

Varieties of Capitalism within Telecommunications Policy: The Case of Broadband Diffusion in Denmark, Austria, Canada and Ireland

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Abstract

In the studies about Broadband diffusion, a rich debate has arisen over which policies are most effective in driving successful diffusion within a country. These studies offer different policy recommendations to Governments that are argued to further the diffusion process of Broadband. However, these policy recommendations appear to be based more on ideological reasons than serious analysis of the real world at times. Preliminary data of successful broadband penetration demonstrates that it is not possible to establish clear policy recommendations that would consistently prove successful. Specifically, empirical evidence shows that countries with similar institutions and public policies reached different diffusion outcomes and countries that chose different policies achieved similar diffusion results.

Using a Varieties of Capitalism approach, it is suggested that there may not be one single policy recommendation that will produce long-run and successful broadband diffusion. Depending on institutional conditions, each country's success in broadband diffusion relies on policies constructed according to their comparative institutional advantages. The hypothesis behind this research is that a high degree of political will and involvement with these policies will allow both (Market-Policies and Coordination-Market Policies) to reach a successful broadband diffusion. To test this hypothesis, countries belonging to Coordinate Market Economies (CME) and Liberal Market Economies (LME) are analyzed.

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INTRODUCTION

In general, Governments are interested in innovation¹ as a way towards success in the New Society based on Knowledge. Therefore, the European Commission has declared innovation a priority for EU economies in the European Council of Lisbon: “to become the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion” (European Council of Lisbon: 2000). How does broadband² fit into this mission? Some reports have pointed out that broadband applications can be very important in the near future. For instance, it will be very important for Telemedicine, Government Services, education, e-Commerce and e-Business. (US Commerce Office: 2002). However, the diffusion of broadband technology has been slow and lower in OECD countries in comparison to other technologies like the Internet (Umino: 2002). Some studies have shown that broadband diffusion is not correlated with GDP in OECD countries (Kim; Bauer; Wildman: 2003), as we would expect. Therefore, this study seeks to look beyond economic factors by bringing other possible explanations into the debate. Specifically, the importance of institutions³ and political factors are analyzed.

However, when we observe the diffusion of an innovation through measures such as the number of broadband users, we observe that institutional variables do not offer a strong explanation for the differences between countries. We can see some similar countries, in institutional terms, such as those that fall within the continental European model, with high numbers of users—for example the Netherlands (25,2%)—and others with a low number of broadband users—Germany (14%). Taking into account institutional differences, as in the Varieties of Capitalism (VoC) approach (Hall and Soskice: 2002), countries which belong to Liberal Market Economies (LME) both reached more successful diffusion, like Canada (21%), or failed, like Ireland (7%) or New Zealand (8%). At the same time, countries which belong to Coordinated Market Economies (CME) were successful, like Denmark (25%), and also failed, like Austria (14%) or Germany (13%). So, if similar broadband policies cannot explain the difference in levels of success, what does explain this paradox?

¹ We have two definitions of innovation. First, the successful exploitation of new ideas (Department of Trade and Industry, UK). Second, the creative force of humankind that allows the progress of the world to advance (World Innovation Foundation - www.thewif.org.uk). Innovations are intended to make someone better off, and the succession of many innovations grows with the whole economy. The term innovation may refer to both radical or incremental changes to products, processes or services. In economics, business and government policy, this is something new in the sense that it must be substantially different and not an insignificant change. In economics, the change must also increase value, customer value, or producer value.

² Broadband in general electronics and telecommunications is a term that refers to a signal or circuit that includes or handles a relatively wide range of frequencies. Broadband is always a relative term, understood according to its context. The wider the bandwidth, the more information can be carried. In radio, for example, a very narrowband signal will carry Morse code; a broader band will carry speech; a yet broader band is required to carry music without losing the high audio frequencies required for realistic sound reproduction. A television antenna described as "normal" may be capable of receiving a certain range of channels; one described as "broadband" will receive more channels. In data communications a modem will transmit a bandwidth of 64 kilobits per seconds (kbit/s) over a telephone line; over the same telephone line a bandwidth of several megabits per second can be handled by ADSL, which is described as broadband (relative to a modem over a telephone line, although much less than can be achieved over a fibre optic circuit, for example).

³ According to North's (1990:3) definition, we define institutions as "a set of rules, formal and informal, that actors generally follow, whether for normative, cognitive, or material reasons, and organizations as durable entities with formally recognized members, whose rules also contribute to the institutions of the political economy". Historical institutionalism understands institutions as formal rules, procedures and the general operative practices that structure the relationships between individuals in different units of the state and the economies. The main emphasis is the relational dimension of the institutions; in other words, the way in which institutions structures the interpersonal relationships (Hall: 1986).

In our empirical example we have distinguished between successful countries in broadband diffusion –considering only the first 25% countries at the broadband user’s ranking- and in another group the rest of countries –from 26 to 100%- as unsuccessful cases of broadband diffusion. As a result, we have two groups of countries, a group of 9 successful cases and another of 21 unsuccessful countries. The criteria would be polemic because we are taking an extreme position, but it would be useful to distinguish the first countries of broadband in number of users.

FIG.1. BROADBAND USERS PER CÁPITA AND GDP IN OECD COUNTRIES, 2004

Broadband Diffusion	Position	Countries	% Broadband Users 2004	BIAP ⁴ (2001-2005)	GDP per capita ⁵	Population	Area Km2	Density of Population
Successful 1-25%	1	Iceland	26,66455	2,05	32600	294,561	103,000	2,9
	2	Korea	25,354	5,75	20900	47,816,940	99,538	480
	3	Netherlands	25,27852	5,3	31100	16,299,170	41,528	392
	4	Denmark	24,9938	5,15	31600	5,430,590	43,094	126
	5	Switzerland	23,05821	5,3	33600	7,252,331	41,284	176
	6	Finland	22,46284	5,3	30600	5,249,060	338,145	15.5
	7	Norway	21,92912	5	38700	4,620,275	385,155	12
	8	Canada	20,99365	3	31500	32,268,24	9,970,61	3,2
	9	Sweden	20,3469	3,7	30400	9,041,262	449,964	20

⁴Broadband average increase during the period 2001-2005

⁵ (USD PPP, 2004)

Non- successful 26-100%	10	Belgium	18,26396	N.A.	30900	10,419,05	30,528	341
	11	Japan	17,63303	3,8	29600	128,084,7	377,873	339
	12	United States	16,80248	3,1	39700	298,212,9	9,629,09	31
	13	United Kingdom	15,94368	3,8	31400	59,667,84	242,900	246
	14	France	15,22354	3,5	29600	60,495,54	551,500	110
	15	Luxembourg	14,90199	3,65	57500	464,904	2,586	180
	16	Austria	14,12896	2,6	31700	8,189,444	83,858	98
	17	Australia	13,77826	3,2	30200	20,155,13	7,741,22	2,6
	18	Germany	12,97754	2,7	28500	82,689,21	357,022	232
	19	Italy	11,86426	2,5	27700	58,092,74	301,318	193
	20	Spain	11,69844	N.A.	25600	43,064,19	505,992	85
	21	Portugal	11,51686	2,6	19400	10,494,50	91,982	114
	22	New Zealand	8,104998	1,85	23900	4,028,384	270,534	14.9
	23	Ireland	6,668802	1,7	35800	4,147,901	70,273	59
	24	Czech Republic	6,368179	1,6	18500	10,219,60	78,866	130
	25	Hungary	6,327285	1,5	15900	10,097,73	93,032	109
	26	Slovak Republic	2,487738	N.A.	14300	5,400,908	49,033	110
	27	Poland	2,351124	0,6	12600	38,529,56	312,685	119
	28	Mexico	2,215895	0,52	10100	107,029,4	1,958,20	55
	29	Turkey	2,131246	0,52	7700	73,192,84	783,562	93
	30	Greece	1,405633	0,4	21500	11,119,89	131,957	84
	31	OECD	13,55084	2,7	21500			
	32	LME	13,8	2,8				
	33	CME	20,1	4,3				

Source: OECD

1. Our main question: What do we want to explain? Why is the question theoretically important?

According to the VoC approach, liberal public policies are not the only blueprint for finding successful solutions to policy issues, such as unemployment or inflation. Rather, Soskice and Hall (2002) argue that there are different ways to deal with unemployment and inflation and create social policy that can all yield successful outcomes. The key is that these policies be created on the basis of each economy's respective mechanism, whether this mechanism is based on a liberal market or a coordinated market.

However, different policies have produced similar outcomes in broadband diffusion in terms of users per capita. We need to know more about under what conditions liberal market-policies

and coordinated-market policies produce successful outcomes in broadband diffusion and under what conditions these policies produce unsuccessful outcomes.

Therefore, our main question in this paper after analyzing the empirical evidence about the broadband penetration in OECD countries is the following: Under what institutional conditions do liberal market-policies and coordinated-market policies drive countries towards successful broadband diffusion?

This question is theoretically and empirically relevant for the following reasons:

1. From a theoretical point of view, this question is connected to both Public Policy and Political Economy. Since the Varieties of Capitalism essay was published in 2002, it has generated an important discussion about the persistence of political institutions in a period characterized by the internationalization of the economy and the convergence towards a common model in institutions, social welfare and public policies. Briefly, the authors support the idea that different types of policies achieve the same results. Indeed, they defend the right of States to keep their own policies in a context of the globalization of markets and technologies. On the other hand, other authors think that globalization mandates all Governments to adopt policies based on a free-market orientation and that this is the only way to reach success (Thatcher: 2005). Within the broadband public policy debate, when authors are proposing the most effective broadband public policy, they are defending the idea that one public policy is better than another.

2. This question is highly relevant in the real world as well, however, as it addresses a real world problem: Policy-makers try to maximize the results of the policies implemented by them. So, it is important to know which institutional and political conditions enabled the policies to be successful and which conditions were not conducive to success. We believe that understanding the institutional context can help policy-makers to better manage public finances and political resources. In this sense, to be useful for policy-makers is the final proposal of this work, especially in regards to types of policies as complex as broadband policies.

2. Theoretical framework

2.1 Institutions, type of Innovation and Public Policy-Making

2.1.1 Comparative Institutional Advantage and Innovation

More recently, Hall and Soskice have analyzed how companies solve their problems of coordination across countries in Varieties of Capitalism Varieties of Capitalism: The Institutional Foundations of Comparative Advantage (2002) in different dimensions of the political economy such as industrial relations, education and training systems, systems of corporate governance, inter-firms relations and problems of coordination between employees. These all serve as useful examples of the existence of Varieties of Capitalism. They make a distinction between Liberal Market Economies (LME) including the United States, Canada, Australia, New Zealand, Ireland, and the United Kingdom and Coordinated Market Economies (CME) including Germany, Japan, Switzerland, the Netherlands, Belgium, Sweden, Norway, Denmark, Finland and Austria.

In the discussion of innovation, the authors point out that each country has a different way to innovate based on their comparative institutional differences that promote different types of innovation. Basically, they talk about two types of innovation: 1) Radical Innovation and 2) Incremental Innovation.

1. Radical Innovation entails a substantial shift in product lines, the development of new goods, or major changes in the production process. This type of innovation is very important in fast-moving technology sectors, which require development based on research in biotechnology, semiconductors and software and the development of complex system-based products such as telecommunications and defense systems. It requires a capacity for taking risks on new products and strategies, as well as rapid implementation of these strategies.

2. Incremental Innovation is characterized by small scale of improvements to existing product lines and production processes. It is important for maintaining competitiveness in the production of capital goods: machines tools, factory equipment, consumer durables and specialized transport equipment.

In the case of LME countries, the institutional framework is oriented toward radical innovation while in countries classified such as CME it is possible to observe institutional frameworks that are oriented towards incremental innovation (Hall and Soskice: 2002). LME, with high rates of labor market mobility, few restrictions of layoffs, equity markets with dispersed shareholders and few restrictions on mergers, and corporate organization, facilitate the implementation of new business strategies for senior management through a complex system of goods and services. Finally, inter-firm relationships are based on markets and the capacity of firms to buy other companies, to poach their personnel and acquire new technologies quickly. By contrast, incremental innovation is more feasible in a framework where corporate organization provides workers with secure employment and autonomy from close monitoring, while dense inter-corporate networks facilitate the gradual diffusion of technology, making it difficult for firms to gain access to the newest technologies. *Corporate Structures*, characterized by strong worker representation and consensual decision-making inhibit radical innovation of the firm more difficult. The skill system provides workers with high levels of industry-specific skills, and where close inter-firm cooperation encourages clients and suppliers to make incremental improvements.

2.1.2 Political Regime and Public Policies

According to Wood (Hall and Soskice: 2002), economic policies will be effective only if they offer comparable incentives. So, in LME, where the coordination is secured through market mechanisms, better economic policies are those that increase the market competition. In contrast, the more the CME reinforce the capacities of non-market coordination actors, the better the policies will be. His work lets us distinguish between: "market incentive policies" and "coordination-oriented policies". Market incentive policies attempt to improve the competency of the firms, such as skill levels and technological capabilities with relative precision. In contrast, coordination-oriented policies are based on high levels of information about the activities of the firm. Wood has pointed out that firms are reluctant to share information with governments whose positions are powerful and unpredictable, because there is a risk that the government may use information against the interest of the firm. The transaction cost of coordinating with firms could be very high for governments. So, this policy-making is used to characterize information asymmetries, high transaction costs and time-inconsistency problems. However, the governments of coordinated market economies use strong business associations, trade unions and other organizations to solve these problems. The position of these organizations, independent of the possibility that the government may sanction their members, allows them to reply to the policy demands of governments with low transaction costs. At the same time, Wood says that agreements will be more credible if the relevant producer groups have enough power to punish governments for their deviations. In case of countries, such as those of the Westminster model where a lot of power is concentrated in the executives or where producer groups have very limited power inside political parties, producer groups may be less willing to participate in policy-making with governments. This is due to the fact that producer groups do not have enough influence to sanction governments for their deviations. This is the case of liberal market economies.

In general we can say that the structure of the economy encourages different types of investments. Non-specific Assets in liberal market economies while coordinated market economies encourage investments in specific and co-specific assets with their dense network. Political regimes characterized by coalition governments, multiple veto players and parties that represent the power of producer groups may be conducive to investments in specific assets rather than those that concentrate power in a highly autonomous party leader. This is due to two mechanisms: 1. Coordinated market regimes use different actors to coordinate private actors; 2. Institutional frameworks in CME provide producers with more influence on the government and the capacity to punish it in case of deviation of its agreements. So, this type of regime offers more assurance to investors that policies will not change the value of assets.

2.1.3 Globalization, Policy-Makers and Public Policies

According to Varieties of Capitalism theory, governments react in a different way in CME than in LME under the pressures of globalization. In LME, business groups take into account the intensity of international competition to pressure governments to deregulate. Governments are usually friendly to these kinds of measures in order to keep the comparative advantage of their economy based on market mechanisms. Labor groups can offer some resistance, but not much in this type of a political economy. So, businesses can push measures of liberalization with weakness labor unions. In CME, governments are less sympathetic to deregulation because it can erode their comparative institutional advantages. In this type of economy, firms and trade unions share the common interest to defend specific assets and industry specific skills. So, nations remain within their institutional frameworks in order to keep their comparative advantages in spite of globalization.

However, when analyzing the liberalization of telecommunications in countries with a different institutional set (Great Britain, France, Italy and Germany) from 1960 to 2002, Thatcher (2005) finds that all these countries have deregulated their telecommunications industry and their institutional advantages have only been kept in those moments of the time. According to this author, under pressures of globalization, all countries are following the same type of policies.

2.2 Broadband literature review

2.2.1 Market-Oriented Policies in Broadband

Many economists, studying broadband penetration across countries, have pointed out that the “market failure” and the lack of incentives are the key factors in explaining the slow penetration of broadband, not only at a country level, but also within rural areas and low income areas (Crandall, 2003; Umino, 2003). Both of these authors agree that prices of broadband subscription are an important mechanism of broadband diffusion. However, their recommendations are quite different. Crandall has suggested that a free market policy approach is necessary to overcome the digital divide in broadband, while Umino has recommended a moderate State intervention to avoid price distortion (Umino: 2002).

2.2.2 Coordinate-Market Policies in Broadband and its empirical evidence

In contrast, other studies have paid attention to the political conditions that facilitate broadband diffusion. Their conclusion is that the key to success is intensive and extensive cooperation between public and private players, in which governments act as a leader, and in a context of high competition and low prices (Choudrie, Papazafeiropoulou and Lee, 2003; Frieden, 2005). Also, more successful nations have a specific mission and goals in

Information Communication Technologies (ICT). Also, these nations have created legal frameworks at the macro-level, which create incentives to take risks in innovation projects and penalize strategies like litigation or strategies that delay the projects. At the micro-level, they have created infrastructures in geographically unattractive places (Frieden: 2005). Finally, favorable public opinion could be important to support the role of the government in the process (Choudrie, Papazafeiropoulou and Lee (2003).

In regards to public policies, some authors have described the types of broadband policies in OECD countries. For instance, Umino (2002) distinguishes three basic types of public policies: 1. supporting financially telecommunications providers; 2. owning the infrastructure and leasing it to telecommunications providers or end users, and 3. allowing the private market mechanism to work. Other authors, such as Walsten (2005), focused their research between national and State government and have established the following typology:

1. Regulation Policies (access to the Right of Way); 2. Subsidies; 3. Networks constructed by the States 3. Aids for rural area development; 4. Unbundling (these policies are oriented toward competition). Walsten's (2005) data pointed out two things: on the one hand, policies in broadband at the State level were less effective than policies at the federal level. On the other hand, policies of regulation, access to the Right of Way, have been the most efficient to facilitate broadband diffusion.

The last but not least important are the path dependence phenomena found in broadband deployment. Some governments in developed countries had slowly adopted infrastructures in the past, when they were considered an innovation. As a result, these governments have not presently adopted broadband initiatives because they have just adopted a similar infrastructure. So, this factor would explain in some cases the lack of correlation between per capita income and adoption of broadband policies (Bauer, 2003).

Other authors have suggested that nations successful in broadband penetration have implemented mixed-policies for broadband diffusion. These mixed-policies consist of an adequate regulation joined with supply and demand policies (Frieden: 2005; Kosmidis: 2002). Frieden analyzes the role of mixed regulation and investment initiatives on successful broadband penetration in nations with different geographical, political and market conditions: Canada, Korea and Japan. He discovers that in the three nations examined, the government plays an important role by encouraging private businesses and foreign companies to invest in technology and creating a positive and transparent environment for business. These laws consist of creating incentives for risk taking and innovation, while penalizing litigation and strategies that delay investment in capital-intensive projects. Also, he points out in his study that the best practices are those that the government calibrates the scope of its intervention to the degree of market stimulation required. Other policies, based on government subsidization, demand aggregation and sponsored pilot projects can not achieve this goal. Finally, the Governments of Canada, Japan and Korea implemented programs with a specific mission and an articulate vision of public and private sector beneficiaries. Examples of these programs are creating public and private funding with private initiatives that aggregate demand and installing ICT in geographically unattractive areas (Frieden: 2005). Kosmidis (2002) examines the low broadband diffusion in the US and some EU countries in which many small and medium enterprises (SMEs) are reluctant to invest in broadband. She argues that the government should play a more active role as a creator of a neutral regulatory environment that strives for long-term investment; as well as play a role as a stimulator of the demand through public access points--schools, public administration and public hospitals—in rural and low-income areas. At the same time, the government should encourage partnerships between different levels of government.

Other authors have established flexible criteria, based on the type of goods to calibrate the State intervention policies in broadband. In those situations in which it is possible to find private goods and club goods, the role of the government would be better focused on

demand and aggregation initiatives. In other situations with (predominant public goods again, not sure of what you mean with your goods differentiation), another type of intervention would be more effective (Bauer, Gai, Kim, Muth and Wildman: 2002).

2.3 Theoretical contribution. What is our key argument?

Our contribution to the literature both on broadband diffusion and Varieties of Capitalism is to analyze institutional conditions that can explain successful outcomes of both liberal market-policies and more coordinated-market policies. We have seen before that both public policies can result in success, but they do not always do so. We hypothesize that political will, understood as a government having a broadband strategy, and its coherency which is determined by the cost of policies, organizational visibility, degree of institutional innovation and complexity of the policies in actor terms, can be important in explaining the success of different types of policies in each context. If the government has a high political will, the public policies will be successful. Otherwise, if the government has not the political will, the public policies will not be conducive to a successful broadband diffusion.

On the one hand, our contribution will further the Varieties of Capitalism argument because we are exploring those institutional conditions that facilitate public policies leading to a successful outcome. At the present, VoC research has established the distinction of two types of capitalism. Others have criticized that under the conditions of globalization, these categories disappear because countries are all making the same policies (Thatcher: 2004). Besides this debate, the theory still needs a contribution about which institutional conditions allow public policies to achieve the same goal. On the other hand, our paper contributes to the broadband public policy literature by discussing new elements that have not been taken into account in the previous literature. As we have pointed out, we believe that exploring institutional conditions can be important not only for broadband diffusion at present but also for broadband diffusion in the future.

3. Methodology

3.1 Our dependent variable

Our main dependent variable is success in broadband diffusion. We understand success as a final outcome. When we talk about success as a final outcome, we put a special emphasis on the end of the period. To operationalize our variable, we will use broadband per capita index. This index has been usually used in the literature about broadband diffusion (Leer, Sirbu, Fountain, 2003; Umino, 2002; Oh Am Kim, 2003; Choudrie 2003; Bauer, 2003) and Internet diffusion as well (Hargittai: 1999; and Norris: 2000; Fountain: 2002; ITU: 2002; ITU 2002; Milner: 2003; Kitsing, 2004).

In the ranking of broadband users in OECD countries in 2005 (fig. 1), we have created two groups of countries. On the one hand, we have created the successful broadband countries – taking into account the 25 % that of the ranking from the first to the last-. As a result, we have obtained 9 countries. These countries are the successful cases. The rest of countries, 75% of cases, are the unsuccessful countries in broadband diffusion.

Therefore, our dependent variable is dichotomous:

0. Unsuccessful Countries in Broadband Diffusion

1. Successful Countries in Broadband Diffusion

The 25% countries of our distribution are classified with the value 1, while the cases whose value is situated between the ranking between 26% and 100%, they have the value 0.

3.2. Independent Variables

Our study tries to explain the different outcomes of types of broadband diffusion policies implemented by the Governments. Our main independent variable is: the political will of the government. To measure this variable, we will use different dimensions:

- Priority of the broadband policy for the government. We can establish the level of prioritization of this type of policy by analyzing statements and plans.
- Coherency of the strategy: some strategies may be found in an official government statement regarding the broadband policy. The coherency of the plan is judged according to the feasibility of the goals, availability of economic and institutional resources and previous experience. For instance, if a government failed in Internet development in the past, plans for broadband diffusion should take into account the conditions that contributed to the failure.
- Cost of the policies: Another indicator to measure the priority of this type of policy for the government is the cost per capita of broadband initiatives. We will measure the cost as \$ expenditure per capita.
- Visibility in the structure of the government: This refers to the importance broadband diffusion is given within the government as judged by the location of its location within the government. For example, some governments put broadband administration under the Trade and Industry Minister, which is one of the most important ministries of the government. In contrast, other governments put broadband under less important departments.
- Institutional Innovation. To measure the degree of institutional innovation, we use the proxy of good practices in the creation of institutions and special norms, for example, the creation of consultancy organizations that facilitate decision-making for the government or a special regulation of the role of actors in this decision-making process.
- Complexity of the policy coordination. We will measure the complexity of policy coordination with the number of actors and the nature of actors that are involved in the broadband policy.

3.3 Control Variables

As a control variable we will focus on size of the country and population density. We believe it is important to take into account this variable for two reasons. On the one hand, population density would be important in the sense that the cost to create broadband connections will be lower to ICT companies in a country with high population density than in a country with low population density. Some contributions centered on the case of Korea have confirmed this relationship by pointing out that the population density could be an important element to a high level of broadband development (Choudrie, Papazafeiropoulou and Lee 2003). On the other hand, by comparing Canada, Japan, Korea and the United States, Frieden (2005) found that the small size of a country can also be an advantage to broadband diffusion because geographically smaller countries high incomes do not need to create a fund for rural and low-income areas

3.4 The hypotheses

Our hypotheses in this paper are the following:

1. Under conditions of high political will, if a government creates broadband policy based on market-policy in a Liberal Market Economy country, this country will be successful in broadband diffusion.
1. Under conditions of high political will, if a government creates broadband policy based on coordinated-market policy in a Coordinated Market Economy country, this country will be successful in broadband diffusion.
2. Under conditions of low political will, if a government creates broadband policy based on market-policy in a Liberal Market Economy country, this country will be unsuccessful in broadband diffusion.
3. Under conditions of low political will, if a government creates broadband policy based on coordinated market-policy in a Coordinated Market Economy country, this country will be unsuccessful in broadband diffusion.

3.5 Comparative Method

To do this analysis we will use the comparative method allowing us a deeper analysis than if we used the quantitative method, to analyze the institutional conditions that are affecting diffusion outcomes of different broadband policies. We believe this method of analysis is the most appropriate for our research question and for this type of research. As some authors have pointed out, comparative method has some weaknesses in that it offers a lower number of cases; but this method allows us to analyze more complex types of causalities. Perhaps in future research, we can utilize hybrid methods similar to the Qualitative Comparative Analysis research done by Ragin (Bauer: 2003). If our main goal of this research were to establish the influence of prices, density and population on broadband diffusion, rather than institutional and political factors, other methods of analysis would have been more suited to the research.

3.6 The unit of analysis

The unit of analysis that we will use in this study is the Nation-State. We believe that the Nation-State is still powerful in spite of "Hollow-State" literature (Milward, H.B. and Provan, K.G. 2003). On the one hand, we take into account the impact that some industrial regions and cities can have in some countries as leaders of technological innovation, especially in ICT plans (Kosmidis: 2002; Crouch, Le Galès, Trigilia, Voelzkow: 2004). On the other hand, firms have lost their national boundaries by establishing different sites in other countries. However, National-States still maintain responsibilities in telecommunications because it is considered a strategic sector.

3.7 Case selection

The case selection has been based on different types of states according to the VoC literature. Hall and Soskice's (2002) study distinguishes between the two models already described. Authors also make a distinction between another group of countries that are more difficult to classify into one group or another. These countries are France, Italy, Spain, Portugal, Greece and Turkey. In this study we have tried to maximize the institutional characteristics of cases according to the VoC literature. Therefore, we will study a pair of LME countries, Canada and Ireland, and a pair of CME, Denmark and Austria. In the case of Liberal Market Economies, we have chosen to compare Canada and Ireland despite their differences in size and density, because they allow us to maximize our dependent variable inside the LME group.

4. Comparative Analysis (preliminary data)

4.1 Liberal market economies: Canada and Ireland

- Priority of Broadband Policy for the Government.

Dimension/Cases	Canada	Ireland
Priority	High	Medium

According to “The New National Dream Networking the Nation for Broadband Access” reported by the National Broadband Task Force (2002-2006), the most important advantage of broadband is that it eliminates distance and time as a cost factors. This aspect would be very interesting for Canada as the second biggest country on earth. Also its cultural diversity, including the Inue, the Francophone community in Quebec and immigrants from across the world and with relative dispersed rural areas. The Canadian government has a wide vision of how broadband influences other aspects of the Canadian way of life: “way we learn, the way we work, the way we use our leisure, the way we govern ourselves, the way we communicate, the way we express ourselves and the way we care for each other” (National Broadband Task Force (2002-2006)). Indeed, broadband will have as great impact an impact as railways, highways, airlines, traditional telecommunications and broadcasting.

In the case of Ireland, we can find in its official plan “Broadband Demand: A Review of Demand in the Irish Broadband Market” a narrow vision based on an economic approach (Department of Communications, Marine and Natural Resources: 2006). In this document we find the idea that the lack of a higher broadband diffusion will produce a negative impact on productivity and reduce the attractiveness of investors in Ireland. As a result, there could be a loss in the quality of life. Significantly, the report pointed out two aspects: 1. the benefits of broadband for Ireland are defined by their negative impact on the productivity without taking into account their potential benefits; 2. It is a narrow vision by having a limited perspective of broadband potentialities; the greatest focus is on productivity and not on the quality of life of the citizens.

Both governments established in their official plans that broadband is an important tool for the development of their economies. However, their ideas about broadband are quite different: while the Irish government regrets its slow and low broadband diffusion and finds it a disadvantage, the Canadian government takes into account all its benefits. Also, it is important to pay attention to their vision of broadband; focused primarily on productivity in the case of Ireland, and centered on a wider set of aspects--quality of life of its citizens, public services, work and communication—in the case of Canada.

- Coherency of the Strategy.

Dimension/Cases	Canada	Ireland
Degree of coherency	High	Low

The goal of the Canadian government is simple and focused: “ensuring that broadband services are available to businesses and residents in every Canadian community by 2004”. To achieve this goal the government: has clearly established why broadband is important; clearly defined a model of broadband development; estimated the cost of the initiatives; established a detailed role of the government in broadband development; targeted a wide groups of users, SME, and low income residents. From previous experience, the government

recognizes its world leadership in Internet along with countries like Korea and the Scandinavian countries.

In the document “Broadband Demand: A Review of Demand in the Irish Broadband Market”, we cannot find any clear goal related to strategy. It deals more with descriptive statistics and is a discussion document about the causes of the “bad” results of broadband diffusion in Ireland rather than a strategic plan of action. We can find an analysis about how the prices and quality of the services have affected demand; some recommendations about the role of the department, such as to give more information to consumers and SME; how to improve cultural and educational contents; – and how to improve services without increasing their cost. One advantage of this statement is that they defined different target groups, including residential individuals, public organizations and SME. Ireland had, in 2001, one the lowest levels of broadband penetration (0 in 2001 and 0,3 in 2002), fewer users than in low income countries like Hungary or Mexico. At the Internet level, 40% of the population was users in 2004, placing them in a medium ranking where the first ranked was Iceland (80%) and the last Turkey (7%).

To summarize, we observe a very coherent strategy in terms of institutional and economic resources in the case of the Canadian government, whereas, in the case of Ireland, we cannot discern a clear formulation at the moment because they are still working on one. We can only see some recommendations for the government and providers taking into account the different target groups.

- Cost of the policies (In US Dollars)

Dimension/Cases	Canada	Ireland
Cost per capita ⁶	107	41,22

If we look at the cost of broadband initiatives per capita, taking into account federal and regional initiatives, we can say that the Canadian government spends more than twice the budget in broadband initiatives than Ireland in the same period (2002-2006). Economic effort can be a strong indicator of the priorities of the government.

Federal Government of Canada (2000-2006):

Goal	Estimated Cost – in Can \$ millions-	Average - in \$ millions-
Transport	1300-1900	1443
Connecting Public Institutions	500 to 600	496
Connecting Business and residences	900 to 1200	947
Entrepreneur Community	50 to 70	54
Total		2940

⁶

Province's Government Initiatives (2002-2006)

Initiative	Province	Goal	Estimated Cost - in \$ millions-
Alberta Supernet	Alberta	Access provision to Schools, Universities and residences	122
Canada-Manitoba Infrastructure Program	Manitoba	Infrastructure projects (2000-2006)	126
Rural Economic Development (RED), Ontario	Ontario	Rural Economic Development	126
Connect Ontario: Broadband Regional Access (COBRA) program.	Ontario	Access	35
The Villages branchés du Québec funding program	Québec	Broadband network infrastructure to Quebec's schools and municipalities.	47
CommunityNet	Saskatchewan	Communities	45
Connect Yukon	Yukon	broadband Internet access	11
Total			512

Source: Industry Canada

National Level Initiatives (2001-2006)

Initiative	Goal	Period	Estimated Cost - in \$ millions-
Broadband Action Plan	Broadband connection for individuals	2004-2006	10.2
Groups Broadband Scheme Project	Rural Broadband Access	2004-2006	32
Regional Broadband Program	Creating metropolitan networks	2001-2004	81.7
School Broadband Access Program	Connecting Schools	2002-2006	23
Total			147

Regional Initiatives in Ireland (2002-2006)

Initiative	Province	Goal	Estimated Cost - in \$ millions-
SERPANT Broadband Project	South-East	Broadband Infrastructure	23
SouthWest Broadband Initiative	South-West	Rural Broadband	0,14
Broadband on CLAR area program	Border, Midland and West	Rural Broadband	0,64
Total			24

- Visibility in the organization.

Dimension/Cases	Canada	Ireland
Visibility	High	Low

In Canada, the Broadband Plan is implemented by the Minister of Industry of Canada. This situation is important to know because this minister is one of the most strategic and powerful in the structure of the government. More precisely, the new conservative government has created two units to manage telecommunications. On the one hand, Spectrum, Information Technologies and Telecommunications substituted the former Secretary of Industry while the Communications Research Centre, which substituted the National Broadband Task Force. The goal of the Spectrum, Information Technologies and Telecommunications (SITT) Sector is to accelerate Canada's transition to the network economy through the development and use of information and communications technologies (ICTs), for the economic, social, cultural and civic benefit of all Canadians. On the another hand, Communications Research Centre Canada, an Agency of Industry Canada, is the Government of Canada's primary laboratory for research and development (R&D) in advanced telecommunications. CRC provides technical expertise for public policy decision-making, related to telecommunications regulations and standards.

The Department of Communications, Marine and Natural Resources has the responsibility for the telecommunications sector, which is a fully liberalized market. In this department we can find a division: Broadcasting, Energy, Communications, Marine and Natural Resources. Communications include information technologies, infrastructures and Telecommunications. We can observe that there are no formal structures in this department and that the department as a whole deals with all issues.

To summarize, at the "status" organizational level, the broadband plan has a higher status in Canada by being implemented by the Minister of Industry of Canada, whereas in Ireland broadband plans are implemented by the Department of Communications, Marine and Natural Resources. It may have been more strategic for Ireland to place the broadband plan in the Trade and Employment Department. In "functional" terms, Canada has created two specialized units according to different task implementation and assessment for policy-

makers, while Ireland has no specialized units inside the department. This division has remained even with new conservative party. Different and specialized units can facilitate the success of policies in spite of coordination costs.

- Institutional Innovation.

Dimension/Cases	Canada	Ireland
Institutional Innovation	High	Low

One of the most interesting innovations of the Canadian liberal government (2002-2006) was the creation of the National Broadband Task Force created by the Minister of Industry. This Task Force created a document defining the services, goals, strategy, and role of the actors and cost of the initiatives. As a result, the outcome was an interesting and complete plan, comprised of more than 100 sheets by more than 35 experts from public and private institutions with a very different background.

By contrast, Ireland created an informal plan to receive submissions and ideas through the Internet. We can find the document "Broadband Demand: A Review of Demand in the Irish Broadband Market" on the Department website with a deadline for submissions. Apparently, they wanted to create a discussion with different actors involved in the policies, including private companies, government and consumers.

- Complexity -number of actors involved.

Dimension/Cases	Canada	Ireland
Complexity	High	Low

Federal and Province Initiatives

In the case of the initiatives of Canada, we can see a high number of actors that are getting involved in different types of initiatives. It is important to take into account that Canada has a larger population than Ireland. However, these data could be useful to measure complexity in two ways: 1. the more actors involved in the policies, the more complex they will be. There are more actors in the broadband policies in Canada than Ireland even though taking into account their difference in population. 2. In regards to the nature of the actors, the more different the more complex the policies will be. As a target, Ireland focused more of its initiatives on a specific goal, like diffusion in villages, while Canada gears its policies towards a larger variety of actors.

To summarize, broadband initiatives in Canada have tended to be more complex in terms of actors and its variety than in Ireland.

National and Province Initiatives in Canada:

Initiative	Number of actors	Type of actors
National Broadband Plan	35	Experts with different backgrounds – Officials; Private Company and Organization Managers; Scholars of Universities-
Alberta Supernet	429	Government of Alberta; municipalities; schools (4700); libraries; health centers and SME's

Canada-Manitoba Infrastructure Program	173	Interlake (20); Northern (25); North Central (15); Parkland (24); South Central (17); Southeast (23); Southwest (29); Winnipeg/Regional (20)
CommunityNet	366	Individuals and businesses in many of those same cities, towns and villages.
Connect Yukon	7	Communities

National and Regional Broadband Initiatives in Ireland:

Initiative	Number of actors	Type of actors
Broadband Action Plan	88	Municipalities; residential consumers
Regional Broadband Program	19	Metropolitan areas
School Broadband Access Program	4000	Schools
SERPANT Broadband Project	6	Municipalities
Broadband on CLAR area program	9	Rural villages

4.2 Coordinated market economies: Denmark and Austria

- Priority of the Broadband Policy for the Government.

Dimension/Cases	Denmark	Austria
Priority	High	Medium

The Danish broadband Strategy Plan “From Hardware to Content- Strategy for Fast, Cheap and Secure Internet to all of Denmark”, (2001) has a simple and concrete goal: creating the spread of fast, cheap and secure Internet in order to keep its leading position in Information Technology in comparison to other countries. Examining different documents about broadband and IT, we can observe that authorities deeply discussed why it is important to have broadband and other IT services. They explained simply, clearly and concretely the advantages for the government, companies and citizens.

Austria's government launched a very ambitious Broadband Initiative in 2003 in order: “to increase broadband availability from 80% of households in 2004, to 98% of households by the end of 2007”. This goal is too far reaching to be possible due to the technological background, time of achievement, resources, and for institutional reasons.

To summarize, the Danish Government defined a clear, simple and concrete goal while the Austrian broadband plan is very ambitious, taking into account broadband penetration but not in “realistic” terms of technological experience and achievement. This type of goal works better as a “political statement” of the government rather than a real goal.

- Coherency of the Strategy.

Dimension/Cases	Denmark	Austria
Degree of coherency	High	Low

The coherency of the Danish strategy is high for two reasons: 1. There is Institutional commitment and a clear definition about the role of the Government and 2. Government has had previous experiences. In terms of cooperation to develop its broadband strategy, the government knows well its limits as an actor. *“The government is focusing on the use of IT, but that alone will not be enough. It will not be sufficient if Denmark aims only at being a world leader in use of new technology” (The IT and Telecommunications Policy Statement, 2002).* Therefore, the government created a commitment within the different political parties of the Danish Parliament, creating new forms of cooperation in the public sector, between public and private actors, and also between private actors. In terms of previous experience, the Danish telecommunications market is both well-functioning and mature, with good penetration of fixed-line and mobile telephones and heavy Internet usage. At the same time, the Danish government has made other initiatives in IT in the period 2002-2006: First, IT for All - Denmark's Future IT and Telecommunications Policy Statement and Action Plan 2002, Second, using IT Wisely 2004, and 3. IT and Telecommunications Policy Report (2006). Finally, it is worth noting that the plan has enough money to be implemented. Therefore, the Government spent DDK 1,3 billion in the first year and DDK 3,2 billion in the period from 2002-2006.

According to some international reports⁷, Austria has been often “accused of not having a strategy for broadband” for their lower and slow outcomes in broadband diffusion in comparison to other countries (eCommerce Innovation Centre: 2006). Taking into account strengths and weaknesses, we can say that the plan is good for its ambition and has some “interesting” measures, such as offering tax subsidies for consumers in order to stimulate broadband demand. However, we can observe some important “weaknesses” such as: unrealistic goals, implausibility of achievement in the established time period; and ambiguous budget and estimated initiatives. Originally, the government wanted to spend EUR 10 million for providing broadband in rural areas and decided after to add another EUR10 million in 2004. Indeed, the plan was launched a bit late with respect to other countries. For instance, Sweden launched its Broadband National Plan in 2001 and Italy in 2002. Another disadvantage is that the majority of policies are based on subsidies for private companies. It appeared effective, but also very expensive. This demonstrates the narrow vision of broadband by the Austrian government and shows the problem of creating connections. Finally, in terms of previous experience, Austria was in the middle of the ranking in Internet diffusion because it had 45% of the population as users in 2004 when the top ten countries had more than 60% of users in 2004.

- Cost of the policies.

Dimension/Cases	Denmark	Austria
Cost per capita - in US \$-	142 ⁸	237

According to our data, the economic effort of the Austrian Government (\$237 per capita) is bigger than in Denmark (\$142 per capita). This is a bit surprising, because Austria was

⁷ eCommerce Innovation Centre, Cardiff University 2006 Austria – Broadband Market 2005

⁸ Source: “From Hardware to Content- Strategy for Fast, Cheap and Secure Internet to all of Denmark”, 2001

recently one of the countries with a low expenditure in ICT and R+D⁹. However, last year the country increased its level of expenditure in these areas. Also, it is important to remember that Denmark has been making different plans related to the broadband at the same time that we have not take into account in our economic estimation. Regardless, we can find another possible explanation about the types of broadband policies; most of them have been subsidized to create expensive infrastructures. That has not been made before in the country. Therefore, it is possible that Denmark spent less because it created an important number of networks before.

Austria's Federal Government Initiatives (2003)

Initiative	Goal	Period	Estimated Cost - in \$ millions-
Sonderrichtlinie Breitbandinitiative 2003	Infrastructures for Rural Areas	2003	13
Tax privilege for broadband access	Subsidies for residential individuals	2003	1900

State Initiatives in Austria (2002-2006)

Initiative	Province	Goal	Estimated Cost - in \$ millions-
Breitbandoffensive fur Karnten	Kärnten	Subsidies for Broadband Infrastructure	1,3
Niederösterreichische Breitbandinitiative	Niederösterreich	Subsidies for wireless private companies	18,3
Oberösterreichische Breitbandinitiative	Oberösterreichische	Subsidies for private companies in order to create backbones	13

- Visibility in the organization.

Dimension/Cases	Denmark	Austria
Visibility	High	Medium-since 2002-

The Ministry of Science, Technology and Innovation of Denmark is responsible for Telecommunications and IT competencies. The organization specialized in this ministry is the National IT and Telecommunications Agency (NITA). It is an agency dependant on the Minister with a staff of about 250 members. Its vision is to actively work to create the best possible framework for citizens and businesses in order to realize the vision of Denmark as a network society. Its main tasks are ensuring: 1. an effective, secure and inexpensive digital infrastructure; 2. competition and consumer protection; 3. an innovative and coordinated implementation of Government IT initiatives; and 4. optimal framework conditions for a digital reform of the public sector. The agency takes part actively in providing inputs to the Minister; drafting policy proposals, bills and executive orders in cooperation with other departments.

⁹ ICT DIFFUSION TO BUSINESS: PEER REVIEW Country Report: Austria OECD: 2006

In the case of Austria, we can find that telecommunications is an issue that belongs to the Federal Ministry of Transport, Innovation and Technology (BMVIT). In the Ministry we can find a non-specialized department called the Department III (Innovations and Telecommunications), responsible for telecommunications, non-university research, funding for innovation and technology and a section for the same responsibilities. Until the creation of this department, everything was similar to the organizational structures of leading countries. But it is important to know that this organizational change was made at the end of 2002, when it BMVIT assumed some responsibilities of the Ministry for Transport and Economic Affairs.

To summarize, in both cases, Telecommunications are a responsibility of key departments. However, the Danish Government has a more specialized “agency” with an important number of human resources while there is no similar unit in the Federal Ministry of Transport, Innovation and Technology (BMVIT) in Austria.

- Institutional Innovation.

We can describe the institutional innovations of the Danish government in two ways: on the one hand, is the implementation of initiatives that involve various departments. On the other hand, is the creation of partnerships between counties, municipalities, local business councils and others. They all represent regions in Denmark with a relatively high proportion of less populated areas. Broadband Initiatives that involve different departments are:

Initiative	Department	Goal
National strategy for IT in the hospital services	Interior and Health Ministry of Science, Technology and Innovation	introduction of electronic case records for patients and share information with different parties
IT in the educational system	Education Ministry of Science, Technology and Innovation	pupils/students and IT, teachers and IT, subjects and IT, equal and flexible access to lifelong learning, coordination of IT-based research and education
Research network	Universities and Science, Technology and Innovation	Connecting universities and research center to a broadband network
Denmark's Electronic Research Library	the Ministry of Culture, Ministry of Science, Technology and Innovation and Ministry of Education	Connecting libraries and research units to high-speed network

Broadband Initiatives that involve different actors:

Initiative	Number of Actors	Goal
Wireless Community Network – Djurslands.net	Municipalities (8); region (1); civil society (200 active local volunteers)	Rented fiber optic capacity from the regional county on a long term basis
Aarhus Network – Large-scale Deployment of Fiber Optics	Private Provider (1); (1500) localities; work places (700); administrative offices, libraries, schools;	Fiber optic Deployment

	Business, community and private households	
TDC's CityMAN Project – Nationwide Rollout of Fibre Optic Networks	100 municipalities; business communities; counties and private companies	Rollout of fiber optic cables in all large towns in Denmark

According to a recent OECD report (OECD: 2006)¹⁰ about the diffusion of broadband to businesses in Austria, the federal structure of the country creates some difficulties for the coordination between actors. Moreover, we have not found many broadband initiatives in which the central and regional governments are involved. Often we have found initiatives at the federal or regional level.

To summarize, we can find a higher degree of institutional innovation in broadband initiatives in Denmark than in Austria, where some problem exist of coordination between the federal and regional level.

- Complexity

Dimension/Cases	Denmark	Austria
Complexity	High	Low

About of the case of Denmark, in spite of our lack of data about the actors involved in the broadband initiatives, we can say that there are many actors and a high variation in their nature: private and public actors, from central to local governments, small and big cities, and different types of public services. This variation in the nature of actors is related to the wide conception of broadband that we find in its plan and strategy.

The government in Austria has used private actors to implement its policies. It is important to note that many of these policies were subsidized for private companies. Therefore, the variety of actors involved on the policies is lower in comparison to Denmark.

To summarize, with respect to complexity, we have found a larger variation in the type of actors in the case of broadband policies in Denmark than in Austria.

National and Province Initiatives in Denmark:

Initiative	Number of actors	Type of actors
Project E-government	N.A.	Central and Local Governments; Regional Government; Representatives of different ministries; Cities of Copenhagen and Frederiksberg.
Aarhus Network – Large-scale Deployment of Fiber Optics	+1500	Private Provider (1); (1500) localities; work places (700); administrative offices, libraries, schools; Businesses, community and private households
TDC's CityMAN Project – Nationwide Rollout of Fibre Optic Networks	100	Municipalities; businesses, communities; counties and private companies

¹⁰ OECD, (2006) ICT DIFFUSION TO BUSINESS: PEER REVIEW Country Report: Austria

National and Regional Broadband Initiatives in Austria

Initiative	Number of actors	Type of actors
Sonderrichtlinie Breitbandinitiative 2003	N.A	Ministry for Transport, Innovation and Technology and regional governments
Tax privilege for broadband access	N.A	Individuals; Federal Government
Breitbandoffensive fur Karnten	N.A	Regional Government of Karnten, private actors
Niederosterreichische Breitbandinitiative	N.A	Regional Government and private actors
Oberosterreichische Breitbandinitiative	N.A	Regional Government and private actors

5. Conclusions

After viewing the preliminary data of our comparative analysis we believe there is support of the hypothesis that the influence of political will -understood as a having a coherent broadband strategy, cost of policies, organizational visibility, degree of institutional innovation and complexity of the policies in actor terms- is an important condition to assure that broadband policies will have a successful outcome. Countries with different traditions of States and public polices can achieve the same results in broadband diffusion if the government has a high political will to do so. This is the case of Denmark and Canada. By contrast, countries with different traditions in public policies can fail in broadband diffusion if the government is not motivated enough to do it, which is the case of Austria and Ireland.

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7. Annex

FIG.2 EVOLUTION OF BROADBAND USERS ACROSS OECD COUNTRIES PER 100 INHABITANTS

% Broadband users per 100 inhabitants						
Country	2001	2002	2003	2004	2005	IAM
Korea (3)	17.2	21.8	24.2	24.8	25.4	2,05
Iceland	3.7	8.4	14.3	18.2	26.7	5,75
Denmark	4.4	8.2	13.0	19.0	25.0	5,15
Switzerland (4)	2.0	5.6	10.1	17.5	23.1	5,3
Norway	1.9	4,2	8.0	14.8	21.9	5
Germany	2.3	4.1	5.6	8.4	13.0	2,7
Netherlands	3.8	7.0	11.8	19.0	25.3	5,3
Luxembourg	0.3	1.5	3.5	9.8	14.9	3,65
United Kingdom	0.6	2.3	5.4	10.5	15.9	3,8
Japan	2.2	6.1	10.7	15	17.6	3,8
United States	4.5	6.9	9.7	12.9	16.8	3,1
Canada	8.9	12.1	15.1	17.6	21	3
Sweden	5.4	8.1	10.7	14.5	20.3	3,7
Australia	0.9	1.8	3.5	7.7	13.8	3,2
Finland	1.3	5.5	9.5	14.9	22.5	5,3
Austria	3.6	5.6	7.6	10.1	14.1	2,6
Ireland	0	0,3	0,8	3,3	6,7	1,7
New Zealand (5)	0.7	1.6	2.6	4.7	8.1	1,85
Italy	0.7	1.7	4.1	8.1	11.9	2,8

Spain	1.2	3,0	5,4	8,1	11,7	2,5
France	1.0	2,8	5,9	10,5	15,2	3,5
Portugal	1.0	2,5	4,8	8,2	11,5	2,6
Poland	0.1	0,3	0,8	2,1	2,4	0,6
Czech Republic	0.1	0,2	0,5	2,5	6,4	1,6
Greece	0	0	0.1	0,4	1,4	0,4
Hungary	0.3	0,6	2,0	3,6	6,3	1,5
Mexico	0.1	0,3	0,4	0,9	2,2	0,52
Turkey (6)	0	0	0.3	0,7	2,1	0,52
OECD	2.9	4,9	7,3	10,2	13,6	2,7
EU15	1.6	3,4	5,9	9,7	14,2	3,15
LME						2,8
CME						4,3

Source: OECD