ECONOMIC ANALYSIS OF EUROPEAN UNION SINGLE MARKET LAW CASES

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dedicated to my beloved family, for their endless encouragement and support

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ABSTRACT

In the period of Turkey's candidacy to the European Union (EU), many heated debates continue to take place which are related to welfare effects of being in a common market. In this thesis we analyzed a selected sample of the European Union Law cases about Single Market and Four Freedoms with an economic approach. We developed simple models of free movement of goods, free trade, and free movement of workers; we discussed the welfare effects of these movements for countries and for the entire Union. We also gave examples of reference cases, and discussed the effects of such decisions in the European Court of Justice. In addition, there is a special focus on intellectual property rights, the concept of patent, and its effects on free trade since they are important topics in Law and Economics literature from which many discussions arise. In addition, an overview of EU law making process and a historical background of the Single Market and economic integration of the EU is provided in this thesis. We also discussed some views about main stream economics in which trade liberalization and factors of production mobility is always assumed as improving welfare. We concluded stating that even free trade and free movement of workers are beneficial in theory; both are important topics for which well-established policy applications are required.

AVRUPA TEK PAZAR DAVALARININ EKONOMİK İNCELEMESİ

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Anahtar Kelimeler: Tek Pazar, Dört Serbesti, Serbest Ticaret, Fikri Mülkiyet Hakları, AB Hukuku Davaları

ÖZET

Türkiye'nin Avrupa Birliği (AB) ile müzakere sürecini sürdürdüğü şu günlerde tek pazarın bir parçası olmanın refaha etkileri önemli bir tartışma konusudur. Bu tezde Tek Pazar ve Dört Serbesti ile ilgili Avrupa Topluluğu Hukuku'nda yer alan davaların bazıları ekonomik bir yaklaşımla incelenmiştir. Malların ve işçilerin serbest dolaşımı ve yerleşme hakkı üzerine temel birer modelleme yapılmış, bunun özelinde ülkeler genelinde tüm Birlik için refah etkileri incelenmiştir. Avrupa Topluluğu Adalet Divanı'nın referans kararlarına atıfta bulunulmuştur. Bunların yanısıra fikri mülkiyet hakları konusu, özellikle patent kavramı, literatürde yarattığı temel nitelikteki tartışmalar nedeniyle daha detaylı olarak incelenmiştir. Avrupa Birliği'nde yasa yapma prosedürü; Avrupa'nın ekonomik entegrasyonu ve Tek Pazar'ın oluşumu konusunda bilgi verilmiştir. Bu çalışmada, her ne kadar malların ve işçilerin serbest dolaşımı teoriken refahı arttırsa da, daha detaylı politika uygulamaları gerektirmektedir sonucuna varılmaktadır.

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Chapter 1

INTRODUCTION

1.1 Introduction - Outline of the Thesis

In the period of Turkey's candidacy to the European Union, many discussions continue to rise, which are related to welfare effects of being in a common market, not only in Turkey but also in other Member States. The free movement of goods, since Turkey already has a Customs Union for industry products, is an important debate which has been going on for years. However, it is more focused on free movement of workers and right of establishment, because people are more concerned about welfare and security implications of this freedom. Since moving to another state is costly in many ways (social, economic, cultural and linguistic) for most of the people, costly for the host country (migration policies required) as well, the European Union Law needed to regulate this process in detail. A large number of cases have been discussed since the establishment of common market. In this thesis we used an economic approach to common market and free movement concepts, tried to model them and analyze the welfare effects. The aim of this thesis is to discuss the decisions towards free movement of goods with a special focus on intellectual property rights; free movement of workers and right of establishment with an economic approach.

The thesis starts with the introduction - outline of the thesis, then explains the relationship between law and economics, EU law and legal system. In the second chapter, titled Creation of Single Market and the Concept of Four Freedoms, we are trying to give a historical overview for the creation of single market and then explain the concept of four freedoms in detail. Chapter 3, titled On the Free Movement of Goods, focuses on the welfare implications of free movement of goods via a Ricardian Comparative Advantage model. In this model, we show how welfare

of countries increase with trade liberalization. We show production and consumption of two countries for the case of autarky and for free trade, and show that both consumption and production increase with specialization on country's comparative advantage good. This chapter continues with short summaries of reference cases which constituted articles, reshaped policies in member states.

As we mentioned before, an additional aim of law and economics is to give policy advices to legal authorities depending on economic theory. Their main focus is on the implications which are able to restrict competition and regulate free markets. From this point of view, the arguments about intellectual property rights become very important. Because in member states, policies about patents, trade marks and such affect the possibility of arbitrage, which affects the process of markets and creates inequalities between countries. For this reason, we focused on a case named Sterling Drug v. Centrafarm, to show different details about intellectual property rights and arbitrage in markets after mentioning the importance of intellectual property rights. These analysis are followed by couple of more cases similar to Sterling Drug v. Centrafarm.

Our Chapter 4, named On the Free Movement of Workers, Freedom of Establishment and Free Movement of Services. We simply modeled free movement of labors both for high skilled and low skilled workers and showed free movement of labor is beneficial for both countries. In addition, we mentioned some reasons behind the logic for opposing free movement. As the previous chapter, chapter 4's model is followed by some example cases. Chapter 5 presents the conclusion.

1.2 European Union Law and Economic Approach of Law

In general, law and economics is the economical approach to the legal theory, using economic theory to explain the effects of law, especially for showing the welfare effects of legal rules. Specifically using economics to discuss the effects of laws which tries to regulate markets is common. Any rule restricting competition or intervening in the free market is an important discussion topic for law and economics. This is why, in this thesis, we not only focused on four freedoms concept, but also on intellectual property rights, all which create numerous debates.

We can discuss law and economics in two subfields: positive law and economics and normative law and economics. Positive law and economics uses economic analysis to predict the effects of legal rules. In addition to predicting effects, normative law

and economics gives policy recommendations based on economic reasoning. Using the concept of Pareto Efficiency[1], economists try to advice legal implications which can maximize welfare for the people of the country (or for the Union in this case). There is an important criticism, especially for normative law and economics. Since most of the economists follow the mainstream, neoclassical economics, their policy recommendations are also based on that framework. So the basic critics which apply to those works in theory, are applied to work in law and economics as well. The main criticism is focused on the simplifying assumptions of Rational Choice Theory, which makes the analysis regardless of real human nature; and for giving so few importance to the concepts such as human rights and distributive justice.

The Law and Economics on European Union is also an important field, since the main idea behind the establishment of European Economic Community with the 1957 Treaty of Rome, was to unify six nations as an economic area. Economic integration deepened step by step through the years. Implementing and maintaining a unified economic area requires a legal system of some kind since disputes over interpretation and conflicts among various laws became inevitable[2].

Before starting the economic discussion, we should introduce the factors of legislation in the EU. EC[2] law constitutes from Treaties (primary law), EU laws (secondary law) and case law. More in detail, there are several Treaties which together represent the primary law of the European Union, its constitutional base[7]; then the relations between the actors (European Commission, the Council and Parliament), according to their roles coming from Treaties, determine secondary law; and finally the decisions of the Court create the case law.

1.2.1 EU Law Making - Primary Law

There are several treaties which work together to make the primary law of European Union, create the institutions, define their roles and decision making process. These treaties are binding obligations for the States, since European Community legislation stands over national laws. There are Treaties constitutes EU, which are designed by the Member States and ratified at national level; there are Accession Treaties (treaties signed with candidate states) and International Treaties (treaties signed with third countries and international institutions).

The Treaty of Paris (1951) which set up the European Coal and Steel Commu-

[1] An allocation is Pareto efficient if it is feasible and there is no other feasible allocation that can make one household better off without making any other worse off.

[2] Here we use EC, European Community, for the first pillar, and European Union, for three pillars.

nity (ECSC)is the first such Treaty. The need for further cooperation in economic field lead to the establishment of European Economic Community (EEC), with the Treaty of Rome signed in 1957. Also the Treaty founded European Atomic Energy Community (Euratom), which controls the peaceful use of nuclear power. All these Communities were run by a Commission (ECSC by a High Authority), had one European Assembly (later the European Parliament) and a Court of Justice in common. The High Authority and the two Commissions were merged into one European Commission by the Merger Treaty in 1965[7].

For understanding the necessity of Single European Act (SEA) in 1986, we should look over the period up to that. There are three main points which proved the need for a new Treaty. First of all unanimity voting in the Council blocked decisions for a long time, so a change was required to implement majority voting. Secondly the oil crises in 1973-74 period hit the Community hard, so Member States decided to deal with internal market issues. And finally with the enlargement process, it was so obvious that more members meant more diverse interests, again showed the need for the change of voting system. Finally SEA 1986, which came into force on 1 July 1987, introduced more specific single market objectives, to be achieved by the increased use of qualified majority voting. A new process with greater involvement of the European Parliament was introduced in the form of the cooperation procedure and it was given a power of veto over accession of new Member States. The SEA also provided for the eventual creation of a Court of First Instance (CFI) to take over some of the jurisdiction of the Court and removed the non-tariff barriers[7].

This was followed by the Treaty on European Union (TEU) in 1992 (in the inter-governmental conference (IGC) in Maastricht) signed, which entered in force in 1993. The most important achievement of TEU is the introduction of Economic and Monetary Union. Then the need for more institutional reform created the necessity of another treaty, The Treaty of Amsterdam (signed June 1997, entered into force 1 May 1999). However even with the new Treaty the question of changing institutions and procedures was not solved, and the enlargement problem was brought on the table as well. Another IGC convened in Nice in 2001 (the Treaty entered in the force 1 February 2003), especially to get ready for enlargement, to the determine the number of seats and votes per country under the qualified majority voting (QMV)[3] system. Also QMV was extended to cover more areas with the Nice Treaty. After Treaty of Nice became operational, new attempts for preparing a constitutional treaty has

[3]A qualified majority (QM) is the number of votes required in the Council for a decision to be adopted when issues are being debated on the basis of Article 205(2) of the EC Treaty. (Source: EUROPA Glossary)

started. It failed, its content rewritten under the name of Treaty of Lisbon (Reform Treaty) which was signed in 2008. Ratification process is not completed yet, waiting for Ireland and Czech Republic.

The summary of European Law history clearly shows us the bargaining process of Member States over the Treaties. The necessity of change is observed with the encountered problems, especially through the enlargement process. Today Europe is waiting for its Constitution.

1.2.2 EU Law Making - Secondary Law

Secondary law is made by the actors in the system, so called three EU institutions: European Commission, Council and Parliament. To be precise, we can say that secondary law also has it's source from Treaties since those Treaties determine actors, relations between these actors and the decision making procedure. The binding Community acts are regulations, directives and decisions. There are also non-binding acts, which are recommendations or opinions[7].

Both Commission and Parliament are supranational institutions. Commissioners are nominated by national governments, appointed by Council (by the approval of Parliament). The Members of Parliament (MEPs) are directly elected by citizens of each Member States for five years. The Council, as an intergovernmental institution, consists of ministers, officials and diplomats for different policy areas.

A decision making process simply starts from the proposal of the Commission, which meets in close sessions and decides by simple majority vote. This proposal delivers to General Secretariat of the Council and they forward this to the Committee of Permanent Representatives (Coreper). The proposals are needed to be approved in Coreper, for being debated in the related special committee of the Council. There are two different Corepers; Coreper I deals with technical matters, while Coreper II deals with political matters. They examine the proposal and decide how is it going to be presented to the Council. If Coreper submits the proposal as "A-Point", it means it is approved unanimously and need to be taken as primary issue; if it is "B-Point" it means it needs more discussion[4]. In addition in the process, depending on the roles in the Treaties, European Parliament's consent, assent or amendment is required. Similar to the working groups of Coreper, relevant committee in the Parliament prepares a report, it is voted by the MEP's and then if it is approved it is presented to the Commission. It still depends on the Commission to consider or not to consider these opinions. The process continues with the voting of the proposal

[4]For more information visit www.ikv.org.tr.

in the related committee of the Council either for the legislation of a new EU law or for rejection of the proposal.

Here we tried to clarify the decision making process as simple as possible. There are different legislative procedures depending on the subject. Also there are many discussions about the roles of the institutions. The aim of these information is to give an overview of the law making in the EU, so we will not be explaining procedures (consultation, cooperation, assent and co-decision) in detail[5].

1.2.3 EU Law Making - Case Law

The Community law has its sources not only from European Treaties and the acts and decisions of the institutions, but also from the cases relating to the application of this primary and secondary law. European Court of Justice (ECJ)[6] is the highest authority on matters related to the interpretation of EC law. In addition, the decisions of the Court comprimises the rules of international law and general principles of law[12]. The Court is responsible for equal application of the EU Law across the Member States. It has no authority in the decisions of national courts, however national courts refer to ECJ for subjects related to EU law. Decisions of the Court created the base for the creation of many Directives. In addition, with the Single European Act (1987) a Court of First Instance was attached to the European Court of Justice. The Court of First Instance began to hear cases in 1989. They are both hearing cases and giving decisions for ensuring the overall application of the EU law

In this thesis we will comment on case law on the behalf of some specific cases, with an economical approach. After modeling basic freedoms in single market, we will give some important cases as examples.

[5]For more information: John Peterson and Michael Shackleton, "The Institutions of the European Union", Oxford, 2002.

[6]ECJ will be referred as Court during this thesis for the sake of simplicity.

Chapter 2

CREATION OF SINGLE MARKET AND THE CONCEPT OF FOUR FREEDOMS

In this chapter, we will try to explain why European Union has decided to facilitate free movement in its territories. First, we will explain different levels of market integration intensity and its historical progress for Europe, then we will explain the concept of four freedoms in detail.

2.1 Creation of Single Market - A Historical Overview

When several regions get integrated into a single political entity, many issues arise because of the asymmetries across those regions[15]. Regions differ in size, physical capital, worker endowment (and even in their weights on political affairs) etc. This reality creates the need for a single market, to overcome these difficulties arise from regional differences. Economic integration had been given a specific definition by economists specializing in international trade to denote *a state of affairs or a process which involves the amalgamation of separate economies into larger free trading regions*[6].

The creation of the European Single Market has its roots back in 1952, when first integration steps were taken in the formation of the European Coal and Steel Community (ECSC). Five years later, European Economic Community was established with the Treaty of Rome (also know as the Treaty establishing the European Community (TEC)). The Treaty introduced the main economic goals and integration

initiatives among the original six members. The main logic was to create an area in which firms and consumers have equal opportunities to sell or buy goods; the owners of capital and labor have equal opportunities to employ their resources[2]. Back then, the intention was to create the politic integration throughout the economic one.

There are some steps which are required to be mentioned on the way leading today's Union, like the removing of all tariffs on intra-EEC trade; adopting a common tariff on imports from third nations; labor mobility; capital market integration and a range of common policies. The foundation of the analysis of various types of regional economic integration was established by economists who investigated the early attempts by Western European countries to engineer regional economic integration[13] We will try to talk about these steps for creating the necessary background for the rest of the thesis, starting with an explanatory table for different stages of integration.

Table 2.1: Different Stages of Integration

**Free Trade Area (FTA)* - Member States remove all impediments to free movement of goods among themselves but each state retains its autonomy to regulate its trading relations with non-Member States;

**Customs Union (CU)* - FTA + common external policy in respect of non-Member States (e.g. single customs tariff);

**Common Market (CM)* - CU + free movement of persons, services, and capital;

**Monetary Union (MU)* - CM + single currency;

**Economic Union* - MU + single monetary and fiscal policy controlled by a central authority;

**Political Union (PU)* - Economic Union + central authority sets not only monetary and fiscal policies but is responsible to a central parliament with the sovereignty of a nation's government. Such a parliament might also set foreign and security policies;

**Full Union (FU)* - the complete unification of the economies involved and a common policy on matters such as social security, income tax.

In theory, the liberalization of all factors of production secures the optimum allocation of labor and capital. However in real life, markets are not characterized by perfect competition, factors are not perfectly mobile, and countries are differently endowed with natural resources. Even if we can prove the welfare improving effects of free markets in theory, there still is a need for further discussion. Keeping this in mind, we will try to explain the economic integration of Europe.

At first glance, the term "single market" appears narrower than "common market" because single market is defined by reference only to the four freedoms (free movement of persons, services and capital, coupled with the right of establishment) while the common market combines the four freedoms with the flanking measures such as agriculture, competition and social matters. In reality, the realization of single market is dependent on policy actions, including competition and social policy, that is why more likely the terms common, single and internal market are largely synonymous[3].

First step for further economic integration can easily be stated as removing barriers for free trade. Even if tariffs and quotas have been removed quickly[1], these were not the only restrictions for free trade. Non-tariff barriers stayed in place longer. In addition, the necessity for harmonization of trade policies towards third countries was so obvious, otherwise trade could never be truly free[2]. Also the other common restrictions (such as health and safety standards) are also required to be met. Ensuring undistorted competition was critical as well (prohibiting unfair subsidies for national producers; common competition policy; national law and national tax harmonization). According to this, state aids, unfair practices such as price-fixing agreements, exclusive purchasing deals (i.e. cartels) were prohibited. National laws, especially which have effects on common market, were harmonized. Since different taxation policies can have direct or indirect impacts on competition, they have been harmonized as well.

After defining the rules for free movement of goods, unrestricted trade in services put on the agenda for further discussion. Even if the main principles of this freedom was embraced with the Treaty of Rome, application required many government regulations. The most important difference here is, service providers are people whose qualifications may differ a lot from each other, which creates the need for the standardization of education and training for people who will provide any kind of service in another country.

Free movement of goods and services along with the rules for nondiscrimina-

[1]For more information, Article 3a
[2]For more information, Article 3b

tory practices are necessary conditions for market integration; however they are not sufficient. Labour and capital market integration is required for creating a unified economic area[3]. We will discuss the effects of free movement of labour in the coming pages. In addition capital market integration can be divided into two types: right of establishment (capital for setting up, becoming partner or such for a business) and financial capital. Capital market liberalization became a reality thirty years later with the Single European Act and the Maastricht Treaty[2]. Coming discussions were fix exchange rate policy and macroeconomic coordination; policies about a crucial area, agriculture - also as a political tool, took place for years. As a summary, the Treaty of Rome stated main aspects of economic integration, even if it was a bit weak for social policies. The main reason behind this weakness was the unclarified scope of the social policies which directly affect the lives of citizens. There are different ideas about harmonization of social policies between the Member States. Debate continued in an academical platform as well, while some defends the harmonization before liberalization, and the others rely on the power of the market. This topic requires deeper discussion, which will not take place in this work.

Figure 2.1. shows the European economic integration with two indices, the BN index and the DFFM index[4]. Even if the indices differ in details they both show the main waves of the ongoing integration process. The period between 1958-68 named as Customs Union formation; 1973-86 Euro pessimism; 1986-1992 Single Market and 1993-2001 EMU (to 2009 as well)[2].

As we mentioned before, since the early 1970s, formation and adaptation to new conditions caused by European economic integration took place while economic performance was good in Europe. The first enlargement took place in 1972, and United Kingdom, Ireland and Denmark joined the EU. During those years the global fixed exchange rate regime (Bretton Woods System) broke down, leading the Europeans to not only restore their own monetary arrangements, but also to fight with sharp rises in oil prices. These were the years filled by exchange rate crises, falling income levels, rising inflation rates etc. Europeans were erecting new barriers to trade for protecting their own economies, such as technical regulations and standards. There were many discussions about these technical barriers to trade (TBTs) and other restrictions for common market.

In 1979, European Monetary System (EMS) implemented. There are three main futures of the EMS: (1)the European Currency Unit (ECU), (2)the Exchange Rate Mechanism (ERM), and (3)the credit mechanisms[1]. This initiation created

[3]For more information, Article 3c

[4]Source: Baldwin (2006).

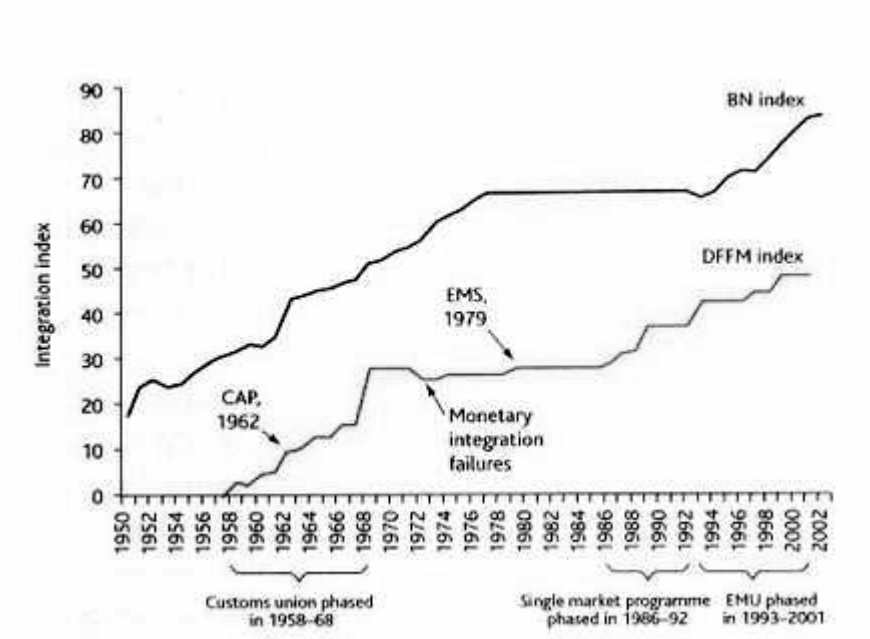

Figure 2.1: Indices of European Economic Integration

many obligations to Member States for adapting their economies, for creating strong currencies.

Here we need to point one important aspect behind these discussions. During all these decisions, unanimity was required. This voting system slowed down so many rulings (even stopped them for a while as an "empty chair" policy). First Luxembourg Compromise, French demanded political agreement, attempted; then Single European Act (1986) restored the majority voting, which opened way for further economic integration. These years, from 1973 to 1986, were the years of europessimism.

The most important political change during these years was the adaptation of democratic governments in Spain, Portugal and Greece. This lead to the second and third enlargements, Greece (1981), Spain and Portugal (1986) respectively. In an effort to counter this, Jacques Delors, President of the European Commission, proposed the next step in European integration, a single market, and pushed the programme which will complete the internal market: The Single Market Programme. According to the White Paper prepared by the British Commissioner Lord Cockfield, three principal obstacles to the completion of a single market could be identified as: physical barriers to trade, technical barriers to trade, and fiscal barriers to trade. The Single European Act (SEA), the first significant Treaty of Rome amendment in 1986, came into effect in 1987, and provided the necessary means to achieve these objectives. Some of the important steps taken were: elimination of border

formalities; harmonization of VAT rates; mutual recognition of technical standards; removal of capital controls to increase capital market integration.

With the Single European Act much deeper economic integration was promised among EU members, this made the other nations feel threatened, especially the EFTA countries. This leaded to more discussions, new applications to EU and new enlargement attempts. Also new bilateral trade agreements started to be discussed.

The European integration continued with The Maastricht Treaty, 1992, which provided the powers to achieve economic (which requires high degree of co-ordination of economic policy) and monetary union (which requires the currencies of the Member States to be either linked trough fixed exchange rates, or the circulation of one common currency). It required Member States to conduct their economic policies with a view to contributing to the achievement of the objectives of the Community and in the context of the broad economic guidelines laid down annually by the council[5]. Monetary policy was also dealt with, and applied to those countries which have satisfied the criteria for the single currency and have not opted out of the process. Three years after Maastricht Treaty has been signed, the fourth enlargement took place, Austria, Finland and Sweden joined the EU.

Preparation for eastern enlargement required the reform in both institutions and procedures. Treaty of Amsterdam and Treaty of Nice have been signed as we explained in detail in the previous chapter. In 2004, ten new countries (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia, Malta and Cyprus) joined the EU. The most important aspect of the enlargement of the European Union in 2004 is the expanded market for trade among the member countries that has been created[14].

2.2 The Concept of Four Freedoms

The Four Freedoms are the fundamental concepts of the single market. Not only goods but also factors of production are allowed to move freely between member states. The main reasoning behind a common market is to increase competition among producers, increase specialization as we will discuss in detail in the next chapter, and give the chance to enjoy economies of scale.

These four freedoms; free movement of goods, free movement of people (and citizenship) including free movement of workers and freedom of establishment, free movement of capital and free movement of services are quite important for removing

[5]For more information, Article 98.

barriers between member states. This has not only economic implications but also increases social interactions between nations, which might have an improving effect for deeper social integration in Europe.

If we want to explain them more in detail, the exercise of free movement of goods removes all the custom duties, charges, taxes; any quantitative restrictions or any kind of discriminative implications. Free movement of people (and citizenship) gives the right to any citizen of a nation to move to another member state, and have the same rights as a native citizen. Free movement of workers and free movement of capital can be denoted as free movement of factors of production. Workers are allowed to work in another Member State, with the same rights as native citizens. In addition any capital owner can invest (buy shares, establish a new factory, be a partner of an existing business etc.), in any business all over the Union.

In the following sections we will discuss the free movement of goods and the free movement of workers, freedom of establishment and free movement of services much more in detail.

Chapter 3

ON THE FREE MOVEMENT OF GOODS

The discussions about free movement of goods starts with the simple question: why is free trade important? We can answer this question by looking back to its roots at the *Wealth of Nations*. As the most famous classical economist Adam Smith said, "it is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy...What is prudence in the conduct of every private family, can scarce be folly in that of a great kingdom."[17]. We are able to generalize this individual advantage to nations. Basically we can state as free trade leads to specialization, specialization will drive us to produce what we can produce the best - in which we have comparative advantage. This will lead to economies of scale which means the most efficient use of scarce resources. In this chapter we will use the theory of Comparative Advantage [16] which tries to explain how trade allows different countries with different resources (and workforce, climate etc...) to concentrate on what they do the best, as in our reference model. According to this model, we will show the welfare implications of free trade, and summarize the basic EU Law cases in this issue. In the light of the information of the previous chapter, we will analyze the steps towards a more integrated economy in Europe.

3.1 A Reference Model - Ricardian Comparative Advantage

One of the most basic models that can explain the welfare improving effects of free trade is The Ricardian Model[11]. In this model there are two countries

(both of them are member states; lets say France and Germany as in the Cassis de Dijon Case), producing two goods, using one factor of production. This is a general equilibrium model in which all markets are perfectly competitive. It also assumes that output is homogenous across all firms (for the sake of simplicity).

Suppose that the two countries are indexed $i = 1$ and 2; and two goods are indexed $j = A$ and B. Let labor be the only factor of production and let the quantity of each good produced in a country be determined according to:

$$Q_A^i = \frac{L_A^i}{a_{LA}^i} \tag{3.1}$$

and

$$Q_B^i = \frac{L_B^i}{a_{LB}^i}. \tag{3.2}$$

Here, Q_A^i represents quantity of good A produced in both countries. L_A^i is the amount of labor applied to Good A production in both countries. a_{LA}^i represents the unit-labor requirement for Good A in both countries. Similar variables can be defined for good B as well.

In addition we have the feasibility condition:

$$L_A^i + L_B^i = L^i, \tag{3.3}$$

where L^i is the total labor endowment in both countries. The model assumes that goods can be transported between countries at no cost.

Production functions can be written as:

$$L_A^i = a_{LA}^i Q_A^i$$

and

$$L_B^i = a_{LB}^i Q_B^i$$

which implies

$$a_{LA}^i Q_A^i + a_{LB}^i Q_B^i = L^i.$$

Following this information the comparative advantage concept can be defined as:

$$\frac{a_{LA}^1}{a_{LB}^1} < \frac{a_{LA}^2}{a_{LB}^2}$$

which states that Country 1 has a comparative advantage to Country 2 on production of Good A. It means that if one country produces Good A comparatively better than the other one, it should allocate all its resources of production (in this case just labor) to this good and buy the other good from the other country. This will lead to the efficient allocation of scarce resources, maximizing the welfare of consumers' in both countries.

There are two ways to assess welfare effects of trade in Ricardian model: real wage effects and aggregate welfare effects. The first way evaluates the real wages of all workers moving from autarky to free trade by using purchasing power comparisons. The second way is to use an aggregate welfare function to show the effects on production and consumption efficiency. We will follow up the second way and show the welfare effects with the help of indifference curves.

Figure 3.1. compares free trade equilibrium with autarky equilibrium for two countries. Country 1's PPF is given by the line 11', while Country 2's PPF is given by 22' line. We assume that countries have the same aggregate preferences which can be represented by the indifference curves as in the figure. Let both countries have the same size labor force. In this case the relative positions of the PPF lines imply that Country 1 has an absolute advantage in the production Good A, which also imply a comparative advantage.

For Country 1, autarky production and consumption points are determined where the indifference curve (which is written as i_{AUT}) is tangent to PPF, which is shown by a in the figure. When countries decide to open for free trade, Country 1's new equilibrium is set at point c. Country 1 specialized in production of Good A, its comparative advantage good, and buys Good B from Country 2. For free trade aggregate utility corresponds to the indifference curve i_{FT}. Since i_{FT} lies on the right hand side of i_{AUT}, we can conclude that national welfare rises when Country 1 moves to free trade.

For Country 2, we can find the autarky production and consumptions levels at the point where the aggregate indifference curve is tangent to the PPF, point A in the figure. When free trade occurs, Country 2 starts to produce Good B, and buys Good A from Country 1. New aggregate utility corresponds to indifference curve I_{FT}, new equilibrium occurs at point C. Since both the indifference curve I_{FT} and point C lies on the right hand side of I_{AUT} and point A respectively, we can conclude that welfare rises in Country 2 when they move to free trade.

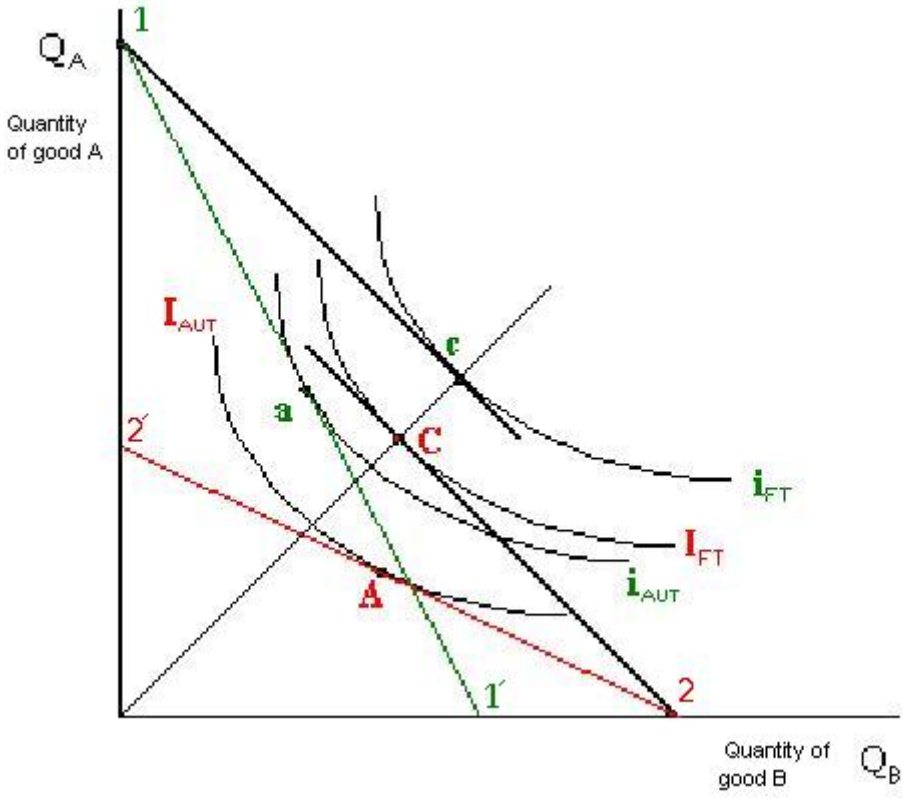

Figure 3.1: Free Trade Expands Consumption Possibilities

This means that free trade will raise aggregate welfare for both countries relative to autarky. Both countries are better off with free trade. Both Country 1 and 2 benefit from economies of scale and use its resources more efficiently.

On the other hand, we want to point out one more important consequence which will arise from this kind of production system. If each of the two countries produces a single good in their home country and buys the other "necessity" from the neighbor, this means that they are much more interdependent now. This hopefully creates peace, as also Jean Monnet expected.

Similar to the many other economic models, Comparative Advantage Model also assumed that there are lots of rational buyers and sellers, so that, there is perfect competition, full information, no cost of transaction, entrance and exit to the market is easy, and contracts are credible. For the real world, not only do these assumptions generally fail to hold, but also states interventions are common. These national state interventions can be more destructive for transnational markets. The reason behind this is the possibility of national authorities focusing on local concerns, possibly ignoring the international needs. At that point, decisions made by governments,

instead of a supranational authority, may not be able to serve all country's best interest. To prevent this, there must be common rules to regulate common markets.

The need for common regulation brings us to the regional approach to trade liberalization. The European Union is a full-fledged customs union. There are no trade barriers between its members; they have a common external tariff on their trade with other countries; and they speak with a single voice in trade negotiations[9]. Here we should also emphasize the *trade creation* and *trade diversion* outcomes of a customs union[18]. Trade creation means, trade, which would not have existed if there was no free trade area, created. For example Country 1 starts to buy Good A from Country 2 instead of producing it at home. Trade diversion is a Member State starts to import from another Member State which is less efficient instead of a more efficient third country. If trade creation effect is dominant, the welfare of members of a custom union will collectively increase. Even if a country suffers, the other's gain will outweigh. However if trade diversion is dominant, the collective welfare of union may decrease collectively. Calculation of trade diversion and creation effects can be another method of welfare analysis of more economic integration as well. There are many other discussions about if free trade is welfare improving for all kind of countries, for instance for a small country[10], we will not be discussing this issue in this thesis.

3.2 The Reference Cases

After analyzing a basic model of international trade, we will continue with reference cases. Throughout the evolution of the EU law, there are some cases which created the base of Articles, becoming reference for many oncoming cases. In the following subsections we try to mention some of them to increase the basic understanding on the issue[19].

3.2.1 Dassonville

In the Dassonville Case[1], also known as the Dassonville formula, it has been concluded that any disparities between legal systems of member states of the Community cannot hinder, directly or indirectly - actually or potentially, the intra-community trade. This hindrance may not arise from discrimination against imports, but simply from law of the home country. Still it can be named dual burden of laws, because imports are not only subject to the national laws of the country in

[1]Case 8/74 [1974]

which they have produced, but also those of the trading partner. This case opened the way of application of Dassonville formula regardless of the need for suggestion for discrimination.

3.2.2 Cassis de Dijon

The original name of this case is Rewe-Zentrale v. Bundesmonopolverwaltung für Branntwein[2] while it is more commonly known as Cassis de Dijon (which is a blackcurrant liqueur produced in France). This case is the point of origin of Court's approach to market-partitioning rules that makes no distinction between domestic and imported goods. This liqueur is commonly taken with white wine and contains 15 to 20 per cent alcohol. The German law sets the alcohol percentage of this category to 32 per cent. This led to a restriction on marketing the beverage, even if there were no restrictions for the import of cassis. The point of attention here was that the rule was not discriminatory. The rule was applied to all beverages of this kind regardless of their country of origin; it was a technical rule. However the matter of the case is that the rules in Germany were restricting free trade from France, in general within countries inside the common market. Similar to the Dassonville case, it is obvious that this is also a restriction to free trade. However Court made a different addition here, for the alcoholic beverages, declared that member states have regulatory independence if there are no Community rules clearly set in that area. The German government defended their rules stating as a strategy to combat alcoholism. However the Court indicated that whenever an objective can be achieved by a less restrictive rule (for example labeling drinks with necessary suggestions) then a state is not allowed to put in force its own rules. The logic behind this is, if a product -an alcoholic beverage- has been produced and marketed in one member state, it should be marketed in other Member States as well. This is the idea of mutual recognition, which requires the respect for the rules of other member states.

3.2.3 Gilli and Andres

Gilli and Andres Case[3] is a similar case to Cassis de Dijon. Here the product is vinegar, the importers of vinegar from Germany are prosecuted because Italian law prohibited the sale of vinegar unless derived from wine. The same arguments as in Cassis Case are valid: although this is not a discrimination depending on the origin, it is still a restriction to free trade. While apple vinegar is a produced and marketed

[2]Case 120/78 [1979]
[3]Case 788/79 [1980]

good in Germany, it is not allowed in Italy. Since there are no Community rules on this issue, member states were allowed to establish their own technical rules. In case of an obstacle to trade, the state should show restrictions are necessary in order to satisfy mandatory requirements, such as being a threat to public health.

3.3 The Importance of Intellectual Property Rights

In the previous section, we simply modeled the welfare implications of free trade and discussed some of the reference cases and decisions. In this section we will point out another dimension of free trade relations: Protection of intellectual property rights (IPRs). IPRs are specific challenges to the EU, because even if they are tools for encouraging innovation; they can be significant barriers to inter-state trade. Relying on the rights of free movement, some firms may try to benefit from arbitrage via decreasing prices more than they should have or may violate intellectual property rights. The discussion starts here: Can the right to trade freely discourage scientific development? What is the objective of protecting intellectual property? Answering these questions, creating the optimal patent regime is an important issue not only for countries one by one, but also for the Community as a whole. The most important point here is finding the best strategy in which countries can benefit from new and valuable research, without harming or restricting the competition. In other words, the objective of intellectual property protection is to create incentives that maximize the difference between the value gained with that intellectual property and cost of creating it. There are different kinds of intellectual property rights such as patents, trade marks, copyright, and design rights. We will give examples of patent and trade mark here in this work.

For as long as laws have aimed to protect intellectual property, disputes have raged over which works to protect, for how long, and to what extent. The mainstream of the economic profession has generally argued that economic efficiency requires government support for innovative and creative activity[4]. There were many discussions about this in not only each member country, but also in the Union as a whole. Throughout the years there were many cases about this, and we will examine some of them in the following subsections.

3.3.1 Sterling Drug v Centrafarm Case

In Centrafarm v Sterling Drug Case[4] a drug called Negram, designed for the treatment of urinary infections, has been patented by Sterling Drug under British law and under Dutch law. The Price of pharmaceuticals in the United Kingdom was much lower than the price in the Netherlands, largely because of the power of National Health Service of the United Kingdom, who behaves like a bulk buyer. Centrafarm decided to undercut the price in Netherlands by buying large stocks from United Kingdom and exporting them. Sterling Drug tried to prevent Centrafarm selling goods in Netherlands by relying on its exclusive rights under patent law before the Dutch courts. The Dutch court made a reference to the European Court. The Court stated that Sterling Drug exhausted its rights by marketing the same product in two states, meaning that they cannot rely on their patent right anymore.

For a formal analysis we can define many scenarios. The threat of entry by a firm such as Centrafarm should lead Sterling Drug to modify its pricing policy. With a patent right protects from arbitrage, Sterling Drug will behave like a monopolist, and will charge the prices P_N^* and P_{UK}^* in the Netherlands and in the United Kingdom respectively. If the law does not protect against arbitrage, as in our real life case, there are different scenarios. The starting point here is for such an arbitrage the price in the Netherlands plus transportation costs must be lower than price in the United Kingdom for a profitable trade for Centrafarm. If not, entry is already blockaded with Sterling Drug's optimal strategy. For the states in which this condition holds, Sterling Drug should decide on whether to preempt the entrance or accommodate with a capacity level. In any case the threat of entry reduces Sterling Drug's expected profits in any given time period.

Here we are trying to analyze the case in light of economic theory, differentiating between cases such as full protection of the patent rights - no arbitrage, and free trade. We will model the case, and figure out the optimal prices, calculate profits and interpret the results in the following pages.

A Formal Analysis of the Sterling Drug v Centrafarm Case

In this model there are two profit maximizing firms, Sterling Drug and Centrafarm. The former is the incumbent while the latter is the potential entrant who may seek to exploit an international price difference. Here P_{UK} stands for price of the drug called Negram in the United Kingdom and P_N stands for price in the

[4]Case 15/74 [1974]

Netherlands. We will use different superscripts for different scenarios. In the real case, we know that $P_{UK} < P_N$ and Centrafarm entered.

Let a be the transportation cost between the markets, and again for the real case we infer that $P_{UK}+a < P_N$. Also to simplify the exposition, we assume the same demand function in Netherlands $P_N = A - BQ_N$ and in the United Kingdom $P_{UK} = A - BQ_{UK}$. We denote by c for the marginal cost of Negram in the Netherlands and $c^{'}$ in the United Kingdom, such that $c^{'} < c$. So here we assume that these two countries are symmetric except for their marginal costs.

We will define the general profit function as $\Pi_i = P_iQ_i - c_iQ_i$, in which i denotes the country, the United Kingdom and the Netherlands. Also the welfare function can be described as the summation of profits and consumer surpluses, $W = CS_i + \Pi_{ji}$ in which i stands for the country and j stands for the firm.

First we will analyze the static monopoly case in both countries and find Sterling Drug's profit maximization conditions. This corresponds to full protection against arbitrage between the two markets. Second, we will handle the problem with a no arbitrage constraint. Third, we will solve Sterling Drug's profit maximization problem without any protection against arbitrage, but under a capacity limit for Centrafarm, assuming the latter is free to enter the UK market and export to the Netherlands.

Full Protection Against Arbitrage in International Markets

To begin with, if we assume that central authorities are protecting Sterling Drug's patent rights in both countries, there is no threat of entry in these markets. By protection, we mean a broader protection than the interpretation of the European Courts which, in our real life case did not find any wrongfulness in the entrance of Centrafarm. Even so, calculating optimal monopoly prices and profits for Sterling Drug will be a useful reference for coming analysis.

Since the UK market demand is identical and the only difference between the markets is the marginal costs, all results obtained for Netherlands market can be extended to the UK market, with the sole difference that c should be replaced by c'.

Here Sterling Drug enjoys monopoly profits maximized by choosing P_N. We substitute Q_N into the profit function. Because profits are concave in P_N, we can find the optimal P_N from first order condition;

$$
\begin{aligned}
max\left\{P_N Q_N - cQ_N\right\} &= max\{P_N\left(\frac{A-P_N}{B}\right) - c\left(\frac{A-P_N}{B}\right)\} \\
\frac{\partial(\frac{AP_N - P_N^2 - cA + cP_N}{B})}{\partial(P_N)} &= 0 \\
A - 2P_N + c &= 0
\end{aligned}
$$

where P_N is price level in Netherlands and Q_N is quantity demanded. We can find P_N^* and Q_N^* which represents optimal monopoly prices from this maximization as follows;

$$P_N^* = \frac{A+c}{2} \tag{3.4}$$

$$Q_N^* = \frac{A-c}{2B} \tag{3.5}$$

Then if we substitute these into the profit function, the optimal monopoly profit can be written as;

$$\Pi_N^* = \left(\frac{A+c}{2}\right)\left(\frac{A-c}{2B}\right) - c\left(\frac{A-c}{2B}\right) = \left(\frac{A-c}{2}\right)^2 \frac{1}{B} \tag{3.6}$$

We can also calculate the CS, which represents consumer surplus here, to obtain the welfare function;

$$
\begin{aligned}
CS &= \left(A - \frac{A+c}{2}\right)\left(\frac{A-c}{2B}\right)\frac{1}{2} \\
CS &= \frac{((A-c)\frac{1}{2})^2}{2B}
\end{aligned} \tag{3.7}
$$

Here Sterling Drug enjoys monopoly profits in both countries. To promote and encourage the innovations, it may be optimal to strictly enforce patent protection, hence, monopoly. We will also discuss the optimal patent length and its welfare results in the following sections.

The Problem of the Monopolist subject to "No Arbitrage" Constraint

If the law does not protect Sterling Drug against arbitrage in international markets, there are two possible cases:

1) Entry by firms such as Centrafarm to exploit price differentials is blockaded. That is, given the prices and the transportation cost a, Centrafarm would never

benefit from entry. This corresponds to the case $P^*_{UK} + a \geq P^*_N$ (We are focusing on the possibility that outsiders such as Centrafarm can exploit a relatively high price in Netherlands. The monopoly price in Netherlands will be larger than the UK monopoly price because demands are identical, while $c' < c$, by assumption.) Recall that the "starred" prices are optimal monopoly prices without any constraint in case of full protection against arbitrage in international markets.

2) Entry is not blockaded, which happens if $P^*_{UK} + a < P^*_N$. This corresponds to $c - c' > 2a$, the cost difference is large, so trade is profitable. Now Sterling Drug has two choices: to accommodate Centrafarm or preempt Centrafarm. In both cases, the profits of Sterling Drug will be smaller than those of a monopolist found in (3.6).

Here we will analyze Sterling Drug's problem under a price differential (no arbitrage) constraint which is $(P_{UK}+a) \geq P_N$. We will try to solve this maximization problem with creating a Lagrangian analysis, discussing if the constraint is binding or not. If the constraint is binding, Sterling Drug will choose the prices for preemption of arbitrage. If the constraint is not binding the entrance of Centrafarm is already blockaded.

$$\max(\Pi_N + \Pi_{UK})$$

$$\text{s.t.} \quad (P_{UK} + a) \geq P_N,$$

The Lagrangian of this problem is:

$$Ł = \Pi_N + \Pi_{UK} + \lambda[P_{UK} + a - P_N].$$

Since the profits are given as;

$$\Pi_N = Q_N P_N - cQ_N = \frac{A - P_N}{B}(P_N - c) = \frac{AP_N - Ac - P_N^2 + P_N c}{B}$$

$$\Pi_{UK} = \frac{A - P_{UK}}{B}(P_{UK} - c') = \frac{AP_{UK} - Ac' - P_{UK}^2 + P_{UK}c'}{B}$$

they can be substituted to the Lagrangian function:

$$Ł = \frac{AP_N - Ac - P_N^2 + P_N c + AP_{UK} - Ac' - P_{UK}^2 + P_{UK}c'}{B} + \lambda[P_{UK} + a - P_N]$$

We have three first-order conditions, the price level in the Netherlands and the United Kingdom which will be represented by P^p_N and P^p_{UK}, respectively. The other first-order condition shows us λ which we will use it to analyse if the price differential

constraint is binding.

If we take the derivative of the Lagrangian function according to P_N, we can find the optimal price level for Netherlands in which the entry of Centrafarm is preempted (here we are assuming we are in the case which the constraint is binding.);

$$\begin{aligned} \frac{\partial Ł}{\partial P_N} = \frac{A - 2P_N + c}{B} - \lambda &= 0 \\ A - 2P_N + c &= B\lambda \\ \frac{A + c - B\lambda}{2} &= P_N^p \end{aligned} \tag{3.8}$$

Since the countries are symmetric we can use the same process also for finding the price level in the United Kingdom;

$$\begin{aligned} \frac{\partial Ł}{\partial P_{UK}} = \frac{A - 2P_{UK} + c^{'}}{B} + \lambda &= 0 \\ A - 2P_{UK} + c^{'} &= -B\lambda \\ \frac{A + c^{'} + B\lambda}{2} &= P_{UK}^p \end{aligned} \tag{3.9}$$

The last first-order condition is the derivative of the Lagrangian function with respect to λ is,

$$\frac{\partial Ł}{\partial \lambda} = P_{UK} + a - P_N = 0$$

$$\frac{A + c^{'} + B\lambda}{2} + a = \frac{A + c - B\lambda}{2}$$

$$\lambda = \frac{c - c^{'} - 2a}{2B} \tag{3.10}$$

Note that $\lambda > 0$ if and only if $c - c' > 2a$, confirming the conclusion that this condition corresponds to preemption of arbitrage. Thus when $\lambda > 0$ and the constraint is binding, the prices are given by:

$$P_N^p = [A + c - B(\frac{c - c^{'} - 2a}{2B})]\frac{1}{2} = \frac{2A + c + c^{'} + 2a}{4}$$

$$P_{UK}^p = [A + c^{'} + B(\frac{c - c^{'} - 2a}{2B})]\frac{1}{2} = \frac{2A + c + c^{'} - 2a}{4}$$

Note that $P_{UK}^p + a = P_N^p$ when $\lambda > 0$. The complementary slackness condition is

$$\lambda[P_{UK}^p - P_N^p + a] = 0$$

which, if $[P^*_{UK} - P^*_N + a]>0$ implies $\lambda = 0$ and the constraint is not binding. In this case, entry is blockaded and Sterling Drug obtains monopoly profit. This corresponds to $c - c^{'} < 2a$.

The intuition is that, if the cost difference is small, i.e., $c - c^{'} < 2a$, the prices will be so close to each other, so the trade will not be that profitable. In this case Sterling Drug does not need to take into account possible entry by Centrafarm. Entry is already blockaded by Sterling Drug's optimal strategy.

Monopolist's Problem with a Capacity Constraint for the Entrant

Now we are going to consider the case in which Sterling Drug "accommodates" arbitrage opportunities. The question we are going to ask in this part of the analysis is: how do Sterling Drug's profits depend on the arbitrage capacity of firms like Centrafarm? Since entry is neither blockaded nor preempted, we are in the case where $P_{UK} + a < P_N$. Centrafarm can freely enter the UK market, take an amount within its capacity and exploit the price differential to sell in the Netherlands market. Let X denote the arbitrage capacity of firms like Centrafarm; it is impossible to ship more than X units from the UK market to the Netherlands. The sequence of events is as follows: first, Sterling Drug announces a price in the UK and the Netherlands. Next, given its capacity X, Centrafarm decides a quantity $Q_x = X$ to buy from the UK market and sell it in the Netherlands market. Clearly, as long as arbitrage is accommodated, i.e., as long as $P^a_{UK} + a < P^a_N$, Centrafarm will use all its capacity X. The product will be sold in the Netherlands at the price announced by Sterling Drug (although alternative scenarios are admissible here). Sterling Drug gets the residual demand, but it is this residual demand that it uses to determine the profit maximizing price at Netherlands market.

Consider the following unconstraint maximization:

$$max(\Pi_N + \Pi_{UK})$$

where

$$\Pi_{UK} = Q_{UK}P_{UK} - c^{'}Q_{UK} = \frac{A - P_{UK}}{B}(P_{UK} - c^{'}),$$

$$\Pi_N = (Q_N - X)P_N - cQ_N = \frac{A - P_N - BX}{B}(P_N - c).$$

The first order conditions are:

$$\frac{\partial(\Pi_N + \Pi_{UK})}{\partial(P_{UK})} = 0 \quad \Rightarrow \quad P^a_{UK} = \frac{A + c^{'}}{2}, \tag{3.11}$$

$$\frac{\partial(\Pi_N + \Pi_{UK})}{\partial(P_N)} = 0 \quad \Rightarrow \quad P_N^a = \frac{A + c - BX}{2}. \tag{3.12}$$

where P_{UK}^a and P_N^a represents accommodation prices in the United Kingdom and in the Netherlands respectively.

Clearly, if X is smaller than the quantity demanded at the price P_N, that is, if $X < (A - P_N)/B$, then Centrafarm will sell all its capacity X. Otherwise, Centrafarm will limit its output to the demand at the price announced by Sterling drug, so that $Q_x = (A - P_N)/B$. Given this optimal decision by Centrafarm, Sterling Drug's sales in the Netherlands market are determined as follows: If $P_N \geq A - BX$, Sterling Drug's sales in Netherlands is zero. If $P_N < A - BX$, Sterling Drug's sales in Netherlands is given by $Q_N = (A - P_N)/B - X$. As X converges to zero, Sterling Drug's price at Netherlands converges to the "starred" monopoly price found earlier. Increasing X, reduces the residual demand for Sterling Drug and accordingly the monopoly price on that smaller market falls as well. At larger X values, the constraint $P_N^a \leq P_{UK}^a$ fails to hold, in which Centrafarm's entry is already blockaded.

For X in the range [0, (A - c)/B], the profits of Sterling Drug are decreasing in X. Since the profit from accommodation of arbitrage is positive at small X, Sterling Drug would certainly not bother the possibility of arbitrage when the entrants' capacity is small. It would obtain near-monopoly profits. But these profits are decreasing in X, and as X approaches the market size of Netherlands at the marginal cost c, the profits from Netherlands market fall to zero. For such large X values, the profits of Sterling Drug are larger under entry prevention. In conclusion, if entry is not blockaded, there is a critical $X = X_c$ such that Sterling Drug prefers prevention of arbitrage for X larger than X_c, not to modify its behavior if $X < X_c$.

As we explained before, the length and extent of the patent protection (the other intellectual property rights are also similar) is an important decision. Lawmakers in countries are trying to figure out optimal strategies for not only increasing the level of innovations but also decreasing the costs of restricted competition in the markets. Also putting firms into a patent race to obtain the prize of protection may not be the social optimum in every case. Two firms seeking the same patentable invention can spend a lot, forcing a combined expenditure. At the same time giving the patent right to an innovation means to record many details about product, which may prevent others who intend to do research in the same field. In this scenario intellectual property law lowers the costs of subsequent innovations.

Another important issue here can be the optimal patent length. Even if governments decide to protect rights of the patent holder, the length of the patent should be decided carefully. In addition, the efficiency of the innovation the level of dissem-

ination and how widely the innovation is going to be used, are quite important in patent length decision.

Optimal Patent Length

What is the optimal patent regime in which costs of restricting competition are outweighed by the benefits of innovations? For instance, if a Spanish patent holder seeks to exclude a similar French product, why does the Court decide for the sake of free circulation of goods inside the Community?

What is the optimal patent length such that policy makers not only secure the innovations but also the competitiveness in markets?

Without the commercially valuable inducement of patent protection, there would be little incentive to sink costs into the search for new gadgets, because the profits would be seized by an imitator who might have incurred no costs.

Here we assume that we are in the case entry is not blockaded, $P^*_{UK} + a < P^*_N$. Let Z be the total costs of research, development and innovation, T the patent length in years and δ, the discount factor. A company will make research and create new products if

$$(\Sigma_{t=1}^{T} \delta^{t-1} \Pi_t) \geq Z$$

The authorities must decide the optimal patent length such that the present value of profits should be no less than the total cost of innovation. Welfare costs of the monopolistic power are considered in the objective function of the state. This objective function must include the benefits from the innovation and the costs from the monopoly power implied by the right of patent. In case of European Union countries also the concepts of free movements of goods comes into stage, to limit the rights of the patent owner.

Thus, the society's problem is to maximize a welfare function of infinite horizon subject to the constraint

$$(\Sigma_{t=1}^{T} \delta^{t-1} \Pi_t) \geq Z$$

where it chooses the patent length T, during which the innovator obtains monopoly profits, as well as an enforcement policy which affects Π_t.

If entry is blockaded, then patent protection is unnecessary. If entry is preempted, then, monopoly profits are lower than the case of blockaded entry: it may be optimal to increase patent duration T so that the incentive constraint is satisfied (because Pi_t is lower, T should be increased).

If we want to analyze the welfare effects of patent policy in Sterling Drug v

Centrafarm case we should discuss the topic on Sterling Drug side, Centrafarm side, and on the side of consumers in Netherlands. This reexporting is definitely good for Centrafarm, good for the Dutch consumers because of the decrease in the price, and good for the general integration of the markets; but bad for the producer, also the patent owner, Sterling Drug.

3.3.2 Hoffman la Roche v Centrafarm

A variant of the of Sterling Drug v Centrafarm case is a repackaging case involving Hoffman la Roche v Centrafarm[5]. Roche held the trade mark for Valium both in Germany and in the United Kingdom. The price in United Kingdom was lower than the price in Germany. Here again Centrafarm decided to export Valium from United Kingdom to Germany and earn profit from the existing price margin. The only difference in this case is that Centrafarm decided to repack the goods into larger boxes in Germany on which it had reprinted the Roche trade mark as well as its own details. Roche asked the German courts to protect its Trade Mark (TM) rights, which has the essential function of guaranteeing the identity of the trademarked product to the consumer. The court explained that free trade prevails where three conditions are observed: first, the repackaging does not affect the original condition of the product; second, the owner of the right must be supplied with notice in advance of the marketing of the repackaged product; and third, in order to protect the consumer from being misled, it must be plain who is responsible for the repackaging. All these requirements serve to inform the consumers about whose goods they are buying.

3.3.3 Merck v Stephar

Another example of a patent case is Merck v Stephar[6], in which Merck held a patent for a drug called "Moduretic" in Netherlands. Merck marketed the drug both in Netherlands and in Italy where it has no patent (in fact, no such patent could be issued in Italy). A third party bought stocks in Italy and exported them to Netherlands. Here it can be argued that this case differs from Centrafarm v Sterling Drug case because there is no patent protection in one of these countries. The Court disagreed because Merck entered the Italian market with full awareness. Here some points comes into stage for discussion. For a policy maker is it better to let the right holder to stick to home territory and enjoy a protected monopoly? Or should policies encourage free trade for everybody? If the producer chooses to take

[5]Case 102/77 [1978]
[6]Case 187/80 [1981]

advantage of wider markets, should increased competition also be accepted? If so, how can inventions be encouraged without monopoly profits? As we also discussed before, the patent protection length and extent is an important discussion. All economic and social dimensions of free trade, monopolistic prices for both consumers and producers, necessary incentives for innovation must be taken into consideration.

3.3.4 Pharmon v Hoechst

This is another example of drug-patent case involving three countries, named Pharmon v Hoechst.[7] Here Hoechst owned patents for the drug Frusemide in Germany, the Netherlands and the United Kingdom. In the United Kingdom, according to the Patents Act, a compulsory licence was awarded, which gives permission to third parties of a licence to exploit the patent while paying a reasonable royalty to the patent holder. The aim of this licence is not only rewarded the inventor but also to make the invention much more available to the public. So Hoechst has the patent in the UK but the third parties who are producing the drug are licensed by the State. Pharmon bought stocks of the drug in the United Kingdom, like Centrafarm did, produced by the licensee and then exported them to the Netherlands. The Court decided that exercise of Hoechst's Dutch patent was permissible, so favored national protection against free trade. The Court decided that Hoechst had not exhausted its rights under national patent law, different than the Centrafarm case. The Court held that exhaustion of rights occurs only on consensual marketing.

3.3.5 Allen and Hanburys v Generics

Allen and Hanburys v Generics Case[8] is an example for non-discrimination stating even if rights have not been exhausted, it is not possible to exclude an imported product from the market if an infringing domestic product could not be so excluded. The product in question is a pharmaceutical product coming from a Member State where it is not patentable[9]. The British patent had been adjusted under statue so that the patent holder could no longer claim exclusivity. Other firms could make the product, provided they paid a royalty to the patent holder. In these cases, the Court indicated that an injunction restraining the import of an infringing product, marketed in another state without the patent holder's permission, could not be awarded by an English court[19].

[7] Case 19/84 [1985]
[8] Case 434/85 [1988]
[9] For more information check http://eur-lex.europa.eu

Chapter 4

ON THE FREE MOVEMENT OF WORKERS, FREEDOM OF ESTABLISHMENT AND FREE MOVEMENT OF SERVICES

In this chapter we are trying to model different cases related to free movement of workers, services and freedom of establishment. Article 39 (ex 48) confers on workers the right of free movement between member states. Article 43 (ex 52) confers a similar right on the self-employed, which permits freedom of establishment. Article 49 (ex 59) confers a right freely to provide service across borders. All three sets of provisions serves the liberation of factors of production within the common market[19].

The right for people to move freely from one state to the other, and the right to establish is a distinguishing feature of a common market. In early years of the Union these freedoms were based on a rule against discrimination on grounds of nationality[1].The rule stipulates that the immigrant enjoy the same rights as those of a national citizen. In more recent case law, the Court focused on the removal of restrictions to free movement. The view changed tremendously with the concept of European Citizenship (this concept needs much more deeper analysis, which will not take place in this thesis). Also throughout the years, EU Law has been changed for the people who are economically active, who can bring skills to the host country and support themselves financially. Since we are modeling workers, who will provide a

[1]See Article 43 (ex 52) and Article 49 (ex 59) for more information.

service, we assume that our migrants are economically active.

The debate is about immigrants are "taking jobs away" from the native workers. Borjas[5] offers a survey (about United States) stating that recent immigrant waves will remain economically disadvantaged throughout their working lives. The discussions about this issue in Europe is also similar. The most important point here is, main logic behind the existence of the Union is equity between all citizens, also for working conditions in every country. In addition to that there is an important debate about national beliefs, norms and convictions, all which cannot be ruled out by supranational authorities[20]. Also there are articles stating that culture plays some general role in economic performance[8]. These are much more deeper discussions, which will not be discussed so in detail in this work.

Here our model is focusing on self-employed people who want to establish (and provide services) in other member states. The point here is to have the exact same rights with the citizens of the host country. Not only rights related to establishment but also access to the market for providing services are needed to be secured by Union's law. Establishment can also mean to start a permanent or temporary company in another member country. The underlying reasoning for all of them is to promote market integration, which leads to realization of economies of scale and the stimulation of competition.

4.1 A Reference Model

This model features two countries (both of them are member states; lets say France and Belgium as in the Thieffry v Conseil de L'Ordre des Avocats Case - in which an lawyer from Belgium wanted to practice in France, who we assume as an example of high skilled workers.) Suppose that the two countries, indexed $i = 1$ and 2, are producing the same output, according to the same technological function:

$$q_i = AL_i^{\alpha} H_i^{1-\alpha} \tag{4.1}$$

where L and H denote the low- and high-skill labor, respectively.

For simplicity, we shall assume that these two types of labor are the only inputs in production. With fixed endowments of L and H, outputs are determined in each country according to (4.1).

When labor cannot move across the borders, competitive labor markets and profit maximization conditions in each country imply wages be equal to marginal

productivity:

$$w_{Li} = \alpha A L_i^{\alpha-1} H_i^{1-\alpha} w_{Hi} = (1-\alpha) A L_i^{\alpha} H_i^{-\alpha} \tag{4.2}$$

Therefore, the wage in Country 1 for L-labor is larger than the wage in Country 2 for H-labor if

$$w_{L1} = \alpha A L_1^{\alpha-1} H_1^{1-\alpha} > \alpha A L_2^{\alpha-1} H_2^{1-\alpha} = w_{L2}$$

which simplifies to:

$$w_{L1} > w_{L2} \;\; if \;\; \frac{H_1}{L_1} > \frac{H_2}{L_2} \tag{4.3}$$

That is, the wage for low-skill labor is larger in Country 1 if low-skill labor is relatively scarce in that country. It is easy to check that (4.3) is analogous to the statement

$$w_{H1} > w_{H2} \;\; if \;\; \frac{H_1}{L_1} > \frac{H_2}{L_2}$$

Therefore, if $\frac{H_1}{L_1} > \frac{H_2}{L_2}$ and labor movement is free, then low-skill labor will flow from Country 1 to Country 2 whereas high-skill labor will also move, in the opposite direction.

The process of labor movement will be beneficial to both countries and it will continue as long as relative labor endowments are unequal. This is so, because the process will go on until the ratios $\frac{H_i}{L_i}$ are equalized in both countries. It is possible to show that any allocation of H and L inputs such that the total outputs of the two countries are maximal has equal ratios of $\frac{H_i}{L_i}$.

Whatever prevents the freedom of location for the two types of labor force is detrimental in this simple model, where externalities and public goods are absent.

In practice, there are many reasons why factor ratios may not be equalized across the countries. One of these is the presence of lobbying groups working to block free movement of labor. Using (4.2), we can write the relative wage of each labor type in Country 1 as:

$$\frac{w_{Li}}{w_{Hi}} = \frac{\alpha H_i}{(1-\alpha) L_i}$$

Thus for example, if $\frac{H_1}{L_1} > \frac{H_2}{L_2}$ free movement of labor will lead to a fall in the relative wage of L-type workers in country one and a fall in the wages of H-type workers in Country 2. These groups will oppose free movement of labor.

A second parameter which may block the way of the transfer of labor is the cost involved in moving from one country to the other. In our model we assume that movement of labors is costless. However in real life, movement of people is costly, few people took the advantage of the free movement. The factors which prevents people from moving can be summarized as: social (the wish not to move without

their families); economic (the fear of losing entitlements to social benefits, especially pensions, if individuals moved out of their home states); cultural (the familiarity and enjoyment of the way of life in their own states); and linguistic (individuals often lacked the necessary language skills).[3]

Also there is an important distinction between thinking the migrants as "factor of production" and as a citizen of the Union. With the introduction of "Citizenship of the European Union" concept by the Maastricht Treaty signed in 1992 (every person holding the nationality of a member state shall be a citizen of the Union) the decisions of the Court started to change, started to give a more freestanding right to move. The concept of citizenship gives more importance to the principle of equal treatment. Also the rights given to the people change with the duration of stay.

4.2 The Reference Cases

As we also did in Chapter 3, we will mention some of the reference cases which created a basis for most of the articles, and became reference.

4.2.1 Maria Martinez Sala v Freistaat Bayern

Maria Martinez Sala v Freistaat Bayern Case[2] is the hint of a first significant breakthrough towards the judical recognition of the potency of the citizenship provisions as a means of enhancing the legal protection of individuals[19]. The Court decided that any national of a Member State residing in another Member State's territory falls within the scope of the Treaty provisions on European Citizenship. This removed the possibility of discrimination on the grounds of nationality. This decision is an important turning point because it changed the reasoning behind having the same rights with the nationals of the host country. Access to benefits was based on active economic status before, after this it became connected to the concept of citizenship. Sala may prove to be the key ruling that breaks the ground between the orthodoxy of economic rights for economic actors and it will open up new horizons of comprehensive rights to equal treatment for Union citizens[19].

[2]Case C-85/96 [1998]

4.2.2 Reyners v Belgian State

Reyners v Belgian State Case[3] is an example of the rule against discrimination. A Dutch national who is living in Belgium, has a Belgian legal qualification. Authorities denied his admission as an advocate in Belgium, because there were rules restricting this profession to foreigners. He argued that he has the right to establish himself in Belgium. Even if there were rules against discrimination on grounds of nationality, there were exceptions for the activities directly affecting the exercise of official authority. Reyners was subject to conditions different than regular Belgians. Even if the free movement was facilitated, the rule of equal treatment was independently enforceable.

4.2.3 Thieffry v Conseil de l'Ordre des Avocats

Thieffry v Conseil de l'Ordre des Avocats[4] is another example of discrimination cases. Here is a Belgian holding a Belgian doctorate in law who wanted to practice in France applied for registration. His application has been rejected by the Paris Bar, not because of his nationality as in the *Reyners* case, but because of his diploma was not satisfying the required French qualifications. The European Court, asked to make a preliminary ruling which includes freedom of establishment. Specifically, it is impermissible to restrict a national diploma where the individual holds a qualification recognized by competent national authorities (here the University of Paris I had recognized his Belgian qualification as equivalent to the French qualification) as equivalent to the required national diploma[19].

[3]Case 2/74 [1974]
[4]Case 71/76 [1977]

Chapter 5

CONCLUSION

In this thesis, our main aim was discussing the effects of liberalization of trade and free movement of labors inside the European Union. For this purpose we gave background information about EU Law and economic approach of law; the process of European economic integration; the idea of single market and the concept of four freedoms. We also explained couple of decisions of European Court of Justice, for showing the real life examples. We especially focused on the concept of intellectual property rights in the third chapter, since it is an important challenge to the EU, and an important discussion on the free movement of goods. The fourth chapter was about the free movement of workers, services and right of establishment. The methodology for both chapters was modeling the situation with a basic economic model, a discussion about the welfare implications of the freedoms, followed by some examples of the reference cases.

In the first chapter, after giving the outline of the thesis, we have started with the description of concept of law and economics; and the basic reasoning behind the research topics of this field. We mentioned the main criticisms on law and economics, especially on normative law and economics. Normative law and economics faces all the basic criticism which mainstream economic theory faces, since it uses the main principles of theory for constructing policy recommendations.

Moreover, we continued with a summary of background information about EU law making, its historical progress through treaties. We gave a detailed explanation about primary, secondary and case law, mentioned their progress and explained their institutional base.

In the second chapter, titled Creation of Single Market and the Concept of Four Freedoms, we gave some historical information about the creation of single market. We enumerated the steps for further economic integration starting from 1952. We

also explained different stages of integration shortly. After that we also defined the concept of four freedoms.

Chapter 3 titled On the Free Movement of Goods, started with our reference model: Ricardian Comparative Advantage Model. Here first we simply modeled free movement of goods then discussed the welfare improving effects of free trade. We used indifference curves in this analysis, while also explaining trade creation and trade diversion effects. This chapter continued with reference cases. Second part of this chapter is about the importance of intellectual property rights, some basic cases about this concept and simple modeling for many situations possible in a patent right holding issue. We formally argued the arbitrage conditions and the importance, length and extent of the patent rights for encouraging more scientific research. We concluded that authorities play a crucial role while defining these rights, because protection of the balance between the Member States and proper operating competitive markets are tremendously important. We also gave examples from case law here as well.

Chapter 4 titled On the Free Movement of Workers, Freedom of Establishment and Free Movement of Services again with a reference model. In this model we showed the beneficial effects of movement of both high and low skilled labors. Even if we showed it as a welfare improving situation, movement of people is a much more deeper discussion topic. Before that we have to mention the perspective towards free movement of people significantly changed with the introduction of the concept of European Citizenship with Maastricht Treaty. Before the Treaty countries were welcoming only economically active citizens, with this concept all nationals of the Member States started to have same rights everywhere inside the Union. Most of the cases in this field are based on the discussions about discriminations on the grounds of nationality. Migration has many effects such as social, cultural and linguistic, and requires deeper policies than just economic adjustments. After discussing these issues shortly, we gave examples of some cases as well.

In conclusion, even if free trade and free movement of factors of production seem welfare improving with an economic theoretical background; governments and supranational authorities of the European Union play a crucial role here. In mainstream economic theory, liberalization of trade is always assumed as welfare improving. We always "assume" markets will work effectively, and figure out the optimum allocation for all. This claim is also accepted as valid for the free movement of workers; salaries will be equalized at the optimum level. However in real life, these issues are more complicated than this, require more discussion. Trade relations between coun-

tries needs a lot of rules and regulations (especially for an entity like the European Union). The main reason behind the focus on intellectual property rights is to show the necessity of regulations for some conditions. We explained that the need for reasonably defined policies is so crucial for supporting innovation. However not distracting competition while encouraging new and valuable innovation is so important as well. It is a hard discussion topic even for a single country, it is a huge literature for the European Union.

In this thesis, we mentioned some of the basic issues about single market and the concept of four freedoms with an economical approach. For further work, more cases can be used as reference, more attention can be made on competition law. Also there are other discussion points about single market and about it's welfare implications. Nowadays, because of the global financial crises, protectionist tendencies are important discussions as well. In general, welfare effects of economic integration (not only for the EU but also in general) can be argued much more in detail. As a candidate country, more work is also needed for the impacts of economic integration of Turkey to the EU.

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