 111 | NLD | 25 | -0.63 | 0.81 | -0.48 | -2.45 | 0.65 |
| 112 | PRT | 25 | -1.58 | 1.61 | -0.84 | -5.27 | 0.63 |
| 113 | SWE | 25 | 0.04 | 0.94 | -0.03 | -1.55 | 2.84 |

3.5.2 Union Coverage

Union coverage is also a variable of interest for the present thesis. It counts the extent of union bargaining and for what portion of the labor force, unions play a significant role. While union density counts strictly union participation and indirectly the political power of the unions, this variable actually counts the extend of union power on the economy. The expectation for this variable is to have a negative sign if labor market rigidities have indeed a negative impact on economic growth. The source of this variable is the ICTWSS dataset. Unfortunately, there are a lot of missing values regarding this variable for Greece, Portugal and Italy. Subsequently those countries have been dropped from the analysis of union coverage

3.5.3 Employment Protection

In order to account for the regulatory environment of a particular labor market, the study makes also use of the OECD Employment Protection Indicator (Venn 2009). This is a composite unweighted indicator that takes into consideration a variety of labor market characteristics. It ranges from 0 for the less strict protection and up to 6 for the more strict protection. Though it

Table 8: Summary statistics for Union Coverage Growth

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|-------|------|
| 11 | AUT | 25 | 0.16 | 0.37 | 0.00 | 0.00 | 1.00 |
| 12 | BEL | 25 | 0.02 | 0.30 | 0.00 | -0.20 | 1.40 |
| 13 | DEU | 25 | -0.60 | 0.65 | -0.60 | -3.00 | 0.00 |
| 14 | DNK | 25 | 0.42 | 1.24 | 0.00 | -1.00 | 3.00 |
| 15 | ESP | 25 | 0.56 | 0.65 | 0.50 | -1.00 | 1.70 |
| 16 | FIN | 25 | 0.52 | 0.52 | 0.50 | -0.60 | 1.40 |
| 17 | FRA | 25 | 0.48 | 0.62 | 0.60 | -0.70 | 2.00 |
| 18 | GBR | 25 | -1.44 | 1.64 | -1.20 | -4.00 | 3.90 |
| 19 | NLD | 25 | 0.16 | 0.85 | 0.00 | -1.00 | 2.00 |
| 110 | SWE | 25 | 0.88 | 1.49 | 0.00 | 0.00 | 4.00 |

has the disadvantage of incorporating subjective judgments in its creation, it has been found to have a strong correlation (i.e generally more 0.95) with alternative indexes used in the literature. Caution should be applied to any results, since this particular index is an ordinal variable and as such, an increase by say, one unit would not be the same for every country nor it would depict the same development.

3.5.4 Unemployment

Unemployment is defined as the percentage of individuals that are able and willing to have a job position, but unable to find one. In this paper, unemployment is used as a proxy of the efficiency of the labor market. As it has been discussed above, this variable and its interrelation with financial markets has receive a lot of attention in the literature. Since no definite answer exist on the nature of this interrelation, its inclusion is of high interest. This variable has been extracted from the World Development Index.

Table 9: Summary statistics of Unemployment Change

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|-------|------|
| 11 | AUT | 22 | 0.09 | 0.54 | 0.05 | -0.80 | 1.00 |
| 12 | BEL | 22 | -0.22 | 0.87 | -0.30 | -2.00 | 1.50 |
| 13 | DEU | 13 | 0.42 | 0.83 | 0.70 | -1.00 | 1.40 |
| 14 | DNK | 21 | -0.21 | 1.07 | -0.20 | -2.70 | 1.70 |
| 15 | ESP | 24 | -0.00 | 1.92 | -0.35 | -3.40 | 4.30 |
| 16 | FIN | 24 | 0.17 | 1.74 | -0.10 | -1.80 | 5.10 |
| 17 | FRA | 24 | 0.13 | 0.86 | 0.10 | -1.80 | 1.60 |
| 18 | GBR | 21 | -0.31 | 0.85 | -0.40 | -2.00 | 1.60 |
| 19 | GRC | 23 | 0.27 | 0.77 | 0.20 | -0.80 | 2.00 |
| 110 | ITA | 24 | 0.01 | 0.68 | 0.10 | -1.20 | 1.20 |
| 111 | NLD | 21 | -0.42 | 0.89 | -0.50 | -2.60 | 1.20 |
| 112 | PRT | 24 | -0.00 | 0.91 | 0.05 | -1.90 | 1.40 |
| 113 | SWE | 24 | 0.18 | 1.16 | 0.15 | -1.70 | 3.60 |

3.5.5 Youth Unemployment

This variable has as a purpose to examine how difficulties entering the labor market can have an impact on the dependent variables. The degree of difficulties of entrance into the labor market is of great importance for a countries economy since it is widely believed that young individuals tent to be better with technological innovations, bearers of new ideas and generally more educated than their preceding generations. Their smooth incorporation into the labor market is a characteristic of a renewed and economy and of a flexible labor market. It describes the percentage of young individuals that are willing and able to find employment but unable to do so. This variable has been extracted from the World Development Index.

Table 10: Summary statistics of Youth Unemployment Change

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|-------|-------|
| 11 | AUT | 22 | 0.26 | 1.04 | 0.20 | -1.60 | 3.50 |
| 12 | BEL | 20 | -0.25 | 2.71 | -0.40 | -7.30 | 5.30 |
| 13 | DEU | 13 | 0.58 | 1.10 | 1.10 | -0.90 | 2.00 |
| 14 | DNK | 21 | -0.53 | 2.36 | -0.30 | -4.90 | 3.00 |
| 15 | ESP | 24 | -0.14 | 3.61 | -0.85 | -5.60 | 8.60 |
| 16 | FIN | 24 | 0.78 | 3.85 | 0.10 | -6.20 | 10.00 |
| 17 | FRA | 24 | 0.19 | 2.38 | 0.60 | -5.80 | 4.80 |
| 18 | GBR | 21 | -0.45 | 1.56 | -0.70 | -3.00 | 3.50 |
| 19 | GRC | 23 | 0.55 | 1.87 | 0.50 | -2.10 | 5.30 |
| 110 | ITA | 24 | -0.07 | 1.73 | 0.00 | -3.90 | 2.50 |
| 111 | NLD | 21 | -0.69 | 1.59 | -0.90 | -3.50 | 2.30 |
| 112 | PRT | 24 | -0.05 | 1.97 | -0.10 | -4.30 | 3.10 |
| 113 | SWE | 24 | 0.51 | 3.22 | 0.55 | -6.80 | 9.00 |

3.6 Variables Captured By the Fixed Effects

The fixed effect coefficient of our model is bound to depict some individual characteristics, specific to each country. Some of those characteristics that have been found to be correlated with economic growth are examined below. One major function that the intercept performs in those kind of models, is that it can also to some extent depict differences in the quality of financial variables and institutions in a country.

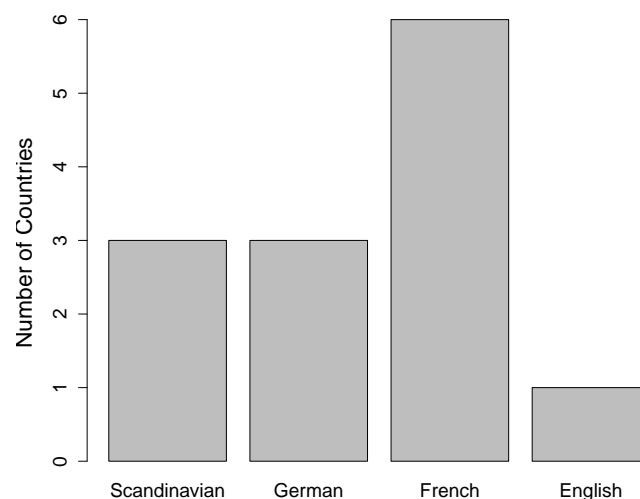
3.6.1 Legal Origin

Legal origin indicates if the legal system of a given country is based on the French, English, Scandinavian or German tradition. The importance of this characteristic in examining economic growth lies on the fact that legal origin has a particular effect on shaping the relationship between a creditor and debtor, and thus it is instrumental in the financial development path of a country. The significance of the legal origins for the financial development of a country was initially discussed by La Porta et. al (1997) and it has received further implementation in numerous studies e.g. Levine et al. (2000). Additionally to the shaping of the relationship

between creditors and debtors, legal origin is very likely to shape also the relationship between employer and employee and thus it serves very good the aims of the present study. Indeed, a growing body of literature suggests that legal origin has a role to play in the shaping of labor market institutions. More specifically, Hefeker and Neugart (2007) find that governments of common law countries make more reforms in the labor market than governments of civil law countries. On the other hand, Deakin et al. (2007) argue that legal systems are time invariant and cannot hold responsible for contemporary changes in the labor markets. This characteristic of the legal origins, their stability through time is the main disadvantage when it comes to fixed effects panel data analysis like the one here. The problem is that time invariant variables are impossible to capture with fixed effects, since any impact they may have, will show up into the respective country coefficient.

From the following graph we can see that the Napoleonic Code and the subsequent French legal tradition have influenced almost half of the European countries.

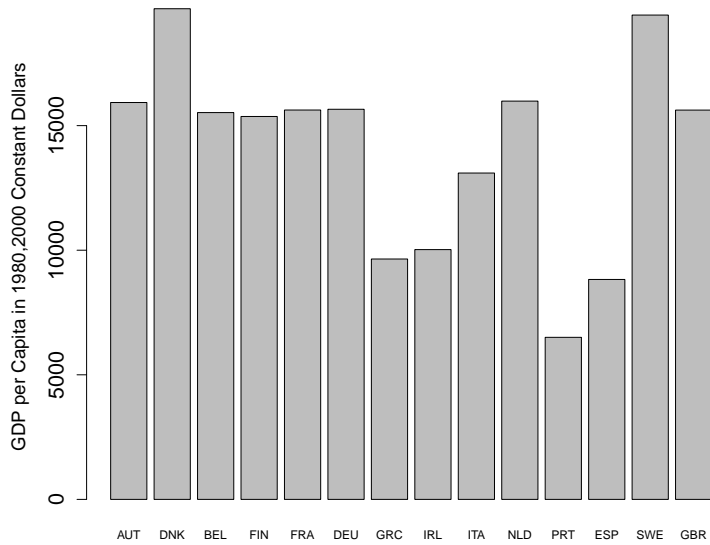
Figure 4: Number of Countries By Legal Origin



3.6.2 Initial Per Capita Output

European countries were by no means uniform in their developments prior to 1980 and many of them were at the time relatively poor. Most of those disparities in the initial level of development have played a substantial role in the way those countries adapted to the new European reality, as well as those initial levels were instrumental to shape the path that those countries were bound to follow in the period after their acceptance in the European community. Since different countries started from different levels of economic development, the GDP per Capita in the initial year of the period (1980) is of significant interest. Since a fixed effect model cannot account for time invariant variables such as this one, we expect its impact to be manifested through the intercept of each individual country.

Figure 5: GDP per Capita 1980, Constant 2000 Dollars



3.6.3 Average Schooling

Average schooling refers to the average per capita years of education in an economy. It has been used extensively in the literature as a proxy to human capital. Despite its wide use, it poses certain problems as it is unable to count for unofficial investments in human capital and firm specific knowledge and experience. While it would be very helpful for the present study to take into consideration gains in human capital through average schooling, the slow change of it as well as the fact that it is available only for 5-year intervals makes it inappropriate for inclusion in a fixed effects model. The variable is taken from the Barro-Lee dataset..

Table 11: Summary statistics for Average Schooling

| | Country | Obs | Mean | Std.Dev | Median | Min | Max |
|-----|---------|-----|-------|---------|--------|------|-------|
| 11 | AUT | 5 | 8.25 | 0.64 | 8.26 | 7.43 | 9.06 |
| 12 | BEL | 5 | 9.13 | 0.85 | 9.39 | 8.03 | 10.04 |
| 13 | DEU | 5 | 7.94 | 2.09 | 8.05 | 5.73 | 10.50 |
| 14 | DNK | 5 | 9.68 | 0.40 | 9.80 | 9.02 | 10.01 |
| 15 | ESP | 5 | 6.59 | 1.75 | 5.63 | 4.98 | 9.09 |
| 16 | FIN | 5 | 8.43 | 0.42 | 8.24 | 8.22 | 9.17 |
| 17 | FRA | 5 | 7.44 | 1.35 | 7.14 | 6.02 | 9.30 |
| 18 | GBR | 5 | 8.31 | 0.32 | 8.26 | 7.97 | 8.76 |
| 19 | GRC | 5 | 7.70 | 0.79 | 7.92 | 6.56 | 8.57 |
| 110 | ITA | 5 | 7.67 | 1.17 | 7.85 | 5.98 | 8.97 |
| 111 | NLD | 5 | 10.10 | 0.61 | 10.16 | 9.27 | 10.81 |
| 112 | PRT | 5 | 6.13 | 1.00 | 6.22 | 4.78 | 7.28 |
| 113 | SWE | 5 | 10.04 | 0.75 | 10.03 | 9.13 | 11.00 |

3.7 Data Quality

In the present study, as it is evident by now, a vast array of data sources have been used. This is unavoidable to the extent that the study tries to look into the combined effects of finance and labor. Comprehensive datasets that incorporate data for both of the markets are rare and do not cover all of the variables of interest or the whole period, or even some countries are missing. This suggests that in order to undertake the study, one has to use various sources of data. This might possess some challenges since the sources are inevitably of different quality and the same holds true for some of the variables.

The first source of data for the present study is the World Development Indicator from the World Bank Database. The macroeconomic variables and the unemployment rates were extracted from that source which is considered of superb quality and it is used extensively in macroeconomic research. The second source is the Lane-Ferretti dataset from which the financial variables were taken. The considerations for this dataset are that it is a reconstruction of the series it incorporates. This results in possible accumulated measurement errors, especially for countries that do not reveal their financial positions. In such cases, there is always the possibility that future improvements in data availability reveal deviations of the Lane-Ferretti dataset from the actual figures. This problem however, although always a potential problem, is thought to be less severe in European and OECD countries which possess advanced mechanisms in tracking capital movement and their capital markets are considered well organized, deep and able to track and report capital movements.

The data that possess the greater challenges are those regarding Union Coverage and the OECD Protection index. In the case of union coverage the variable possesses the characteristic of low variation. Additionally, there is always the problem of labor regulation enforcement which may further complicate the variable. Perhaps the most challenging variable is the one for OECD Protection index. There are several reasons for that. First, it is an ordinal variable which suggests that the distance of moving from say, 2 to 3 on that index is not the same as moving from 3 to 4 in the essence that this movement represents different developments in the underlying labor market environment. Secondly, the index is a construct derived from a variety of statistics that try to evaluate labor market environments in the country under consideration. Such characteristics may be difficulty of employee dismissal, height of severance payments and so forth. Clearly, assessing those characteristics incorporates the use of human judgment which is destined to be subjective. One third potential problem with the index is its low variation.

4 Methodology

A panel data econometric approach has been chosen as the most appropriate technique in order to examine the developments among financial internationalization, labor markets and their impact on the economy. Estimating models using panel data -pooled cross-sectional and time-series data- poses several significant advantages over both pure cross sectional and pure time-series data. First, it enables the researcher to take into account not only the cross-country relationship between external financial position, labor market structure and economic growth but it also gives the opportunity to study those elements over time and within a country. Making use of panel data methods adds degrees of freedom by elaborating the variability of the cross sectional dimension. Another benefit that derives from panel data approach is that the researcher can estimate country specific effects, while in a pure cross sectional framework those country specific effects would have been depicted in the error term. In other words, panel data models take into account the heterogeneity of the sample. This property of panel methodology is crucial for the present study, since by elaborating the fixed-effect model of panel data, can depict the individual effects due to country specific characteristics. Moreover, panel data can identify and measure the impact of characteristics that are difficult to measure by pure cross sectional or pure time-series analysis.

Besides the above mentioned benefits there are some shortcomings, that derive from the nature of the markets. The basic problem is that those two markets adjust with a completely different pace. While financial markets are notoriously quick and almost under constant changing, labor markets are notoriously slow since institutional changes in this market takes quite a lot of time to happen. Unfortunately, there is no straightforward and perfect solution to address that issue. Instead, the standard procedure followed in the literature is to average out several periods to one business cycle. That is five-year periods. In that way, one can remove the effect of short and medium run effects of financial markets and focus only on their long-run impact. This method also removes partially the impact of speculation on the financial markets. Unfortunately though, this approach has a huge cost in terms of degrees of freedom since one would needs five observations for each degree of freedom. Given also the increased number of the estimated parameters in the models this approach was simply not feasible and thus it was not chosen.

One major methodological assumption of the paper is that the economies under consideration can be seen as purely neoclassical, in the sense that those economies are thought to have access to the same technology and physical capital. Considering that the thirteen countries have undergo the quite lengthy procedure of European integration such an assumption is not far from reality. Specifically, since movement of labor and capital are essentially perfectly free among those countries we can safely assume that all of them have access to the same quality of capital. The only major obstacles can be traced on human capital and have to do more with non-economic barriers like different languages and cultures rather than official barriers. Moreover, due to the bundling of the individual economies to one another we can assume that a development will have a similar impact regardless of country. In econometric language this suggests that the slope of a regression line would be essentially the same, regardless of country.

Aggregate cross country data are going to be used in this thesis. Nevertheless, those kind of studies possess the danger of two econometric problems. The first problem is reverse causality, especially when dealing with the labor markets since the rigidity of the labor market may as well depend on market conditions. Despite the existence of some evidence that the criticism of reverse causality might not be so significant since most countries liberalized their financial markets as a result of political reforms (e.g. Quinn and Inclan 1997; Bekaert et al. 2010), reverse causality cannot be ruled out. A second potential problem is the omitted variables since unaccounted variables may influence the coefficients.

Another problem, which is always present with financial data, is that the prices of financial products- especially shares- might not reflect their current value but they can rather reflect the expectations of the investors. In such a case, the prices would overestimate the true values of the assets.

The methodology of the present thesis consists of a variety of models. The general strategy of modeling the relationships incorporates interaction terms of both financial and labor variables to examine how our models behave when variables from both groups are present. Each model has as independent variables the set of macro economic variables discussed in the data section (change in trade, change in government consumption), one variable that depicts financial activity change and one that captures changes in labor market.

4.1 The Model

The first step to construct a panel data analysis is to assemble a regression model that will attempt to capture the effects of individual explanatory variables upon a dependent variable. In that respect, if we were not interested to examine the idiosyncratic characteristics of each country, we would have simply pooled the data in a regular ordinary least squares model that would look like the following.

$$y_{it} = \alpha_{it} + \beta X_{it} + \gamma D_{it} + \epsilon_{it}$$

Where y_{it} is the dependent variable, the subscript i signifies individual country and t refers to point in time. α is a constant, X is a vector of explanatory financial variables, D is a vector of explanatory labor market variables and ϵ is an error term assumed to be normally distributed. If the above context was implemented, then the constant α would have been the rate of growth of each dependent variable in Europe regardless of country, when explanatory variable is equal to zero. Coefficients of each explanatory variable would depict how much this variable impacts the rate of growth of the dependent variable.

In this thesis though, the aim is to examine how idiosyncrasies of each country affect the rate of growth of real GDP per capita and the growth of capital over labor ratio. Thus, the above model will not suit our causes and needs modification in order to capture the differences caused by the different characteristics of each country. The proper modelling for our cause would be a fixed effects approach as discussed earlier. In that context, the above model is transformed in order for country idiosyncrasies to be depicted on country specific intercept. In that respect the model is transformed to the following:

$$y_{it} - \bar{y} = \beta(X_{it} - \bar{X}) + \gamma(D_{it} - \bar{D}) + \delta(Z_{it} - \bar{Z}) + (\epsilon_{it} - \bar{\epsilon})$$

Where y is again the dependent variable, X is the explanatory variable of interest, D is the labor variable of interest, Z is their interaction term and ϵ is the normally distributed error term. The above model uses deviations from the mean in order to save degrees of freedom and achieve increased accuracy. Caution is needed in the interpretation of the model. In order to find the predicted value from the above one has to subtract the mean from an observation and multiply that residual with the relevant variable coefficient.

5 Results

In this section the results of the previously described models are given below. An examination of the impact of financial and labor market variables upon real GDP per capita is examined .

5.1 Results for Real GDP per capita

5.1.1 Aggregate Financial Activity Impact on Real per capita GDP

The variable of interest that is going to be examined is the aggregate financial activity in a country. In order to do so we elaborate five different model specifications. The basic strategy is to keep constant the financial variable and alter the labor market variable as well as their interaction. The first step is to check our variables for unit root. As it is usually the case with differenced variables like the ones used in this study, Unit root proved not to be a problem. Each model was checked with an F test against an OLS model with the same specifications, in order to secure that there are significant individual effects. The next step is to implement a Breusch-Pagan/ Wooldridge test for serial correlation in panel models. Finally, a Breusch-Pagan test for heteroscedasticity was implemented. Whenever the presence of heteroscedasticity is detected, heteroscedasticity consistent coefficients using the Arellano method are provided. The R statistical package was used for the computations..

As we can see from the following table, intercept for each country varies considerably. This is an expected behavior since the intercepts capture the country specific idiosyncrasies. One interesting conclusion from the examination of the fixed effects coefficients is that they provide evidence of convergence within Europe. As one can see by contradicting the coefficients by the level of real GDP per capita in 1980, the countries with the higher real GDP per capita in 1980, Denmark and Sweden, have consistently real GDP growth coefficients below the sample mean. Initially poorer countries have coefficients that are almost always larger than the average European growth rate, with Portugal showing the larger positive deviation. Spain also exhibits signs of convergence, while Greece seems to diverge rather than converge. United Kingdom and Finland also exhibit strong growth dynamics in every and each model.

Table 12: Fixed Effects for Total Finance models

| Country | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|---------|---------|---------|---------|---------|---------|
| AUT | -0.050 | 0.089 | -0.0001 | 0.097 | 0.089 |
| BEL | -0.174 | -0.107 | -0.059 | -0.025 | -0.051 |
| DEU | -0.286 | -0.241 | -0.076 | -0.05 | -0.281 |
| DNK | -0.146 | -0.388 | -0.271 | -0.209 | -0.420 |
| ESP | 0.142 | 0.137 | 0.155 | 0.198 | 0.080 |
| FIN | 0.413 | 0.367 | 0.348 | 0.401 | 0.41 |
| FRA | -0.333 | -0.140 | -0.237 | -0.147 | -0.150 |
| GBR | 0.307 | 0.133 | 0.041 | 0.15 | 0.169 |
| GRC | -0.216 | -0.107 | 0.121 | | -0.141 |
| ITA | -0.104 | -0.007 | 0.001 | | -0.007 |
| NLD | -0.130 | -0.120 | 0.181 | -0.137 | 0.052 |
| PRT | 0.941 | 0.578 | 0.444 | | 0.52 |
| SWE | -0.361 | -0.193 | -0.286 | -0.270 | -0.179 |

Each Value is a deviation from the overall mean

Table 13: The Impact of Aggregate Financial Activity

| Independent Variable | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|-----------------------------|--------------------|---------------------|-------------------|------------------|----------------------|
| Gross Cap | 1.135*** | 0.212*** | 0.266*** | 0.224*** | 0.233*** |
| Form. Gr | (0.109) | (0.028) | (0.011) | (0.025) | (0.026) |
| Gov.Cons. | -0.813*** | -0.436* | -0.352* | -0.67*** | -0.385* |
| % of GDP | (0.174) | (0.203) | (0.202) | (0.150) | (0.189) |
| Trade Growth | 0.017 | -0.039 | 0.037* | 0.013 | 0.043* |
| % of GDP | (0.021) | (0.014) | (0.020) | (0.021) | (0.012) |
| Fin. Growth | -0.03 | -0.002 | 0.001 | 0.002 | -0.001 |
| % of GDP | (0.005) | (0.003) | (0.003) | (0.002) | (0.036) |
| OECD Protection | -0.659 (0.389) | | | | |
| Unemployment Change | | -0.359** (0.116) | | | |
| Union Density | | | -0.075 (0.067) | | |
| Union Coverage | | | | 0.005 (0.043) | |
| Young Unemployment | | | | | -0.139*** (0.044) |
| Fin.Growth x OECD Prot | -0.016* (0.009) | | | | |
| Fin.Growth x Ch.Unem. | | -0.003** (0.001) | | | |
| Fin.Growth x Union Dens. | | | -0.003 (0.005) | | |
| Fin.Growth x Union Cov. | | | | 0.005 (0.04) | |
| Fin.Growth x Young Unem. | | | | | 0.00 (0.00) |
| Observations | 312 | 287 | 310 | 250 | 285 |

Heteroscedasticity Consistent Standard Errors in Parenthesis(Arellano Method)

Examining the coefficients of the models, one can extract some interesting conclusions. First, we have to notice that the macroeconomic variables of Government Consumption, Gross Fixed Capital formation and trade, enter in the regression with significant explanatory power and with the expected sign. The result of interest here is the interaction terms between financial activity and the labor market variables. As we can see, those interactions are not statistically significant except for the interaction between total financial internationalization growth and changes in the OECD employment protection index at the 10% level of significance. The coefficient of financial variables and their products in the study has to be interpreted with increased caution. The reason is that despite the fact that a coefficient is small in the models, the effect of the economic activity it catches can be quite larger. Initially, the coefficient of -.016 might seem of little economic impact but given that the mean growth rate of financial internationalization for

our group of countries was 14.52 this result in a loss of

$$14.52 \times -0.016 = -0.23 \text{ on average per year.}$$

Thus, moving down to the OECD Protection Index by 1, which requires a substantial reform towards more flexible labor markets, would have result in an increase of 0.23 for the growth rate. This finding is in line with the literature that claims labor market rigidities as the major culprit of the lower European growth rates and in that respect reinforces the arguments brought forward by Siebert (1997) and Eichengreen and Iversen (1999) regarding the negative impact of labor market inflexibility upon economic growth. Another interesting finding is that the effect of aggregate financial activity alone is not statistically significant. This might be an indication that financial internationalization is not as growth enhancing as it is commonly thought and is in line with the argument of Jagdish Bagwati that gains from financial globalization are more appreciated than proven. More over, this finding is in line with Kraay (1998) who failed to find any significant positive effects from financial internationalization to growth.

The significant result for the interaction of total financial activity and its interaction with unemployment suggests perhaps the importance of efficient labor markets. It is also an indication of the loss in an economy caused by unemployment. Assessing this cost the same way as with the OECD Protection Index above, by assuming average growth of financial activity and keeping unemployment constant, one can see that unemployment has an impact of

$$14.52 \times -0.003 = -0.043$$

Thus, lowering unemployment by 1% will increase real GDP per capita growth by 0.043. Considering that the average rate of growth for real GDP per capita in the period is approximately 2.1%, a gain of 0.043 is not to be neglected.

5.1.2 Equity Trade Impact on Real per capita GDP

When looking into the isolated impact of equity trade, one can see that the behavior of the variables does not change significantly since the interaction terms remain statistically insignificant. The only exception to that is the interaction term between equity and union coverage which turns out statistically significant. The sign of the coefficient however is not the expected one, since theory suggests a negative impact of union coverage but instead there is a positive interaction in the model. The interaction suggests that if an economy increases its union coverage to an additional 1% of the labor force and achieve the average rate of growth in equity trade, the country will increase its rate of real GDP per capita growth by

$$2.18 \times 0.005 = 0.01$$

One reason for that might be that increased union coverage comes along with increased job security, and thus enables savings kept as unemployment insurance to be channeled to the consumption and subsequently real GDP growth. Caution should be applied to this interpretation though since it has not been empirically tested and its validity is conditional to the extend that union coverage lowers to probability of unemployment and/or raises the available capital to be invested in stock markets.

Table 14: The Impact of Equity Activity

| Independent Variable | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|----------------------|----------|----------|----------|----------|----------|
| Gross Cap | 0.256*** | 0.214*** | 0.265*** | 0.234*** | 0.235*** |
| Form. Gr | (0.011) | (0.029) | (0.025) | (0.025) | (0.028) |
| Gov.Cons. | -0.400* | -0.428* | -0.354* | -0.66*** | -0.394* |
| % of GDP | (0.178) | (0.191) | (0.201) | (0.147) | (0.18) |
| Trade Growth | 0.034* | 0.039 | 0.034* | 0.017 | 0.042** |
| % of GDP | (0.014) | (0.010) | (0.013) | (0.016) | (0.013) |
| Equity Growth | 0.002 | -0.006 | -0.002 | 0.003 | -0.005 |
| % of GDP | (0.003) | (0.008) | (0.009) | (0.003) | (0.06) |
| OECD | 0.461 | | | | |
| Protection | (0.362) | | | | |
| Unemployment | | -0.374** | | | |
| Change | | (0.117) | | | |
| Union | | | -0.02 | | |
| Density | | | (0.058) | | |
| Union | | | | -0.014 | |
| Coverage | | | | (0.044) | |
| Young | | | | | -0.125** |
| Unemployment | | | | | (0.047) |
| Equity Growth | -0.020 | | | | |
| x OECD Prot | (0.28) | | | | |
| Equity Growth | | -0.011 | | | |
| x Ch.Unem. | | (0.007) | | | |
| Equity Growth | | | -0.005 | | |
| x Union Dens. | | | (0.008) | | |
| Equity Growth | | | | 0.005** | |
| x Union Cov. | | | | (0.001) | |
| Equity Growth | | | | | 0.002 |
| x Young Unem. | | | | | (0.001) |
| Observations | 312 | 287 | 310 | 250 | 285 |

Heteroscedasticity Consistent Standard Errors in Parenthesis(Arellano Method)

As we can see, equity internationalization does not seem to have a significant effect upon real GDP per capita. In that respect, the present study further contradicts the arguments in favor of financial internationalization. The finding is also in line with Levine and Zervos (1998) who suggest that stock market internationalization does not have a robust effect upon growth. The importance of efficient labor markets is further underlined by the fact that the two unemployment variables return statistically significant results and have quite large impact.

Table 15: Fixed Effects for Equity Trade models

| Country | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|---------|---------|---------|--------|---------|---------|
| AUT | 0.124 | 0.1 | -0.01 | 0.088 | 0.098 |
| BEL | -0.029 | -0.128 | -0.058 | -0.002 | -0.054 |
| DEU | -0.032 | -0.232 | -0.097 | -0.08 | -0.278 |
| DNK | -0.233 | -0.398 | -0.297 | -0.21 | -0.412 |
| ESP | 0.060 | 0.127 | 0.143 | 0.192 | 0.082 |
| FIN | 0.293 | 0.318 | 0.304 | 0.404 | 0.412 |
| FRA | -0.195 | -0.129 | -0.223 | -0.137 | -0.148 |
| GBR | 0.123 | 0.135 | 0.042 | 0.125 | 0.176 |
| GRC | -0.248 | -0.084 | 0.12 | | -0.135 |
| ITA | 0.038 | -0.013 | 0.015 | | -0.010 |
| NLD | -0.158 | -0.120 | -0.17 | -0.115 | 0.064 |
| PRT | 0.515 | 0.567 | 0.483 | | 0.53 |
| SWE | -0.258 | -0.167 | -0.273 | -0.255 | -0.169 |

Each Value is a deviation from the overall mean

A closer look into the country specific intercepts reveals that convergence within European countries is present when we substitute the financial variable of interest with portfolio internationalization. Moreover the country specific patterns remain present.

5.1.3 Impact of FDI on Real per capita GDP

The next financial variable of interest is Foreign Direct Investment. Here we can see that the one significant interaction term between labor and finance is the one for FDI growth and OECD protection index. This interaction turns out to be statistically significant at the 10% level, has a negative sign and considerable impact. It suggests that if we set FDI growth equal to zero and move down to the OECD protection index by one, the rate of growth of real GDP per capita will increase by 0.119. This is a large impact given that the average rate of growth in international flows of FDI was 3.23 which means that if a country achieves that rate of growth of FDI transactions and reform its labor market to less rigid, its real GDP per capita will increase on average by

$$3.23 \times 0.119 = 0.38$$

This is a substantially large impact and it is so far the only indication of a positive impact of capital opening to economic growth. It is also indicative of the channel through which any impacts of financial internationalization would affect economic growth in an economy. The finding here is in line with the arguments posed by Quinn (1997) as well as with the arguments posed by Siebert (1997); Eichengreen and Iversen (1999) of the importance of labor rigidities as obstacles to economic growth and for the importance of capital account openness.

Table 16: The Impact of Foreign Direct Investment Activity

| Independent Variable | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|-----------------------------|-------------------|--------------------|--------------------|-------------------|---------------------|
| Gross Cap | 0.256*** | 0.215*** | 0.265*** | 0.234*** | 0.232*** |
| Form. Gr | (0.025) | (0.029) | (0.025) | (0.024) | (0.028) |
| Gov.Cons. | -0.405* | -0.416* | -0.611*** | -0.66*** | -0.394* |
| % of GDP | (0.18) | (0.189) | (0.20) | (0.147) | (0.177) |
| Trade Growth | 0.0264 | 0.034 | 0.027 | 0.008 | 0.034* |
| % of GDP | (0.018) | (0.015) | (0.017) | (0.02) | (0.018) |
| FDI Growth | 0.017 | 0.012 | 0.016 | 0.016 | 0.016 |
| % of GDP | (0.012) | (0.01) | (0.012) | (0.013) | (0.012) |
| OECD Protection | 1.057* (0.507) | | | | |
| Unemployment Change | | -0.414** (0.13) | | | |
| Union Density | | | -0.023 (0.06) | | |
| Union Coverage | | | | -0.021 (0.053) | |
| Young Unemployment | | | | | -0.157** (0.049) |
| FDI Growth x OECD Prot | -0.119* (0.04) | | | | |
| FDI Growth x Ch.Unem. | | 0.005 (0.009) | | | |
| FDI Growth x Union Dens. | | | -0.0005 (0.004) | | |
| FDI Growth x Union Cov. | | | | 0.008 (0.008) | |
| FDI Growth x Young Unem. | | | | | 0.007 (0.002) |
| Observations | 312 | 287 | 310 | 250 | 285 |

Heteroscedasticity Consistent Standard Errors in Parenthesis(Arellano Method)

Examining the remaining of the coefficients, we can see that they retain the general behavior eminent in the previous models. Namely, interaction variables are insignificant and unemployment variables are significant and with a large impact which only adds to the robustness of the results regarding efficient labor markets. When examining the country specific fixed effects we can see that the general pattern of convergence prevails also here.

Table 17: Fixed Effects for Foreign Direct Investment models

| Country | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|---------|---------|---------|--------|---------|---------|
| AUT | 0.157 | 0.11 | -0.04 | 0.132 | 0.121 |
| BEL | -0.160 | -0.193 | -0.148 | -0.007 | -0.221 |
| DEU | -0.019 | -0.219 | -0.069 | -0.04 | -0.268 |
| DNK | -0.219 | -0.408 | -0.291 | -0.214 | -0.417 |
| ESP | 0.077 | 0.162 | 0.148 | 0.216 | 0.125 |
| FIN | 0.301 | 0.378 | 0.319 | 0.418 | 0.438 |
| FRA | -0.239 | -0.150 | -0.245 | -0.152 | -0.154 |
| GBR | 0.135 | 0.124 | 0.055 | 0.122 | 0.166 |
| GRC | -0.135 | -0.054 | 0.16 | | -0.078 |
| ITA | 0.1 | 0.03 | 0.05 | | 0.04 |
| NLD | -0.203 | -0.164 | -0.22 | -0.133 | -0.140 |
| PRT | 0.54 | 0.566 | 0.493 | | 0.545 |
| SWE | -0.275 | -0.187 | -0.270 | -0.158 | |

Each Value is a deviation from the overall mean

Table 18: The Impact of Debt Activity

| Independent Variable | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|----------------------|----------|-----------|----------|-----------|----------|
| Gross Cap | 0.255*** | 0.21*** | 0.264*** | 0.235*** | 0.231*** |
| Form. Gr | (0.023) | (0.027) | (0.022) | (0.025) | (0.026) |
| Gov.Cons. | -0.388* | -0.422* | -0.350* | -0.649*** | -0.366* |
| % of GDP | (0.18) | (0.209) | (0.188) | (0.152) | (0.199) |
| Trade Growth | 0.04* | 0.042*** | 0.04* | 0.019 | 0.046** |
| % of GDP | (0.016) | (0.012) | (0.015) | (0.018) | (0.015) |
| Debt Growth | 0.006 | -0.006 | -0.001 | -0.001 | -0.006 |
| % of GDP | (0.006) | (0.005) | (0.08) | (0.005) | (0.005) |
| OECD | .0644* | | | | |
| Protection | (0.362) | | | | |
| Unemployment | | -0.379*** | | | |
| Change | | (0.106) | | | |
| Union | | | -0.093 | | |
| Density | | | (0.08) | | |
| Union | | | | 0.028 | |
| Coverage | | | | (0.046) | |
| Young | | | | | -0.144** |
| Unemployment | | | | | (0.038) |
| Debt Growth | -0.027 | | | | |
| x OECD Prot.Chang | (0.021) | | | | |
| Debt Growth | | 0.003 | | | |
| x Ch.Unem. | | (0.002) | | | |
| Debt Growth | | | 0.01 | | |
| x Union Dens. | | | (0.007) | | |
| Debt Growth | | | | -0.002 | |
| x Union Cov. | | | | (0.002) | |
| Debt Growth | | | | | 0.009 |
| x Young Unem. | | | | | (0.1) |
| Observations | 312 | 287 | 297 | 250 | 285 |

Heteroscedasticity Consistent Standard Errors in Parenthesis(Arellano Method)

5.1.4 The Impact of Debt upon Real GDP per capita

The next financial variable that the study takes into consideration is debt assets and liabilities as a percentage of GDP. The interaction terms of debt with labor market variables were found to be statistically insignificant. This outcome only adds to the previous conclusions that there are no significant combined effects of financial internationalization and labor market rigidities upon the economic growth of Europe. Moreover, the coefficient for debt financing alone turns out statistically insignificant further reinforcing the notion of no impact of debt upon the economic growth rates of European countries. The negative sign of the debt coefficient suggests that there might be a negative impact of debt on real GDP per capita, a conclusion in line with previous research like Pattillo et al. (2004); Easterly (2001) who documented a negative impact of debt

upon real GDP per capita, albeit for poor and middle income countries.

Table 19: Fixed Effects for Debt Activity models

| Country | Model 1 | Model 2 | Model3 | Model 4 | Model 5 |
|---------|---------|---------|--------|---------|---------|
| AUT | 0.120 | 0.89 | 0.02 | 0.085 | 0.096 |
| BEL | -0.007 | -0.102 | -0.043 | 0.008 | -0.038 |
| DEU | -0.049 | -0.232 | -0.062 | -0.067 | -0.272 |
| DNK | -0.229 | -0.398 | -0.258 | -0.203 | -0.432 |
| ESP | 0.046 | 0.138 | 0.140 | 0.171 | 0.064 |
| FIN | 0.274 | 0.372 | 0.318 | 0.406 | 0.396 |
| FRA | -0.197 | -0.152 | -0.251 | -0.152 | -0.156 |
| GBR | 0.176 | 0.150 | 0.047 | 0.149 | 0.197 |
| GRC | -0.274 | -0.114 | 0.132 | | -0.142 |
| ITA | 0.008 | -0.022 | 0.015 | | -0.017 |
| NLD | -0.115 | -0.105 | -0.12 | -0.123 | -0.029 |
| PRT | 0.527 | 0.584 | 0.435 | | 0.53 |
| SWE | -0.28 | -0.208 | -0.306 | -0.274 | -0.196 |

Each Value is a deviation from the overall mean

5.2 Robustness of the results

In order to examine the power of the above results, datasets that include different countries were created. This was done in order to examine if a country has an extreme impact on the coefficients and thus contaminates the results. The first step was to drop the observations for Italy, Portugal and Greece. Under this specification, the results did not show large alterations when compared to the whole sample. The main alteration was that the coefficient of the interaction for Foreign Direct Investment and OECD protection became larger (-.143) and gained in significance. When Spain was also dropped from the data set the coefficient moved towards a even greater impact(-.151). None of the other interaction coefficients became significant. When the subgroup of countries with French legal origin is considered, the same tendency remains but the coefficient of interaction of FDI with OECD labor protection becomes -.112 and remains significant at the 5% level. Also, in that sample the coefficient of interaction for total portfolio equity with union coverage is found to be statistically significant and positive with a size of 0.005. It is evident from the above that the initial results are quite robust when tested on different country groups.

5.3 Summary

Concluding the examination of the results regarding Real per capita GDP, the study has found some limited evidence of interaction between financial internationalization and labor market variables that have a significant impact upon real GDP per capita. The main interrelation seems to lie in to the interaction of the OECD Protection Index with Foreign Direct Investment. The interaction terms of the proxies destined to capture the impact of those markets, have turned out statistically significant but only in the 10% level.

Given the enormous volatility of the international financial markets, the economic impact of potential interactions can be quite significant. The lack of statistical significance though might be as well a result of the rigid labor markets. Given that rigid labor market poses little variation by definition since this was the aim of their institution, it might be this lack of variation that in turn causes econometric models to return insignificant coefficients. It might be the case that if in the future the countries reform their labor markets towards more flexible models, and the new data is incorporated into the model, the coefficients might turn statistically significant.

6 Conclusion

This study has tried to provide some insights in the interaction of financial market internationalization and labor market structure. The major focal points of the study were to examine the combined impacts of financial and labor markets upon real GDP per capita as well as upon capital to labor growth. The findings suggest that there might exist only a limited impact. A combined effect of internationalization of finance, capital account opening and labor market rigidities in Europe for the period 1980-2004 was not evident in the present study. Regarding the impact upon real GDP per capita, only the interaction between Foreign Direct Investment and OECD protection was found to have a substantial effect. Obviously, if there is an interrelation between labor markets and financial markets it seems to be through the channel of Foreign Direct Investment. If this is true, then reforming substantially a labor market towards a more flexible model might indeed produce gains in real GDP per capita. Evidence from the present study found only limited support for the claim that financially open countries can enhance their growth rates more than financially closed ones. There is not enough evidence for such an effect taking place in European Union in the period under consideration. In that respect, the study casts doubts to the conventional wisdom that claims financial openness as a source that enhances economic growth. Moreover, the European rigid markets do not seem to hinder the effects of finance from taking place. This is not to say that closed financial markets would have performed better.

A second conclusion is that idiosyncrasies continue to matter a lot inside Europe, and sometimes they can have the larger impact on the sign and size of real GDP per capita change. The present study also offers a reinforcement to the claim that convergence happened in Europe during the period. As it is evident from the examination of the fixed effects coefficients, that poor countries show the tendency to grow faster than those that were rich in 1980, albeit with some exceptions.

Despite the above, one has to remember that the present results are highly unlikely to be universal. Examining other sets of countries is almost certain to produce different results. One reason for this is the European labor markets which are unique in their nature and in their employee protection spirit, that give them their characteristic institutional stability. Applying the methods in turbulent labor markets will almost certainly produce different results and might as well prove interaction effects present.

6.1 Further Research

The examination of finance internationalization and its interaction with labor markets is still an uncharted area. There is room for much exploration. The present study took just a quick look in only a part of it. Future research could focus on to the compound effect of more interrelationships. Room for improvement exists with the elaboration of higher order interactions. The existence of nonlinearities and structural breaks shall also attract interest, as well as the impact of financial crises like the contemporary one.

Other areas of interest might as well be the channels through which financial internationalization and labor markets affect real GDP per capita. Up to now the author is aware of studies that look either into the one element or into the other. Clearly, the mechanics of the interaction might be as interesting as the interaction itself or as it is usual, even more.

Regarding the evidence of convergence within Europe, the question of its mechanics is of extreme interest. Knowing how this convergence happens, if it is a result of factor accumulation or productivity gains, is of great use for the future of the European Union.

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