ETLA

Keskusteluaiheita – Discussion papers

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DEREGULATION AS A MEANS TO

INCREASE COMPETITION AND PRODUCTIVITY

Some Finnish experiences

ABSTRACT: This study examines how deregulation affects product market competition and thereby productivity. Productivity grows when firms ameliorate their performance, which they will be unwilling to do in the absence of competition. It obliges firms to renounce high rents and cut costs, which increases static efficiency. However, static efficiency boosts productivity only temporarily. Long-term gains are derived from dynamic efficiency, which competition promotes in two ways. First, it increases incentives to innovate, and secondly, it accelerates creative destruction. Since regulations impede the free entry of rivals, they ensure firms a quiet life. Deregulation has therefore great potential to boost productivity growth. This study describes the process of regulatory reform in Finland. In addition to a country-level analysis, deregulation and its consequences are examined in service station and restaurant industries, which have experienced extensive reforms. The purpose was to see whether deregulation has induced external restructuring in these sectors. The results give some indication of external restructuring in both industries.

Keywords: deregulation, competition, productivity, entry

JEL Classification: L51, D21, O30, K23, L80

TIIVISTELMÄ: Tämä tutkimus tarkastelee sääntelyn purkamisen vaikutuksia hyödykemarkkinoiden kilpailuun ja tuottavuuteen. Tuottavuus lisääntyy kun yritykset tehostavat toimintaansa, mihin niitä kannustaa kilpailun uhka. Kilpailu pakottaa yrityksiä alentamaan kustannuksia ja kaventamaan voittomarginaalia, mikä lisää staattista tehokkuutta. Staattinen tehokkuus nostaa tuottavuutta kuitenkin vain väliaikaisesti. Pysyvä kasvu edellyttää dynaamista tehokkuutta, jota kilpailu lisää kahdella tavalla. Kilpailu motivoi yrityksiä innovoimaan ja se kiihdyttää luovaa tuhoa. Säädökset, jotka estävät kilpailijoiden alalletulon, turvaavat alalla oleville yrityksille kilpailuttoman toimintaympäristön. Tuottavuuden kasvua voidaan näin ollen tukea sääntelyä purkamalla. Tämä tutkimus kuvaa sääntelyn purkamista Suomessa. Yleiskuvauksen lisäksi sääntelyn purkamista ja sen seurauksia tarkastellaan kahdella esimerkkitoimialalla, joiksi on valittu ravintolat ja huoltoasemat, koska uudistukset näillä aloilla ovat olleet merkittäviä. Tarkoituksena oli tutkia, onko sääntelyn purkaminen aikaansaanut tuotannontekijävirtoja yritysten välillä. Tulokset antavat viitteitä rakenteiden muuttumisesta.

Avainsanat: deregulaatio, sääntelyn purkaminen, kilpailu, tuottavuus, alalletulo

JEL-koodit: L51, D21, O30, K23, L80

Ei-tekninen tiivistelmä

Tämä tutkimus tarkastelee sääntelyn purkamisen vaikutuksia hyödykemarkkinoiden kilpailuun ja tuottavuuteen. Tuottavuus lisääntyy kun yritykset tehostavat toimintaansa, mihin niitä kannustaa kilpailun uhka. Kilpailu pakottaa yrityksiä alentamaan kustannuksia ja kaventamaan voittomarginaalia, mikä lisää staattista tehokkuutta. Staattinen tehokkuus nostaa tuottavuutta kuitenkin vain väliaikaisesti. Pysyvä kasvu edellyttää dynaamista tehokkuutta, jota kilpailu lisää kahdella tavalla. Kilpailu motivoi yrityksiä innovoimaan ja se kiihdyttää luovaa tuhoa. Säädökset, jotka estävät kilpailijoiden alalletulon, turvaavat alalla jo oleville yrityksille kilpailuttoman toimintaympäristön. Tuottavuuden kasvua voidaan näin ollen tukea sääntelyä purkamalla.

Sääntelyn purkaminen vaikuttaa tuottavuuteen epäsuorasti kolmen kanavan kautta. Ensiksi kilpailijoiden uhka johtaa tuotannontekijöiden uudelleen järjestelyyn yrityksissä, mikä lisää staattista tehokkuutta. Toiseksi kilpailu kannustaa yrityksiä kehittämään innovaatioita ja panostamaan tutkimus- ja kehitystoimintaan. Kilpailu siis motivoi yrityksiä lisäämään tehokkuuttaan. Kolmanneksi kilpailijoiden alalletulo tiivistää yritysten välistä vuorovaikutusta, minkä seurauksena tehottomat yritykset poistuvat markkinoilta, jolloin tuotannontekijät siirtyvät tehokkaisiin ja jatkaviin yrityksiin. Kilpailu siis aiheuttaa tuottavuutta vahvistavaa rakennemuutosta. Koska toinen ja kolmas kanava lisäävät markkinoiden dynaamisuutta, on niiden vaikutus tuottavuuteen suurempi kuin tuotannontekijöiden uudelleenjärjestelyn.

Tämä tutkimus kuvaa myös sääntelyn purkamista Suomessa. Sääntelyn purkaminen aloitettiin Suomessa kansainvälisesti verrattuna myöhään 1980-luvun lopussa. 1990-luvulla uudistusten tahti oli nopea ja turhaa sääntelyä purettiin ripeästi. Erityisesti verkostotoimialojen vapauttaminen on ollut esimerkillistä Suomessa. Uudistukset kuitenkin lähes tyrehtyivät vuosikymmenen loppua kohden.

Yleiskuvauksen lisäksi sääntelyn purkamista ja sen seurauksia tarkastellaan kahdella esimerkkitoimialalla, joiksi on valittu ravintolat ja huoltoasemat, koska uudistukset näillä aloilla ovat olleet merkittäviä. Tarkoituksena oli tutkia, onko sääntelyn purkaminen aikaansaanut tuotannontekijävirtoja yritysten välillä. Tulokset antavat viitteitä rakenteiden muuttumisesta. Sääntelyuudistukset näillä toimialoilla tehtiin 1990-luvun alussa, jolloin Suomi kärsi voimakkaasta lamasta. Laman vaikutusten erottaminen sääntelyn purkamisesta johtuvasta rakennemuutoksesta vaatisi lisätutkimuksia. Myös luotettavampi syy–seuraussuhteiden erotteleminen edellyttäisi syvempää analyysiä.

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1.1   In strive for higher productivity and welfare

Economic growth is an important factor increasing welfare. The more there is to spread, the higher is welfare. Economic growth is mainly based on productivity growth (Adam Smith 1776). As Paul Krugman (1990, 9) has finely put it: "Productivity isn't everything, but in the long run it is almost everything". Gross domestic product, GDP, is the amount of work done times its productivity. Since ageing and the small size of working population in the future decrease the amount of work done, there is a threat that the growth rate of the GDP will decelerate. The fall in GDP, and therefore also in welfare, can be prevented if productivity continues to grow. In other words, as we can do nothing to the inevitable change in demography, the only way to safeguard economic growth is to increase productivity. (Jalava – Pohjola 2004, 1.)

Activities generating productivity growth occur at the micro-level. Productivity grows when firms ameliorate their performance, which they will be unwilling to do in the absence of any incentive. Since competition is a threat to firms, it functions as such an incentive. The lack of competition, created for instance by institutional impediments to competition, ensures firms a safe future and market power. In other words, the absence of competition maintains inefficiencies. Competition undermines monopoly profits by destroying the quiet life of firms (according to Hicks 1935, Bertrand – Mullainathan 2003, 1047). Uncertainty motivates firms to renounce high rents, cut costs and reduce prices (Harberger 1954, Leibenstein 1966). These efficiency gains are remarkable but have only a one-time impact on productivity (Chang 1997, 720; Nickell 1996, 741). Thus, their effect on productivity growth does not extend to long term.

In addition to fat trimming, competition induces other productivity-enhancing benefits by contributing to the evolution of the industry. First, competition increases innovative activity in the economy. Secondly, it occasions structural change. They are especially these so-called dynamic effects of competition that are important for productivity growth in the long run (Chang 1997, 720–721; Disney – Haskel – Heden 2003, 691; Nickell 1996, 741; Vickers 1995, 7). The dynamic aspect of competition will be discussed in more detail in Chapter 1.3.1.

Barriers to competition seriously hamper the creation of productivity gains that competition can induce. Product market regulation is enforced for social purposes. It is a way for the government to prevent competition in order to direct the functioning of the market in a socially beneficial direction (Ogus 1994). However, restricting competition

means that the benefits it can generate are lost. Therefore the removal of unnecessary provisions is important. The systematic abolition of such regulation is called deregulation. However, regulation can also support competition. In cases where firms exercise restrictive practices and market dominance government intervention can promote competition and efficiency. Hence, efficient and accurate competition policy involves competition advocacy by deregulation on one hand and policies against restrictive practices and market dominance on the other hand. Given the indispensability of regulation for the modern and complex economy, deregulation is about removing unnecessary and harmful impediments of competition. To find the right balance between competition and regulation is by no means straightforward.

American consumers enjoy a one third higher living standard in comparison to consumers in the European Union when approximated by GDP per capita in purchasing power parities. Finland is performing no better than the EU-15 average. One third to one half of the difference in standard of living in the favor of the USA can be explained by low labor productivity and the rest by low employment in Europe. Explanations for the backwardness of Finland and the EU area in terms of labor productivity are various ranging from cultural heterogeneity hindering the creation of a large home market and the fewness of high level private universities to underdeveloped capital market and extensive government intervention in the market (Gordon 2004). Public intervention in the form of regulation restricts competition. The IMF has estimated that Europe could benefit from an eight percent increase in production if competition in the goods market increased to the same level as in the U.S (Bayomi et al. 2004, 12). Thus, competition advocacy is a high priority policy area in Europe and Finland.

1.2 Deregulation in Finland

As there is a long tradition of social equality and affluent state in Finland, government regulation has been extensive. It was not until the mid 1980s that government regulation started to receive more critique. Given the extensive potential welfare effects of competition and the fact that regulations tend to restrict competition, regulations have been systematically removed in Finland. The process of deregulation began in the end of the 1980s by the introduction of a new more competition friendly policy (Hallberg 2004, 36). Deregulation accelerated in the beginning of the 1990s and extended over the entire decade. The progress has decelerated after the turn of the millennium.

Deregulation has been particularly extensive in previously state-owned network industries. Finland was among the first European countries to open up the mobile GSM network to competition in 1990 (OECD 2003 b, 37). The following years experienced

the birth and exponential growth of the mobile phone market, which laid ground for the success of the Finnish telecommunications industry. The industry is currently among the most important employers. Deregulation enabling competition in the network laid the basis for this rapid growth (OECD 2004, 74–75).

In spite of communication prices being in line with the EU average, prices in Finland are high in European comparison in general. For instance, the prices of groceries are ten percent higher compared to the EU average. A high price level can partly be explained by geographical factors and sparse settlement but is mostly due to weak competition. A high degree of concentration is typical to many Finnish industries. Concentration is high even in comparison to other small countries. The Finnish retail sector is a good example of an uncompetitive and concentrated industry with a high price level and low productivity. The lack of competition is due to an unusually small number of vertically integrated chains. The low level of competition is likely to be the reason why food prices have not converged as they should have after the accession to the EU in 1995. Reasons for the lack of competition in retail can be found, at least partly, in strict regulations. (Høj – Wise 2004, 10, 20; OECD 2003 a, 137; OECD 2003 b, 35–36; OECD 2004, 77–80.) The retail sector remains very strictly regulated[1]. Regulatory changes in the past decade have been minor. (Kajalo 2002.) By and large, Finnish manufacturing industries are relatively competitive in European comparison. On the other hand, most service sectors are performing less well.

Product market deregulation was large-scale in Finland in the 1990s. However, a variety of industries, like retail, remain strictly regulated. The majority of remarkable reforms concentrated in the beginning of the decade, at the same time when Finland was suffering from the serious depression. By the mid 1990s Finnish economy was on the path of unparalleled revival. Regulatory reforms played an important role in economic success of the late 1990s (OECD 2003 a, 20). In spite of the importance of product market deregulation, the exact impacts of sector-specific reforms remain unexplored.

Despite progress in deregulation has slowed in the recent years, competition policy is a topical and important issue. The emphasis has turned from the removal of regulation to increasing its quality. This approach is based on a program called Better Regulation[2] initiated by the renewed Lisbon strategy in 2005, which strongly urges EU countries to increase competition. This approach views competition no longer traditionally as a separate issue. The program aims at granting competition issues a more stable position in policy making by introducing a systematic consideration of competition implications

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[1]   There are a large number of regulations that restrict business in the Finnish retail sector. First, land use regulations hamper the building of large retail stores outside city center. Second, opening hour regulations restrict the cash flow of firms. Third, restrictive labor rules make it expensive to hire and fire workers.

[2]   For details, see http://europa.eu.int/comm/enterprise/regulation/better_regulation/index_en.htm

in all political decisions. Member countries are obliged to institutionalize ex-ante economic impact assessments of new legislation in the future. This has initiated a large project of Regulatory Impact Assessment also within the Finnish public administration. The ultimate goal of Better Regulation is to decrease regulatory failures so that regulation only supports the functioning of the market. (Ministry of Trade and Industry a and b.) However, before the quality of regulation can be increased, policy makers should be familiar with how regulations influence the market as well as the impacts of previously implemented policies and reforms.

1.3 Terms and concepts

1.3.1 Static and dynamic approach to competition

The static approach to competition views competition solely as rivalry about price in a stable and unchangeable environment. The price is regarded the only instrument of competition, which implies that the firm setting the lowest price wins the struggle. Lower prices expand output, which increases static efficiency.

The static way to analyze competition is limited since it considers competition as a state of affairs. Additionally, it disregards other forms of competition than price competition. Dynamic view on competition based on Austrian and Evolutionary economics sees competition as a process rather than a state of affairs (Audretsch – Baumol – Burke 2001, 618). In other words, it has a deeper time dimension than static approach. The dynamic approach to competition does not consider competition a snap shot of the current market situation but rather an evolution path so that the industry life cycle is allowed to proceed over time. (Greer 1992, 39–41.)

The Schumpeterian approach considers technology the prime instrument of competition (Audretsch et al. 2001, 618). Since fat trimming offers only short-term competitive advantage, competition motivates firms to invest in R&D. Innovations intensify competition further and motivate rivals to innovate too. Hence, dynamic competition is endogenous. According to the view held by this study, dynamic efficiency arises on one hand from technological progress and on the other hand from structural change driven by the exit of inefficient firms. This definition of dynamic efficiency differs slightly from the one used in OECD literature, where the term refers solely to increased innovative activity (see for example, Nicodème – Sauner-Leroy 2004). Since structural change increases the dynamism of the industry, the writer regards it to increase dynamic efficiency too.

1.3.2   Regulation and deregulation

Broadly, regulation can be defined as imposing regulatory constraints on the market (Spulberg, 1989, 21). This loose definition is open to various interpretations. Therefore in this connection regulation is defined more specifically as public control over the behavior of a private actor on the basis of a legislative mandate. Regulation is enforced through various, either formal legal instruments or informal instructions. The purpose of regulation is to control and direct private actors according to socially desirable objectives. (Majone 1996, 9; OECD 2003a, 31; Wienert 1997, 12.)

There are three types of regulation: social, administrative and economic regulation. Social regulation aims at protecting social values and rights. It is enforced in various ways, of which health and safety regulations as well as environmental control serve examples. Administrative regulation refers to administrative formalities through which the government collects information and allocates its funds. Economic regulations, the focus of this study, affect market decisions such as pricing, market entry and exit, and output. (OECD 2003a, 31; Wienert 1997, 12.) Economic and social regulation are strongly connected because they both have the same goal to direct economic activity in such a way that welfare is maximized (Ogus 1994).

As centralized regulation creates impediments to competition, it causes product market inertia. Regulatory reform refers to a process designed to reduce the disadvantages of regulation by improving the quality and cutting the costs of regulation. These goals are implemented by reducing government intervention and promoting competition. The furtherance of competition requires a clear division between the responsibilities of the public sector and the market. It also necessitates the decentralization of control. (Bergeijk – Haffner 1996, 8; Wienert 1997, 13.)

Deregulation is a subset of regulatory reform that denotes the reduction of anti-competitive provisions (Wienert 1997, 13). The goal of deregulation is to remove unnecessary provisions and to increase the quality of remaining regulations. Despite being based on the liberal ideology of laissez faire, deregulation does not involve the abolition of all regulation. Instead, it aims at removing unnecessary regulations and those provisions that are clearly harmful for socially beneficial competition. Deregulation is therefore not a contradictory approach to regulation but rather supplements it. Deregulation is a way to promote competition alongside privatization and competition policy against restrictive practices and market dominance. However, liberalization entails large reforms at once where as deregulation is a lengthy process, where reforms are enforced gradually. (Bergeijk – Haffner 1996, 7–9.)

1.4   Purpose of the research

Well functioning competition is an important source of growth. Competition, in turn, is greatly affected by the institutional environment, which regulations shape to a large extent. This study assesses how deregulation and structural reforms affect *product market* affect competition. In pursuance of meeting this goal, this study sheds light also on how deregulation impacts on productivity via increasing competition. Since the dynamic effects of competition on productivity are more pronounced vis-à-vis static effects, the former are in the focus of this study. Being aware of the importance of well functioning labor and financial markets for the benefits of competition on productivity, reforms in these markets have been purposefully omitted from this survey.

Economic regulation takes diverse forms ranging from price control to state ownership and from competition policy against restrictive practices and market dominance to restrictions on market entry and exit (Wienert 1997, 12). Some impediments to competition arise endogenously from specific market conditions while others are institutional regulations imposed by regulators. The former are created naturally as a result of large economies of scale, scarce resources, or the small market and are corrected by government regulation. This study focuses on the removal of exogenous *institutional* barriers to competition.

Since it is exactly the presence of the threat of rivals that leads to better performance in the micro-level, unrestricted entry is in a key role to increase competition. Free entry is especially important for dynamic growth. Restrictions on exit are important too because they discourage rivals from entering the market in the first place. Therefore, this study concentrates on those regulations that restrict free market *entry* and *exit*. As regulations on exit are relatively rare in Finland, restrictions on entry receive more attention. Thus, focus is on those institutional factors in the product market that hinder free entry.

Furthermore, this study describes deregulation and regulatory reform in Finland. Numerous surveys have been written on the competitive effects of privatization in Finnish network industries. The impacts of product market reforms in *already competitive industries* have received less attention. This survey assesses the impacts of deregulation on competition in two sectors that were competitive also prior to reforms, namely service station and restaurant industries. Also the indirect productivity effects of deregulation in the form of external reallocation in these sectors are assessed.

1.5   Outline of the research

Because efficiency and productivity increasing activities occur within firms, it is necessary to get off the ground at the micro-level. This study begins by explaining how an increase in the degree of competition affects firm behavior. Performance improvements within firms then accumulate to increases in aggregate efficiency, which boosts productivity. Static and dynamic approaches to competition are treated separately in order to make their difference on aggregate efficiency clear. This division is applied also in the third chapter, which describes how regulation and deregulation affect competition. Emphasis is put on the dynamic effects of competition, namely creative destruction and innovative activity.

In order to understand deregulation as a phenomenon, it is necessary to discuss briefly regulation, the disadvantages of which deregulation has risen as an answer. Chapter three presents justification for and pitfalls of regulation as well as the meaning of deregulation to government control. The purpose of the fifth chapter is to describe the process of deregulation in Finland. First the milestones of deregulation are examined at the country level. Then, regulatory reforms are viewed at the industry level. This is done by taking a closer look at service station and restaurant industries. Both of these industries underwent remarkable regulatory reforms in the 1990s. The interest of these reforms lies in their consequences, which are finally elucidated.

Chapter six aims at explaining how deregulation impacts on productivity. It therefore discusses the indirect consequences that deregulation may have. Theoretical predictions of the productivity impacts of deregulation are reflected in the two sample industries. Calculations presenting the possible influence of regulatory reforms on industry-level dynamics in these industries are presented.

2 COMPETITION INCREASES EFFICIENCY

Aggregate efficiency gains stem from firm-level activities. This chapter sheds light on how competition affects firm behavior and performance. Both static and dynamic efficiency contribute positively to industry-level performance. Since the former of these arises purely from price competition, it has small welfare effects in the long run – a reason for which it is discussed briefly. Dynamic efficiency, which arises on one hand from the selection of efficient firms according to the law of the survival of the fittest, and on the other hand from innovative activity, receives more attention.

2.1 Static approach to competition

Lack of competition gives firms market power. By taking advantage of this, firms can curtail production, set prices above costs and earn positive rents. Firms earn profit at the expense of consumer surplus. But some welfare is completely lost. This part is neither retained by consumers nor captured by the producer. The dead weight loss of welfare can be depicted by the Harberger's triangle (Figure 1). (Harberger 1954)
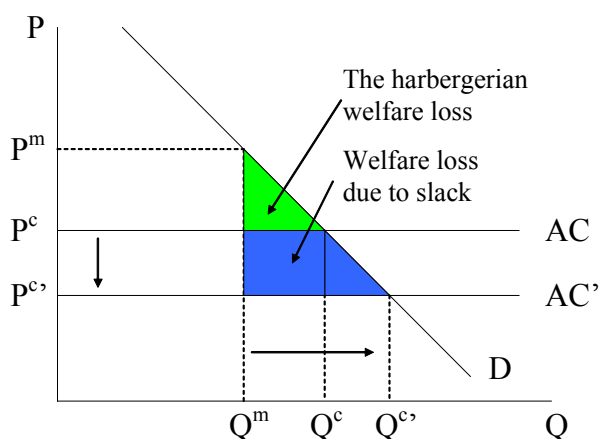
Figure 1   Competitive pressure increases output
(cf. Harberger 1954; Leibenstein 1966)

When the degree of competition is minimal, there is no external threat that would push firms to develop their performance and eliminate slack. Therefore firms have low levels of effort to reduce costs, improve quality, and introduce new ways of doing things. These inefficiencies are captured by managers and workers either in the form of leisure or high wages (Nickell 1996, 727). Factors of production are in inefficient use because this does not curtail profit as consumers pay the costs of slack in the form of high prices. High prices mean that not all production potential is used. Hence, there is X-inefficiency, which

refers to a difference between efficient and observed firm performance. (Leibenstein 1966) Taking into consideration that potential production is wasted, the welfare loss caused by the lack of competition is actually bigger than the Harberger's triangle (Figure 1).

Competition turns the welfare loss into consumer surplus in two ways: it reduces the market power of firms and sharpens their effort incentives. An increase in the number of firms in the industry would lead to Bertrand competition. As incumbent firms foresee the upcoming price competition, they are willing to lower prices to the level of costs (P^c). By doing so, they make entry to the industry unattractive to potential competitors, which otherwise would have entered lured by positive profits. This increases consumer surplus and eliminates the Harbergerian welfare loss. But price reductions shrink the profit margins of firms. Smaller profits function as an incentive to cut costs in order to compensate for this loss. Another incentive is that cost cuts enable further price reductions. Firms first to reduce prices gain in market share. The increase in market share due to price reduction is high because price elasticity of demand is high in a highly competitive market. Further price reductions can be afforded only by cost reductions. Hence, the lower the cost level of the firm, the lower prices it can set without making losses and the higher demand it will capture. (Harberger 1954, Leibenstein 1966, Meyer – Vickers 1997, Nickell 1996.)

The presence of rivals reduces information asymmetry in the market, which enables comparability and benchmarking. These, in turn, ensure cost cutting incentives. Comparability permits also shareholders to evaluate the relative performance of the firm (Meyer – Vickers 1997). Since managers are personally responsible for the good performance of the firm, this increases their motivation to strive for efficiency. Managers' personal reputation functions as an implicit reward to avoid bankruptcy and loss in market share. Hence, competition reduces rent capturing and leads to fat trimming permitting cost cuts. Rationalization is enforced through internal restructuring, meaning organizational changes, the reallocation of inputs and the development of new technologies, which together permit further cost cuts (AC'). (Nickell 1996, Meyer – Vickers 1997.) As lower prices ($P^{c'}$) mean higher demand, output increases as a result of restructuring ($Q^{c'}$). Hence, more can be produced with existing resources, which eliminates the rest of the welfare loss (Nickell 1996, 735–741).

It is not just the presence of competition that has an impact on cost reduction incentives. Also the degree of competitive pressure is significant. The more there are firms in the industry and the greater are cost differentials between firms, the more intense is firm interaction and the greater are the benefits from competition (Boone 2000, 557). In other words, intense competition motivates firms to reduce slack. If firms do not cut costs and reduce prices they will be driven out of the market. This relates to selection, which will be dealt in the next chapter.

The welfare effects of price competition are meager in the long run because it increases only static efficiency. The positive impacts of competition are more diverse than an output increase due to mere price competition. (Chang 1997, 720–721; Disney et al. 2003, 691; Vickers 1995, 7.) The strength of the firm in a competitive market depends on long-term competitiveness, which cannot be based solely on low costs today. Rather, efficiency depends on the ability to learn and innovate. The long-term impacts of competition on welfare are created when firms learn and innovate and when the least efficient firms leave the market. These dynamic effects are more pronounced in terms of welfare than those induced by an increase in static efficiency.

2.2 Dynamic approach to competition

2.2.1 Selection

The dynamic approach to competition has a longer time span than the static approach and allows for the evolution of industries. The industry is regarded to have a life cycle characterized by several phases. New firms enter the market and incumbent firms enlarge or shrink. When interactions intensify, some firms will eventually prove less efficient than others. These firms then exit the market. (Ericson – Pakes 1995; Hopenhayn 1992; Klepper 1996.) Hence, industry evolution is according to the law of the survival of the fittest: the competitive environment selects the most efficient firms and lets them to continue. It is important to realize that competition is endogenous unless it faces restrictions. When restrictions are removed, competition will accelerate as firms struggle to keep their market shares. In this contest, competition takes diverse forms, which the mere price competition cannot explain.

The basic components of selection are the entry and exit of firms. It can be considered that there exists a stock of potential entrants outside the industry, who wait for a good moment to enter. Entrants can be either new firms, old firms diversifying their business, or then new establishments of efficient incumbent firms (Geroski 1991, 32). The entry decision is made on the basis of expected profit in the industry if entered. The firm's current and future profits, A, are determined by industry structure, s, and the (future) position of each (entrant) firm in the industry, w. Hence, A (w, s). The position of the firm in the industry depends on its cost level and the degree of technological sophistication in relation to its rivals: $\partial A / \partial w > 0$, $\partial A / \partial s < 0$.

Firms will enter the industry when it is profitable, which is when the expected value of profit (V^e) from entry is greater than the expected sunk cost incurred at the moment of entrance that, in turn, depends on the number of firms entering that period[3]. In other words, when V^e (s, m) > x^e_m, where m refers to the number of entrants. Each period potential entrants decide to enter sequentially until the expected value of entry falls lower than the cost of entry, V^e (s, m + 1) − x^e_{m+1} < 0.

Hence, there is a continuous flow of firms to the industry (Ericson – Pakes 1995). Factors raising the number of entering firms are fast market growth, high demand elasticity, low minimum efficient scale of entry relative to market size, and inaggressive responses of incumbents (Geroski 1991, 66). Entrants face a high degree of uncertainty about future success when entering. Due to this, entrants often start as small and with relatively little capital. They enter to see if they can gain success. If not, they exit. (Brandt 2004; Scarpetta – Hemmings – Tressel – Woo 2002, 14–17.) Generally, entry is largest in newly created industries. It slows down as the industry matures. (Klepper 1996, 564.)

Once firms enter, they face fierce competition. Success requires ability to keep up with the development efforts of rivals and other changes. Other changes can be due to, for instance, changes in demand, input costs or the competitive situation outside the industry. (Ericson – Pakes 1995, 56.) Continuation in the industry requires constant enhancement of performance. Old ways of doing things prove insufficient very soon. Hence, adjustable and flexible firms are those that are most likely to succeed in a dynamic environment. (Boone 2001, Klepper 1996.)

Passive models of selection, which are static in their nature, consider firm efficiency to be dependent on pure chance so that the firm cannot actively influence its cost level and therefore neither its future position in the market (see for example Jovanovic 1982). These models have a limited perspective as they disregard the fact that firms can influence their future success by developing new production processes and increasing their efficiency continuously. Firms can gain competitive advantage also by investing in R&D an innovating. Innovations change completely the nature of the game, which will be examined in the next chapter.

Both new firms and incumbents are obliged to develop their performance in order to succeed. Consequently, firms actively explore perceived profit opportunities. Firms maximize the expected present value of remaining in the industry, w, by choosing an optimal degree of investment so that the marginal cost equals marginal change in the expected present value of the future position that might be realized the next period.

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[3] The fact that entrants can use the knowledge stock outside the industry to develop new products and ways of doing things contributes positively to the expected profit (Ericson – Pakes 1995, 56). Hence, entrants can challenge incumbent firms with novelties, which refer to product and process innovations.

Revenues (R) of the firm depend on current profits and the cost of investment R(w, s; x) = A(w, s) - c(w)*x.

Incumbents compare their position, w, to the opportunity cost of remaining in the industry, φ. If w > φ, the firm continues and invests x > 0, and receives R (w, s; x). The firm starts from a new state (w', s') next period. If the firm fails to keep up with development, w < φ, it makes losses and has to exit the industry. Each firm will eventually die. But the most efficient firms will remain longer in the industry than their inefficient rivals, which will be dropped out at an early stage[4]. (Ericson – Pakes 1995.) Figure 2 represents time dynamics in an imaginary industry by illustrating possible paths of firms. The initial position of the firm in the industry depends on its initial competitiveness based on low cost level or an innovation. Later positions depend on cost efficiency and innovativeness. When the position of the firm deteriorates so that it makes losses, that is when its costs are high or the degree of technological sophistication is low in relative terms, the firm exits the industry. This implies that there are only efficient firms in the industry in the long run. The replacement of inefficient firms by efficient ones is called creative destruction, which increases aggregate efficiency (Aghion – Howitt 1996, 16; Caballero- Harmmour 1996).
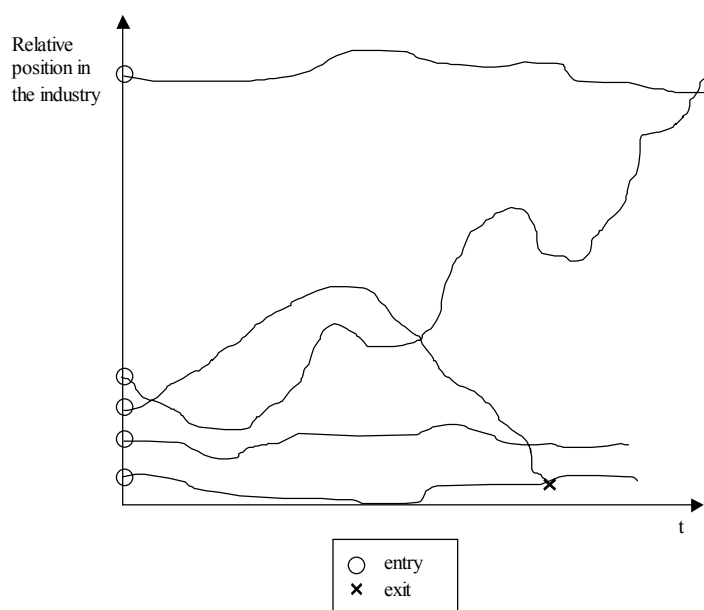
Figure 2   Time dynamics in the industry (Ericson – Pakes 1995, 65)

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[4]   There are shocks that force firms to exit independently of their level of productivity. For example, natural disasters and major changes in consumer tastes are such shocks (Melitz 2002, 8). However, it is relatively rare that shocks would induce an immediate exit of the firm. The firm can secure its future in the industry if it is flexible enough. Shocks forcing firms to leave the industry often relate to insufficient degree of flexibility and adjustability that are reflected in low productivity. This means that exit is dependent on firm performance in the end. (see for example Hopenhayn 1992.)

The expected profit of the firm is greatly affected by its life cycle. Right at entry, the firm is likely to be small and enjoy modest profit. However, entrants grow very rapidly. The growth rate of the firm declines and stabilizes with age. As survival in the industry requires learning, old firms are generally more efficient and enjoy larger profits. They are also bigger than newly entered firms and more likely to stand competition and survive. (Brandt 2004; Cincera – Calgau 2005, 15.) This implies that exiting firms having low productivity tend to be relatively young (Melitz 2002, 4; Scarpetta et al. 2002, 16).

As entrants have more variability in their growth rates than old firms, they are more likely to exit. Only a small proportion of entering firms manage to increase their efficiency sufficiently. Most of them exit relatively soon after entry. This implies that there is a large number of relatively small and inefficient firms in the market in the beginning of the industry life cycle. The number of firms peaks when the exit effect intensifies, which is when the industry reaches its maturity, after which the number declines steadily. (Hopenhayn 1992, 1139–1143; Jovanovic 1982; Klepper 1996.)

The effects of competition on the profit level of firms depend largely on cost symmetry between firms. If the firms in the industry have similar cost structures, they are said to be symmetric. When there is no firm that would be more efficient than others, there is no reason to increase efficiency. Thus, a larger number of firms fight for unchanged demand, which means that they all have lost from more intense competition. In the case of cost asymmetries, the least efficient firms lose in market share. These firms have to increase their efficiency in order to continue in the industry. Efficient firms, in turn, benefit from more intense competition. (Boone 2000, 553; Vickers 1995, 14–16.)

Competition increases industry-level efficiency because it allows variety (Nickell 1996, 741). As many things can be tried, competition eventually crowds out the weakest firms by selecting those firms that have the best practices (Geroski 1991). The positive effects of selection relate to it acting as a threat and increasing the competitive pressure. This makes interaction between firms more aggressive. Both entrants and incumbents are forced to increase their efficiency or else they will be driven out. Vigorous competition compels firms to develop. As a result, innovations are born.

2.2.2 *Innovations*

Competition accelerates innovative activity because innovations give firms competitive advantage. On one hand, an innovation permits the entry of a new firm even to an industry where competition is extremely fierce. Thanks to the innovation, the entrant can grow fast and enjoy positive profits. On the other hand, also incumbents benefit from innovating as it improves their position in the industry in relation to their rivals. Process

innovations enable internal restructuring, which leads to cost reductions and increased efficiency. Product innovations, in turn, give strategic competitive advantage and ensure a high demand for the firm. (Boone 2000, 552.) Low costs and high demand guarantee that innovative firms will not drop out of competition. Thus, innovations secure the continuation of firms in the industry in the future.

Since innovating requires investments in R&D, firms are not willing to invest in R&D unless innovators can earn some profit in return for their effort. Monopoly rents act as an incentive to innovate. The standard industrial organization literature sees a minimal degree of competition to secure active innovative activity. However, in the absence of competition firms enjoy monopoly profits even if they do not innovate. Hence, an uncompetitive environment does not motivate firms to innovate. In contrast, new endogenous growth models argue competitive pressure to increase incentives to innovate. Innovations offer firms a possibility to escape competition that threatens their existence in the industry. By innovating the firm ensures that it is not among inefficient and shrinking firms. Thus, competition is seen benefit innovative activity. (Aghion et al. 2001 and 2002; Boone 2000; Klette – Griliches 2000.)

The impact of competition on innovations is not straightforward. It is affected not only by the presence of competition but also by its degree. The effect of the degree of competition, in turn, depends on the relative costs of firms in relation to each other. Low relative costs indicate advanced technology and efficiency, while high relative costs are a sign of moderate technological sophistication and inefficiency. Since innovative activity is about escaping competition, the relative position of the firm in proportion to its rivals determines innovation incentives. Small changes in absolute terms can be very remarkable in relative terms and affect greatly the distribution of profits in the industry and thereby the behavior of firms. (Boone 2000 and 2001; Vickers 1995, 10.)

Let's first examine how the degree of competition affects innovation activity in the case of an industry where there are small initial differences in the sophistication of technology between two firms (Figure 3). According to Boone (2000 and 2001) the incentive to innovate depends on the relative cost level of the firm[5]. When the level of competition is low, the leader is not motivated to innovate because it already enjoys high profits and because innovating would lower its costs only little. The follower, in turn, has a high relative cost level. Since innovating lowers more the follower's than the leader's costs, it is the follower that innovates. By investing in R&D the follower is supposed to gain somewhat lower costs than the leader and become a new leader. In other words, the follower leapfrogs.

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[5]   In his model firms do not differ in other aspects besides the cost level. If there were differences in other aspects, the cost level alone would not determine the competitive position of the firm (Boone 2000).

The firm that used to be the leader before the follower innovated is motivated to innovate too. By doing so, the initial leader regains its leading position. Hence, when firms innovate in turns, innovative activity is lively. A slight increase in the degree of competition[6] lowers the follower's valuation for the innovation because innovative activity accelerates, which implies that the time the new innovator can enjoy monopoly profits provided by its innovation shortens. Thus, an increase in the degree of competition discourages innovative activity when the initial level of competition is low.

Low degree of competition

Cost level/ level
of technological
sophistication

Low   High

L   F

L = leader
F = follower

**Small increase in the
degree of competition**

Cost level/ level
of technological
sophistication

No innovative activity

Low   High

L   F
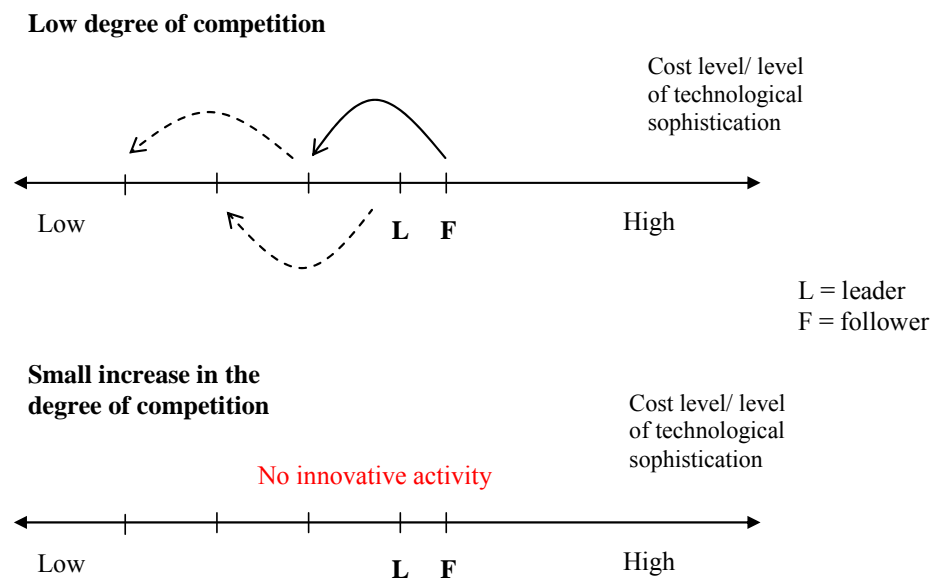
Figure 3   Identity of the innovator when the initial degree of competition is low
(cf. Boone 2000 and 2001)

When the initial level of competition is high, the leader is afraid of the follower catching up. The threat of being caught up makes the leader willing to pay to avoid the follower getting close. By innovating the leader secures its dominance also in the future (Figure 4). When the degree of competition increases slightly, the leader's valuation for the innovation increases accordingly.

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[6]   The degree of competition, θ, depends on the traveling cost, t, in the following way: $\theta = 1/t$. I.e. a decrease in the traveling cost leads to an increase in the degree of competition (Boone 2001).

High level of competition

Cost level / level of
technological
sophistication

Low   L   F   High

L = leader
F = follower

**Small increase in the
degree of competition**

Cost level / level of
technological
sophistication

Low   L   F   High
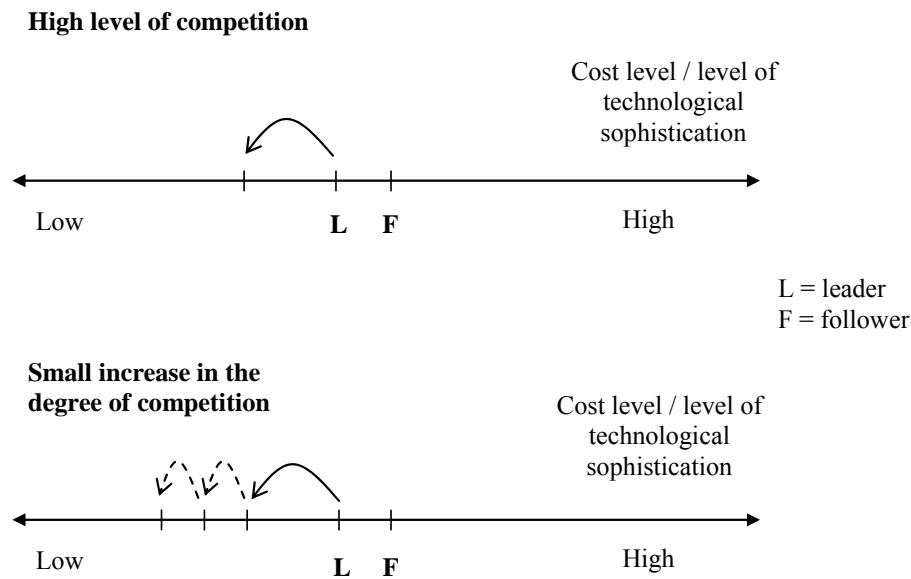
Figure 4   Identity of the innovator when the initial degree of competition is high
(cf. Boone 2000 and 2001)

In brief, if competition in the industry is weak, and innovations are small improve-ments in the level of technology, firms are likely to have relatively similar cost structures and efficiency levels. In this case the least efficient firm innovates. Other firms soon catch it up. Hence, the level of technology improves continuously, though only little. In such a case firm turnover is high. A small rise in competition in this case reduces the profits of the innovator as well as its valuation for the innovation. Thus, in the case of weakly com-petitive industry with small innovations, a small rise in competition may slow down the technological progress. If, however, competition is intense, the leader innovates and inno-vations are remarkable. The follower is far behind the leader in terms of the sophistication of technology and efficiency. Since the leader is motivated to keep rivals far behind, a small rise in competition speeds up the technological progress.

Let's then turn to a case, where there are no initial differences in the level of technol-ogy between firms. So, there are no leaders or followers and firms have similar cost structures. Aghion et al. (2001 and 2002) have analyzed the incentive to innovate in such an environment. According to them, the difference between pre-innovation and post-innovation rents is the decisive factor in R&D decision-making. Incentives to in-novate are more dependent on the difference between post-innovation and pre-innovation rents than post innovation rents per se. This means that increased competi-tion may foster innovations as it reduces a firm's pre-innovation rents by more than it reduces its post-innovation rents. So, it is not so important to consider the position of the firm in the industry after it has innovated but to pay attention to its position in the industry before innovation takes place.

When there is cost symmetry between firms, all firms have an equal level of technological sophistication. Firms are said to compete neck-and-neck. All firms earn zero profit and the profit is independent of the relative cost level of the firm. Hence, firms have no incentive to innovate. This is the Schumpeterian result. An increase in the degree of competition in such a case makes all firms worse off. However, as more intense competition increases the profit of the technological leader, firms become motivated to innovate.

When the degree of competition rises even slightly above zero, firms become motivated to innovate in order to escape competition. To escape competition means to move a step ahead of competitors and in this way secure the continuation in the industry[7]. The firm first to introduce an innovation leapfrogs. This motivates followers to try to catch the advantage and lead them innovating too. As a result, firms innovate frequently in turns and the neck-and-neck state of competition intensifies. In neck-and-neck competition the effect of competition on innovation is steep. Consequently, innovations are born frequently, which increases aggregate efficiency.

When the neck-and-neck effect of competition intensifies, the probability that the industry will leave this state increases. This is because it becomes more likely that one firm gains a great technological lead, which would decrease the innovation incentives of all firms. The leader would no longer need innovations to succeed. Followers, in turn, would find it difficult to catch up the leader even if they did innovate. Hence, very intense competition can lead to a decrease in innovative activity. This effect has lately been realized in electronics industry, where very intense competition has forced some firms to prune R&D expenditure (Liikanen 2005, 6).
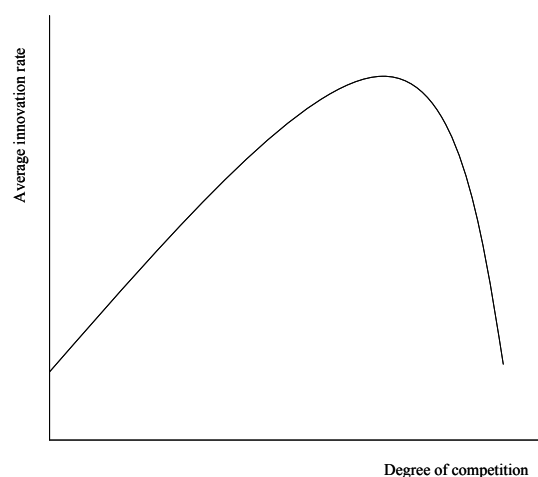
Figure 5   The relationship between the degree of competition and the average innovation rate (Aghion et al. 2002, 49)

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[7]   Also Boone (2000 and 2001) discusses the positive impact of the escape effect on innovation rate.

To summarize, innovative activity is moderate at very low and high degrees of competition. Incentive to innovate is highest when firms compete neck-and-neck, in other words head-to-head. Thus, there exists an inverted-U shape relationship between the degree of competition and the average innovation rate (Figure 5). Aghion et al. (2004) have found empirical evidence that an increase in the degree of competition meaning foreign entry does spur innovative activity in the industry. The inverted-U shape relationship seems to apply also to Finnish firms (Kilponen –Santavirta 2004, 79).

It is very seldom that there are either remarkable differences in the level of technological sophistication in an industry or then no such differences at all. Rather, the character of competition and innovation intensity can vary between firms in one industry. (Aghion et al. 2001.) Figure 6 illustrates a representative industry, where there are some firms competing head-to-head in the technological frontier (case A) as well as followers far away from the frontier. The neck-and-neck nature of competition can prevail also between firms that are not in the frontier (case B). On the other hand, innovative activity is modest within firms that do not have close rivals that would share the same relative cost level (case C). This implies that the vigor of innovative activity varies across the industry.

High level of competition

Cost level

Low   (A)   (B)   (C)   High
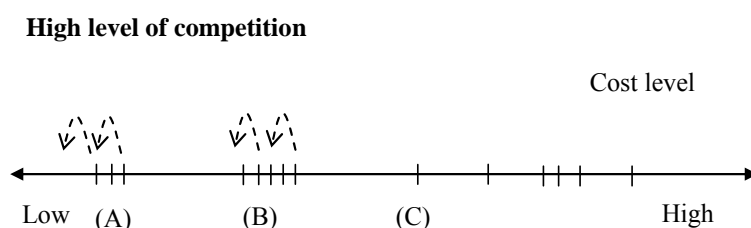
Figure 6   The intensity of innovative activity varies within one industry
(cf. Aghion et al. 2002)

In addition to cost asymmetry, incentive to innovate depends also on the size of innovations made by rivals, in other words, on the technological gap between firms. Small innovations always increase innovation rate as they support the head-to-head nature of competition. But then, major innovations can create large technological gaps between firms and discourage R&D efforts. If followers see themselves being too far from the leader and catching up seems to be too costly, they have no motivation to invest in R&D. (Aghion et al. 2001.) According to Aghion et al. (2001), the leader far ahead of its rivals has a secure standing and therefore has no further incentive to innovate. This result is opposite to the Boonean interpretation (2001) on the positive effect of a large lead on innovation incentives (Figure 4). Thus, the effect of major innovations on R&D intensity also depends on cost asymmetry between firms.

Innovation rate is likely to accelerate when the first innovation has been introduced in the industry because the possibility to imitate makes it easier for followers to catch up. Being able to use the previous innovation in their R&D, firms may come up with a new innovation, something they could not have invented if the previous innovation had not been launched. By surpassing the leader and making its innovation old, followers can guarantee that selection does not concern them. (Aghion – Howitt 1992, Aghion et al. 2001.)

However, the leader is likely to foresee this. Each innovation is valuable only if it yields sufficiently monopoly rents to cover the required R&D investment. As the following innovation destroys the monopoly rents that motivated the previous innovator, expectations about a high R&D rate in the future discourage current innovation. This means that the firm will not innovate unless it can expect some monopoly rents after innovating. If imitation is active, no firm will take the initiative to innovate. (Aghion – Howitt 1992, Aghion et al. 2001.)

The relationship between imitation and innovations is also inverse-U shaped. Relatively low levels of imitation increase R&D activity by promoting neck-and-neck rivalry. But when the degree of imitation continues to increase, its negative effects begin to dominate. High degrees of imitation do not make innovating unattractive only for the leader but also for followers. Imitation enables followers to just sit back and wait for the leader to innovate and then benefit by copying. Hence, easy imitation lowers also followers' valuation for innovations. (Aghion – Howitt 1992, Aghion et al. 2001, 481.)

The harmful effects of competition on innovation in the form of imitation can be cushioned by intellectual property rights, which is one form of regulation. By intellectual property rights the innovator can be secured monopoly profits for a fixed period of time. (Aghion – Howitt 1992). The next chapter discusses the impact of intellectual property rights as well as other regulations on competition.

3 DEREGULATION BOOSTS COMPETITION

Competition can be intensified in two ways: by encouraging new firms to enter the market and supporting more aggressive interactions between firms (Boone 2001, 723). Since the entry of new rivals intensifies interactions between firms, the removal of entry barriers is in a key role in competition advocacy. By influencing the incentives of firms, entry liberalization leads to price competition, creative destruction and vigorous innovative activity.

3.1 Static effects

Product market regulation affects static efficiency in two ways. On one hand, barriers to entry give firms market power, which they take advantage of to maximize their profit. On the other hand, provisions aimed at restricting the abuse of market power curtail the freedom of firms to exercise business and incur additional costs to them. Barriers to entry serve the purpose of incumbent firms as they ensure the non-existence of rivals. Entry restrictions have been imposed in order to prevent excess entry to the industry, as well as to ensure the entry of only those firms with desired characteristics. Even if barriers to entry can be beneficial in industries where large economies of scale are necessary for the attainment of efficiency, their impact is the opposite in most cases.

The removal of barriers to entry creates a threat of hit-and-run entry which forces incumbent firms to renounce large rents and trim fat in order to keep rivals out of the market (see for example Meyer – Vickers 1997; Nickell 1996). This implies that market efficiency is not dependent on its structure as the traditional structure-conduct-performance paradigm of Bain dating back to the 1950s (Bain 1954, according to Greer 1992, 10–15) has suggested (Audretsch et al. 2001, 615–621). Instead, all market structures can be efficient as long as they are contestable meaning the presence of potential entry. (Baumol – Panzar – Willig 1982.) The proper control of the market structure is difficult and costly. In reality such policy is often enforced randomly, which yields weak results. Hence, as potential competition reduces the market power of firms, the removal of entry barriers has great potential to increase efficiency.

Regardless of contestability, firms operating in the market face a multiplicity of provisions restricting business activity in general. These regulations are referred as to conduct regulation, which concerns inputs, outputs, advertising, opening hours, technology, prices, product quality and anti-competitive measures to mention a few. The purpose of these provisions or directive recommendations is to create an institutional environment that supports social aims. (Majone 1990, 224–242; Spulber 1989, 7; Wienert 1997, 12–

13.) For instance, provisions concerning the clear communication of prices and product quality have the purpose of reducing harmful information asymmetry between consumers and producers. The disadvantage of conduct regulation is that it, as all regulations, can have adverse effects. For example, price communication can restrict competition because it may promote the establishment of implicit cartels (Kilpailuvirasto 2005, 5). Moreover, compliance with conduct regulation imposes additional costs on firms, which they then transfer to prices. For instance, quality requirements concerning inputs and outputs entail additional testing. The removal of unnecessary provisions can be expected to have a cost depreciatory effect that impacts also prices (cf. Winston 1993).

Since the removal of unnecessary provisions directing conduct decrease prices by reducing the costs of firms, the removal of these provisions is unlikely to affect aggregate efficiency significantly in the long run. This implies that the advantages of deregulation derive not from the abolition of unnecessary conduct regulation. In contrast, the removal of entry restrictions impacts greatly on efficiency because it has also dynamic implications whereas conduct regulation impairs merely static efficiency. The dynamic efficiency gains of the removal of entry barriers concern the basic components of creative destruction, selection and learning, which are discussed next.

3.2   Creative destruction

The dynamic impacts of the threat of competition are stronger than those induced by internal restructuring within firms. The removal of entry barriers enables the entry of new firms, which eventually leads to creative destruction in the industry. This process does not occur if entry is blocked. In general, the understanding of this has lead to the appreciation of free entry and the systematic removal of barriers to entry.

At strictest entry barriers are so extensive that entry is completely blocked. Entry is blocked completely when competition is not desirable, such as in the case of natural monopolies and cream skimming situations, in which the incumbent or incumbents enjoy large economies of scale[8]. Alternatively, entry can be allowed under restrictions. Public authorities can control entry by setting business subject to a permit system, which can be enforced in several degrees. In their strictest form permits are subject to needs-testing. Strict control of entry by needs-testing was common in Finland still in the 1980s. Permit systems have been modified towards a looser control during the past years. Nowadays they are most often enforced in the form of consideration for aptitude

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[8]   Completely blocked entry is sometimes defended by the infant industry argument, which means the protection of new industries from competition in their infancy to support their growth. (Acemoglu – Aghion – Zilibotti 2002, 35.)

or a mere notification procedure, of which the former usually concerns the financial status of the firm and an entrepreneur's occupational validity[9]. (Ministry of Finance 1991, 1992 and 1993.)

In addition to being legal, barriers to entry can also be structural. Active competition policy is a way to tackle anti-competitive market actions and structures. (Geroski 1991, 166–191; Nicoletti–Scarpetta 2003, 18–21.) Regulations restricting entry are often indirect. For instance, provisions designed to affect the conduct of firms can unintentionally restrict free entry. Technical requirements controlling product quality in the form of standards serve an example of this (Nicoletti – Scarpetta 2003, 18–21). Complying with standards raise the costs of product design and can in this way hamper the introduction of new, competing products to the market and protect incumbent firms[10] (OECD 2004, 80–81). Moreover, entry permits, like all regulation, entail administrative work and costs for firms. As long as these permits constitute a burden to firms, they discourage entry. (Brandt 2004, 25–31; Nicoletti – Scarpetta 2003, 18–21.) By and large, a strong regulatory regime can function as a barrier to entry by creating an unattractive business environment (Stewart – Smith 1994, 24).

However, the removal of barriers to entry does not lead to an increase in the entry rate as long as there are restrictions on exit from the market. Restrictions on exit do not encourage firms to enter in the first place since it increases the risk for making a loss. Hence, limitations on exit hamper entry too. Regulations on exit are relatively rare in Finland. However, the length of time that creditors have claims on a bankrupt's assets can be regarded to restrict free exit. (Brandt 2004, 27–28.) Additionally, the inflexibility of collective labor agreements to changes in the demand for workforce poses constraints on free exit (Scarpetta – Tressel 2002, 28). When labor, which is a costly factor of production, cannot be denounced, exit is not a viable option. This can discourage business especially in the labor-intensive service sector.

Even if there were no barriers to domestic entry, the full potential of competition cannot be exploited unless the domestic market is subject also to foreign competition (Baily – Gersbach 1995, 308). Especially in small countries, like Finland, where domestic industries are relatively small and characterized with a small number of firms, even a

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[9]   Permit system was radically reformed in Finnish goods traffic and driving school business in 1991 and 1994 respectively when needs-testing was replaced by consideration for aptitude (OECD 2003a). The granting of licenses in goods traffic was ungenerous prior to the reform (Moisio, telephone interview 12.8.2005). In the driving school business the number of entrepreneurs rose remarkably and intensified competition lead to a decrease in price level during the latter half of the 1990s (Peiponen, telephone interview 15.8.2005).
[10]   National standards can block import. This has become more unlikely during the past decade as the creation of the European Internal Market has initiated an extensive harmonization of national standards. However, the OECD (2004, 80–81) considers applied standards in construction and building in Finland to still hinder the entry of foreigners.

completely free entry for national firms might not spur competition. The presence of foreign competition in the form of import or affiliates increases the number of rivals in the home market and intensifies interactions between firms. Interaction with foreign competitors exposes domestic firms to new, perhaps better, practices, which forces them to learn and develop. Hence, foreign competition increases micro-level dynamics and accelerates selection. (Baily – Gersbach 1995, 342; Melitz 2002.)

Restrictions on imports on one hand and on foreign direct investment (FDI) on the other hand impede the penetration of foreign competition to the home market (Baily – Gersbach 1995; Melitz 2002). Additionally, product market regulations as well as an overly regulated business environment in general have an indirect effect of discouraging foreign investments (Nicoletti – Scarpetta 2005b, 15; Pica – Mora 2005, 20). In Finland, FDI was strictly regulated as late as until 1993. According to Maliranta and Nurmi (2004, 19–20), the post-reform penetration of foreign-owned companies increased inter-action between firms and speeded up selection. These positive effects occurred despite the fact that Finland was among those OECD countries with the highest level of restrictions on FDIs in the 1990s. The poor ranking prevails also currently. (Golub 2003, 16, 22.) Consequently, the level of foreign direct investment is relatively low in Finland when compared to other OECD countries (OECD 2004, 85). It is estimated that by loosening product market regulations further Finland could attract 25 percent more foreign direct investments (Nicoletti – Golub – Hajkova – Mirza – Yoo 2003, 70).

The global trend of removing import restrictions and allowing free international trade has narrowed the possibilities of countries to block imports completely, which was previously common and exercised according to the origin and type of product. In spite of this, the level of import penetration is still low in Finland (OECD 2004, 80–82). Tariffs and other non-tariff barriers are ways to control the entry of foreign products.

Non-tariff barriers are indirect ways to limit import. They can be in the form of selective taxes, dumping duties, countervailing duties, heavy administrative procedures, quotas and licenses to mention a few. Countervailing duties are used to raise the price of cheap imports to the domestic price level. (Baldwin 1970, 11–12; Nicoletti – Scarpetta 2003, 18–21; Spulber 1989, 37). Since barriers to trade either block import completely or increase its costs significantly, they prevent foreign competition effectively.

Besides introducing competing products and processes by allowing import and FDI, foreign competition accelerates selection by offering domestic firms a possibility to engage in export. As entering the export sector requires an investment cost, only the most efficient firms can engage in export. Export is attractive to firms as it enables them to widen their demand and to benefit from economies of scale. Export therefore gives firms a possibility to compensate for the decrease in revenue caused by the loss of domestic market share to foreign firms. Hence, firms can increase their efficiency and se-

cure continuation in the domestic market by engaging in export. (Melitz 2002.) This restrains the existence of non-exporting firms and puts them under pressure.

Success in the export sector requires continuous learning and adapting to foreign best practices, which implies that exporters are more advanced than their domestic, non-exporting, competitors. As foreign knowledge spills over to the domestic market, also non-exporters are forced to develop their practices in order not to drop out of competition. Thus, the presence of foreign competition promotes knowledge spillovers and accelerates selection, not only between exporting firms but also in the home market. The spillover effect is discussed in more detail in the next chapter. It can be considered there being two selection effects: the export market selection effect and the domestic market selection effect, of which the former fortifies the latter. (Baily – Gersbach 1995, Melitz 2002.)

As entry liberalization results in creative destruction and the exit of inefficient firms, it increases the rate with which firms exit the industry. On the other hand, the removal of barriers to entry makes competition fiercer and imposes great demands on firms, which can decrease the rate of entry. This means that the removal of barriers to entry can increase industry concentration. Concentration has traditionally been thought to indicate inefficiency caused by a lack of competition. Competition is seen to work well when the industry is characterized by many firms with similar market shares. This does not apply to industries with asymmetric firms. When industry concentration is low, there are many firms operating in the market and also the least efficient firms can produce. Thus, low industry concentration does not necessarily indicate a high degree of competition and efficiency. Rather, a high level of concentration may be a sign of intense competition. With asymmetric firms there is no clear interdependency on the degree of competition and industry structure. An industry may be characterized by a monopoly structure due to high barriers to entry and lack of competition. It may as well be the result of vigorous competition, of which one firm has come out on top. Concentration may decrease in the long run if the welfare effects of increased competition lead to an increase in aggregate demand. This would attract new competitors to the market, which would relieve concentration. (Aghion – Schankerman 2004, 806; Boone 2001, 722–723.)

To conclude, deregulation increases entry and exit. The extent to which these are affected depends on the specific industry. (Cincera – Galgau 2005.) Entry liberalization is found to be the most important form of deregulation because it has the greatest impact on growth through its effect on creative destruction (Alesina – Ardagna – Nicoletti – Schiantarelli 2003, 26; Cincera – Calgau 2005, Scarpetta et al. 2002). This effect is strengthened by the fact that entry liberalization spurs innovative activity.

3.3   Innovative activity

A variety of institutional factors have an impact on the innovative activity of firms including, for instance, the availability of public and private finance[11] (Kilponen – Santavirta 2004, 73–82), flexible labor market allowing an efficient reallocation of factors of production (see for example Jaumotte – Pain 2005b, 18; Ahn 2002, 28), the availability of human capital, a good research environment in general (Jaumotte – Pain 2005c, 9), and product market regulation (Jaumotte – Pain 2005c, 7). Even though product market regulation is only a one factor affecting innovative activity, its role is by no means trivial. According to Jaumotte and Pain (2005c, 8), a one standard deviation decline in the rigidity of product market regulations would raise R&D expenditure by around nine percent. The great influence that regulations have on innovations derives from their impact on competition. Competition affects incentives strongly, which, in turn, can be influenced by policies and institutions. However, well functioning competition does not encourage innovative activity adequately as long as the business environment is unsupportive for R&D. Already a belief of a heavy regulatory environment discourages innovative activity even if the belief was false (Stewart 1981, 1295).

The removal of barriers to entry spurs innovative activity by making the future of firms insecure. As free entry enables the commercialization of new innovations, it increases innovative activity also outside the industry, among potential entrants (cf. Ericson – Pakes 1995, 55–58). Moreover, the openness of the industry intensifies interactions between firms and increases the exchange of ideas. Whether this exchange concerns codified or tacit knowledge, it leads to the diffusion of new ideas, technologies, and working practices, which increases the aggregate level of technological sophistication. An extensive diffusion of knowledge requires openness not only to domestic but also to foreign influences. Export, import and FDI expose domestic firms to foreign best practices, which then spill over to the home country through firm interaction. (Baily – Gersbach 1995.) The gap in the productivity of the ICT sector between the US and Europe is suggested to be due to weaker diffusion in Europe (Commission of the European Communities 2005, 26).

An increase in trade openness is found to stimulate R&D activity significantly (Jaumotte – Pain 2005a, 32). Since those domestic firms that are in contact with foreign firms innovate frequently, the presence of foreign competition can widen the technological gap between domestic firms. This can discourage firms operating purely domes-

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[11]   The availability of public R&D subsidies is likely to affect innovative activity strongly. The positive impact of subsidies is, however, not self-explanatory. As public subsidies are equally available to all firms, the knowledge of this can reduce incentives to innovate. Anticipated increase in future research is likely to discourage current research (Aghion – Howitt 1992, 324–325). For further discussion of the effect of subsidies, see for instance Kilponen – Santavirta 2004.

tically from investing in R&D, which would cause the number of domestic innovations to decrease. Hence, foreign competition can lead to domestic innovations being partly replaced by foreign innovations (Jaumotte – Pain 2005c, 51–53). However, it can be expected that the presence of foreign rivals induces more vigorous innovative activity among internationalized domestic, which compensates this hiccup.

Cooperation increases interaction and promotes the exchange of customs. It is therefore beneficial for lively R&D activity[12]. Jaumotte and Pain (2005b, 19) show cooperation to have a strong impact on the success of innovations. Besides diffusing knowledge, cooperation permits technology trading between competitors. R&D spillovers that refer to the gratuitous acquirement of useful knowledge are problematic in the sense that they enable firms to benefit from innovations made by other firms, to which they have made no financial contribution. Hence, technology spillovers can discourage potential innovators from investing in R&D. Cooperation in R&D activity can help to internalize these externalities and in this way promote the creation of innovations. (Audretsch et al. 2001, 630.) The importance of cooperation decreases with firm size, which indicates that small firms benefit more from cooperation than large firms. This is because the costs of R&D are heavier for small firms. Additionally, the positive effect of cooperation seems to be more pronounced in the service sector than in industry. (Jaumotte and Pain 2005b, 19.)

Even though entry barriers influence innovative activity greatly, perhaps to the greatest extent, also other regulations have a negative bearing on them. The imposition of stringent technical constraints and standards on end products can reduce innovation incentives[13]. If there is no room for new currently non-existing product characteristics, the design of innovations is not reasonable. Additionally, technical constraints raise the costs of testing and fine-tuning of product innovations. Consequently, the price of the final product can rise too high for it to sell adequately to compensate for the costs of design. (Stewart 1981, 1279–1280, 1294.) Moreover, as regulations entail administrative work, they effectively hinder the creation of new innovations by diverting resources from investment to compliance (Wienert 1997, 31).

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[12]   Cooperation can be anti-competitive and have welfare-reducing effects. But the positive effects of cooperation tend to outweigh the negative effects it can induce. Negative impacts of cooperation can be reduced by efficient policy of restraints on competition. However, there is a risk that they prevent also beneficial cooperation. Hence, the formulation of optimal competition restraints is extremely difficult.

[13] However, regulations can also spur innovations. For instance, environmental regulation has laid ground for new and more environmental friendly products and processes, the creation of which requires true innovations. But then, as environmental standards tighten continuously, this positive effect of provisions on innovations can occur only in the short run. Since firms know that every new innovation is likely to lead to the setting of new and more firm demands, investments in R&D become unattractive. (See Wienert 1997, 30–32 for further discussion.)

Another major harm from the point of view of R&D activity that regulation triggers in addition to restrictions on entry is that it causes uncertainty about the future regulatory environment. Formulating and reforming regulations is a lengthy process. Uncertainty and delay raise the required expected return on the innovation by imposing an extra cost in the form of a risk premium. The risk that the innovation would not fulfill regulatory requirements and could not be commercialized for this reason affects investment decisions negatively. Moreover, the need to fine-tune the innovation to meet regulatory requirements can delay the launch of the innovation and thereby reduce return on investment. Furthermore, the length of legislative processes makes the effectiveness of provisions questionable. Once new regulations are imposed, they can be already out of date and hence have adverse effects. Regulatory uncertainty troubles most those industries, where technological progress is fast, in other words those industries, which are crucial for aggregate innovative activity. Also those industries that are subject to multiple requirements suffer greatly from uncertainty. (Määttä 2001, 29; Stewart 1981, 1279–1280, 1294.)

In spite of the positive impact of competition, innovative activity tends to be too small under laissez-faire due to the business stealing effect (Aghion – Howitt 1992, 325). Intellectual property rights (IPR) relieve the problems of R&D spillovers by securing the innovator financial compensation for the investment in R&D. Without IPR innovative activity would be far more modest. Thus, IPR increase investments in R&D. If firms could not acquire any protection for their innovations they would try to keep them as secret as possible, which would be detrimental to the diffusion of knowledge from current innovators to potential new innovators. Only a small minority of innovations is completely new innovations. Most innovations build on existing innovations. Therefore, strong protection of innovations can be counterproductive because it limits the access of potential future innovators to necessary knowledge. Moreover, disclosure of information may prevent unnecessary duplication of research efforts. (Ahn 2002, 14; Jaumotte – Pain 2005c, 40; Määttä 2001, 38–39.)

However, when preventing rivals from copying the innovations immediately after their launch, intellectual property rights secure innovators some market power. If this protection is strong, innovators can use it as a strategic entry barrier. Additionally, firms anticipating the availability of strong protection for innovations can engage in preemptive patenting. Thus, strong IPR may hinder the birth of new innovations[14]. (Audretsch et al. 2001, 631; Jaumotte – Pain 2005c, 40; Määttä 2001, 38–39.) In order for patents to stimulate innovative activity but not to allow the creation of monopolies,

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[14]   Bassanini and Ernst (2002, 30) have found strong IPR to be positively associated with higher R&D intensity. This relationship was not found to be strong, however.

the design of the optimal width and depth of patents is important (Takalo – Kanniainen 1996). This is by no means straightforward.

The severity of regulation on innovative activity lies in that rigid regulations have a significantly stronger effect on true innovators than on imitators (Jaumotte – Pain 2005b, 19). Given that innovative activity in Finland is largely based on true innovations rather than on imitations (Jaumotte – Pain 2005c, 29), it would bee interesting to explore to which extent domestic deregulation has fostered R&D investments. Moreover, product market regulations seem to have a stronger impact on technology adoption in highly competitive markets than in less competitive ones (Nicoletti – Scarpetta 2003, 39). Hence, regulations are harmful especially for those firms and in those sectors that have a significant contribution to productivity growth, which will be discussed later in chapter six.

But the impact of regulation on innovations depends on the type of provision. Some regulations promote innovative activity but some do not. The impact of particular regulations on innovative activity is often ambiguous since regulation promoting innovative activity at one stage may be an obstacle in another as is the case with intellectual property rights. The problematic of the public direction of innovative activity is also that by R&D activity firms aim at the creation of internationally successful products. Consequently, also foreign policies affect domestic innovative activity. (Määttä 200125–27; Wienert 1997, 29.) Thus, the optimal direction of innovative activity would require international cooperation.

4 FROM REGULATION TO DEREGULATION

As regulation impedes competition, it causes inefficiencies, which can outweigh the benefits of regulation. The removal of unnecessary regulations is one way to increase market dynamism and efficiency. Before one can understand why deregulation has gained popularity during the past decades, one has to be familiar with regulation as a phenomenon. Justification for regulation is found in market failures. However, public intervention in the market can cause regulatory failures, which also entail inefficiencies. Deregulation that has arisen as an answer to these problems has lead to the replacement of centralized regulation by more market-driven mechanisms.

4.1 Justification for product market regulation

Regulation is based on the normative theory of economic regulation, which sees that economic activity serves best public interest when it is closely scrutinized by the government. Support for public intervention grew in the Western world after the Second World War. Regulation was increased because it was considered to secure market efficiency and higher welfare in an unstable post-war environment. Government intervention was seen to prevent market failures, which are deviations from Pareto efficiency that distort optimal resource allocation and cause inefficiencies. The competitive market does not lead to the first best resource allocation in the presence of market failures. When policy-makers intervene in the market and correct market failures, the second-best resource allocation yielding an equally good equilibrium as the first-best may be obtained. Government intervention can facilitate the market to reach the Pareto efficient allocation. Thus, the theory of the second-best serves as a justification for regulation. (Gravelle – Rees 1992, 535; Majone 1996, 28; Wienert 1997, 13.)

There are several sources of market failure. First, market power leads to a loss in welfare as explained above. Regulation offers public authorities a tool to control firms with market power and decrease the harmful effects they incur. In its strictest form product market regulation is enforced through public ownership. Publicly owned firms are kept under tight government control. Public ownership is a common form of regulation for important resources of the society and natural monopolies such as network industries. The purpose of public ownership is to guarantee that such resources are used according to the common good. Important products and services can also be produced by the public sector. These are then funded by taxation. (Ogus 1994) Alternatively, the use of competition constraints restricting the use of market power may be sufficient.

Negative externalities are the second source of market failure. They are created when the actions of firms impose costs on other firms, but originators do not compensate for these costs. As a consequence, the firms responsible for externalities produce too much and resources are misallocated. Other firms suffer from the damage which they have not caused. As these firms have to participate to the compensation of the damage, they produce less than their efficiency level would imply them to produce. Pollution is an example of negative externality. The Coasean solution of bargaining between the parties involved does not always solve the externality problem if it is complex, extensive and involves many parties. In such a case, the only way to reduce the harmful effects of the externality may be by government intervention. This is most often realized by taxation that allocates costs to the cause. Externalities may call for government intervention only when they distort competition. Therefore not all externalities require regulation. (Majone 1990, 226; Ogus 1994, 21–38; Spulber 1989, 46–47.)

Market failures arise also from information asymmetries. Allocative efficiency requires that decision-makers have adequate information. Some products are complicated in their nature so that consumers find it difficult to compare them or understand their content. For example, it is impossible for a consumer not specialized in medicine to assess whether the prices of doctoral services are according to their cost. When there are enough players in the market so that a price cut does not affect the demand of the firm but the number of firms is not very large either, poor price information can encourage firms to keep a high price level. As a consequence, prices may not reflect costs adequately. (Majone 1990, 228–230; Ogus 1994, 38, 121–124; Spulber 1989, 62–65.)

In addition to price, the consumer may find it difficult to assess the quality of the treatment. Under the assumptions of perfect competition and complicated product attributes, homogeneous pricing can lead to only poor quality goods being supplied in the market. If consumers cannot detect high quality products, and if the price level reflects average prices, high quality products are driven out of the market. Information asymmetries and the scenario of market for lemons lead to a sub-optimal resource allocation. Information gaps between consumers and producers concerning prices and quality may be narrowed by government intervention. Forcing firms to supply adequately information may eliminate the loss. (Greer 1990, 124; Ogus 1994, 121–124; Spulber 1989, 62–65.)

Also the unequal distribution of income and wealth is sometimes regarded as a market failure. Some regulations have been designed in order to achieve a fair distribution of resources. Hence, regulation can be enforced also for social purposes. (Ogus 1994, 46.) Moreover, system failures arose as justification for public regulation in the 1990s. System failures refer to no-growth or evolutionary traps meaning the lack of market dynamism. Hence, market mechanisms may be unable to support selection and continuous

learning in all cases. Regulation may be capable of solving these problems to some extent. (Hauknes – Nordgren 1999, 5–13.)

However, conditions for the second-best are often unfulfilled. This implies that regulation can cause remarkable inefficiencies and thereby decrease welfare, which is contradictory to its purpose. These limitations of regulation are discussed next.

4.2   Pitfalls of regulation

Despite good communal purposes, regulation has its pitfalls. Government intervention intended to correct market failures can cause great inefficiencies, even greater than those induced by market failures themselves. In order for the second-best resource allocation to be attainable, should policy-makers possess full information. Additionally, regulations should transmit to the market without distortions. Since these conditions are often unfulfilled, regulation easily causes further distortions and can hamper the efficient allocation of resources. This means that regulation can prevent the market reaching the most efficient equilibrium. Thus, regulation may lead to a regulatory failure and turn against its purposes.

First of all, regulators often lack adequate information and knowledge to make optimal regulatory decisions. Regulating business requires general knowledge on running a business as well as knowledge about specific industries. There are two reasons why policy-makers possess imperfect information. On one hand, regulators are civil servants and therefore not experts in all regulated industries. Since the impacts of provisions are various, the design of optimal regulation would require detailed information of industries. But to acquire full information is costly (Gravelle – Rees 1992, 540). Regulators do not have enough time to get acquainted to each and every business. Additionally, regulating firms requires continuous monitoring, which is time consuming. On the other hand, even if regulators devoted time and resources to gather information on the basis of decision-making, gathered information is likely to be inaccurate. Such information is widely dispersed and privately owned. Since the interests of firms and regulators tend to be opposite, firms are unwilling to submit their information to policy-makers. In other words, the political control of regulators towards regulated firms constitutes a principal agent problem. (Ogus 1994, 111–112; Suzumura 1995, 197–198; Wienert 1997.)

Due to information asymmetry, regulators easily have inaccurate information on which they base regulatory decision-making. When provisions are formulated on the basis of inadequate and inaccurate information, they are likely to be maladjusted and have unintentional effects. The optimality and accuracy of regulations is questionable also because they have indirect and long-term effects, which are difficult to predict

when regulations are prepared. Complex and subtle causal linkages and the uncertainty about future make optimal policy making impossible. (Suzumura 1995, 197–198)

Secondly, the preparation of regulations is a lengthy process that poses difficulties to the accuracy of provisions. In order for regulations to have desired and accurate effects, should they be adapted to industry-specific needs. As the preparation of regulations is about reconciling contradictory preferences, it is a lengthy process. This implies that a provision ready for implementation might be outdated already. This is often the case with fields where business changes rapidly, like technologically intensive industries. Hence, it is be impossible to adjust provisions according to the needs of each industry. Regulatory authorities have to compromise between time used for planning and the effectiveness of provisions. Consequently, the efficacy of provisions is questionable. Moreover, complicated planning and drafting procedures make regulation costly. The administrative costs of regulation can be so remarkable that the costs of regulation exceed the benefits it can incur. (Mandelkern group 2001, 14; Ogus 1994, 105.)

Thirdly, private interest theories suggest regulation to be suboptimal because it is subject to political capture. Political capture means that regulations tend to reflect the interests of the most influential groups instead of public interest. Private interest groups are well-organized groups that advocate the interests of their members by lobbying. These groups are often heard during the preparation of provisions due to their expertise on industry-specific issues. Since interest groups are an important source of political support to legislatives, they can alter regulations in their favor. The power of these groups relies in information asymmetry between interest groups and decision-makers.[15] Regulators need the expertise of interest groups and have to trust to them giving the correct information. Consequently, regulations do not always reflect public interest. (Majone 1996, 31; Ogus 1994, 111–112; Stigler 1971; Wienert 1997, 14–15.)

Lobbying is most active when there are cost asymmetries between firms because cost heterogeneity causes the interests of low and high cost firms to conflict. An increase in the degree of competition reduces the profits of high cost firms and increases those of low-cost firms. In other words, high cost firms prefer low level of competition while low-cost firms prefer intense competition. This makes firms to lobby public authorities concerning regulation in a non-uniform way. (Aghion – Schankerman 2004, 807.) There are also interest groups that represent consumers. However, these groups are generally less powerful than those of producers. Hence, regulations can be tilted towards the benefit of producers, which means that they might sustain the existence of high producer surplus and dead weight loss.

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[15]   The influences of private interest groups on political decision-making is discussed in detail in Grossman, Gene M. – Helpman, Elhanan (2001) Special Interest Politics, The Massachusetts Institute of Technology Press, Cambridge

The capture effect is present when the degree of competition is low, firms enjoy high margins and have a high cost level. Wealthy firms are capable of lobbying politicians not to introduce pro-competitive policies. High-cost firms are also highly willing to lobby authorities not to promote competition because they have a lot to lose if the degree of competition increases. Thus, a low degree of competition increases the risk that the economy gets into a low competition trap where the level of competition is not likely to increase. But then, when competition is intense, firms have fewer funds to lobby politicians. They are also less willing to pay to prevent further increases in competition because this would increase profits only slightly. Thus, political capture is likely to lead the economy to a low competition trap when the initial level of competition is low, and there is not much cost asymmetry between firms. (Aghion – Schankerman 2004, 807–808; Acemoglu et al. 2002, 35–39)

Lastly, but most importantly, regulation prevents competition (see for example Nicoletti – Scarpetta 2003, 35) by removing natural incentive mechanisms (Meyer – Vickers 1997, Vickers 1995). It is competition that is the prime motivator for firms to increase their efficiency, which will translate to higher aggregate efficiency and enhanced welfare. Moreover, regulation often fails to attain the second-best Pareto-optimal resource allocation because its attainment is difficult. If regulation that is intended to affect the incentives of firms proves successful so that firms behave in the way regulators wish, it is likely that regulation will be tightened and higher regulatory goals are set in the future. As managers rationally expect that good compliance with provisions entails tighter regulation tomorrow they willfully restrain from efficient performance today. In other words, regulation leads to the lack of effort as firms anticipate that if they increase efficiency now, they will be required more efficient performance tomorrow.[16] (Vickers 1995, 11.)

Private interest theories of regulation introduced in the 1960s started the large-scale criticism of product market regulation. The economic slowdown of the following decade and Joseph Stigler's capture theory of 1971 intensified critique towards prevailing politics. Unfavorable economic conditions brought the failures of existing regulatory regimes to daylight. Being slow and extremely costly, government regulation became unpopular. The change of the political climate resulted in the renaissance of liberalism and paved way for deregulation. Market failures were no longer seen as sufficient justification for government intervention. Instead, free competition gained support and was considered to solve regulatory failures. This led to the rise of deregulation in the 1980s. (Chang 1997, 708–711, Majone 1996, 17, 31; Ogus 1994, 111–112; Stigler 1971; Wienert 1997, 14–15.)

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[16]   This is called the ratchet effect (Vickers 1995, 11).

4.3 Deregulation

Liberalism experienced a renaissance in the beginning of 1980s when *neoliberalism* gained popularity. Neoliberalism accentuates the role of competition in efficient resource allocation. Market regulation is seen unnecessary and to derail resource allocation from Pareto optimality. The change in the economic and political philosophy in the 1970s paved way for more market oriented regulation in Europe, where regulation has traditionally based on extensive government intervention and public ownership. Neoliberalism gained popularity especially in the UK, where it became the basis of politics during the reign of Margaret Thatcher. Consequently, Britain was at the head of deregulation in the 1980s. (Ogus 1994; Wienert 1997, 13–16.) In Finland, the discussion about deregulation started as late as in the halfway of the decade. Consequently, the wave of deregulation did not take place until in the turn of the decade. Regulatory reform in Finland will be discussed in chapter 5.1.

Deregulation is based on the liberal idea of competition being superior to regulation. Competition is regarded to remedy market failures more efficiently and with smaller costs than regulation. Since competition reduces information asymmetry and enables relative performance comparison, it supports natural incentive mechanisms and increases effort (Meyer – Vickers 1997). It thereby leads to greater efficiency and promotes lower price and cost level. Additionally, as competition enhances the responsiveness of the market to changes, it shortens the time it takes for the market to adjust to meet new demands. Hence, competition is an endogenous and market-based tool for regulation that reduces the need for external regulation (Stewart-Smith 1994, 22). Moreover, the administrative costs of ensuring well functioning competition are likely to be significantly lower than those of centralized industry-specific regulation.

Since modern economies need rules to function efficiently, deregulation is not about removing all regulation. Rather, the purpose is to increase the quality of regulation by replacing old unsuitable provisions by more competition-friendly ones. This is referred to re-regulation (Bergeijk – Haffner 1996, 9; Stewart-Smith 1994, 28). The need for regulation does not disappear by deregulation as its removal, even if only partial, in certain areas may call for government intervention in other areas. One of the characteristics of high-quality regulation is that only those activities that necessarily need regulation are under public control[17]. Hence, firms can be deregulated in some activities but regulated in others. For instance, despite the fact that many business activities are not regulated, environmental issues are closely scrutinized by policy-makers. (Chang 1997, 717; Winston 1993, 1264.)

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[17] Naturally, the specification of these activities is difficult and requires much administrative work, which implies that the cost savings of deregulation occur only in the medium or long run.

One way to deregulate is to let the market regulate itself. This self-regulation means that regulative tasks are accorded to private institutions, like interest groups. Self-regulation has several benefits when compared to regulation enforced by the public sector. First, market actors, namely firms, have a higher degree of expertise on the industry in question than regulators. Consequently, private regulation leads to more efficient and accurate outcomes. Secondly, costs incurred by regulation are smaller when it is the responsibility of private institutions instead of the centralized public sector. This is because there is less information asymmetry when regulation is enforced by the private sector. Consequently, information costs of the formulation of regulation as well as monitoring and enforcement costs are lower than in the case of public regulation. Also costs of amending regulations are low as private preparation of provisions is less bureaucratic. Moreover, since private amending of provisions is relatively fast, there are no costs attributable to delay. Reduced bureaucracy ensures quick adaptation of regulation to changes in the environment. Thus, self-regulation means large savings in administrative costs. Additionally, when private institutions take care of regulatory tasks, the costs of it are internalized in the business activity. (Majone 1996, 23–26; Ogus 1994, 107–111.)

Self-regulation has disadvantages, though. Completely private decision-making lacks democratic legitimacy. As there is stillinformation asymmetry between the public and the private sector, legislatives cannot be sure that privately-enforced regulations serve the public interest. Hence, public authorities are unable to assess the good and proper functioning of self-regulation. Moreover, private institutions may be unwilling to punish wrongdoers. Thus, regulatory issues cannot fully be left to the responsibility of the market itself. (Majone 1996, 23–26; Ogus 1994, 107–111.)

The disadvantages of self-regulation can be solved by submitting private regulatory authorities under public control. This means that public authorities monitor private organizations, which monitor market actors. In other words, regulatory tasks can be outsourced to private institutions. (Chang 1997, 717; Majone 1996, 23–26.) Controlled self-regulation is common in many sectors also in Finland. For instance, the Finnish Communications Regulatory Authority (FICORA), which is a general administrative authority for issues concerning electronic communications and information society services, is supervised by the Ministry of Transports and Communication.

To conclude, competition is essential for welfare. But, so is regulation. The challenge of efficient and accurate competition policy is to find a balance between public control and competition. It is evident that this is not straightforward. Policy-makers responsible for such decisions ought to understand how regulation and deregulation affect competition. This will be discussed next.

5   DEREGULATION IN FINLAND – TWO CASES

This chapter sheds light on deregulation in Finland. The process of regulatory reform got off the ground relatively late in Finland in international comparison. First, rationale for this and milestones in regulatory reform are presented. Then, deregulation is described in more detail in service station and restaurant sectors. The reason why these industries were chosen as examples is that they experienced significant reforms, which can be expected to have had visible impacts. As long as service stations are concerned, reforms have enabled the retention of their competitive advantage in the retail industry. The purpose is to assess how reforms affected the entry and exit of firms and whether it promoted structural change. The analysis is pursued further in chapter 6.4.3 by assessing external restructuring in these industries.

5.1   A tardy process that accelerated fast

Competition policy has traditionally not been important in Finnish industrial policy. In contrast, public authorities have been active in restricting competition by numerous provisions and regulation mechanisms. Competition was considered harm for long. (Pekkarinen 2004, 203.) The reason for the late awakening for competition advocacy can perhaps be seen in the good macroeconomic performance in Finland in the 1980s. Since the economy was faring, a change of policy was not considered necessary. The role of the Finnish government in controlling economic activity was strong until the mid 1980s. Protecting consumers' interests and promoting common welfare functioned for justification. A change of policy was seen in the latter half of the decade when support for free market economy grew. This can be considered to have been due to the general international development of competition promotion and the good example of successful deregulation in some countries on one hand, and the development of the European internal market on the other hand (Pekkarinen 2004, 203–30).

Deregulation started relatively late in Finland compared to other European countries, where the coming trend could be seen already in the late 1970s. The status of competition has changed greatly in Finland in the past twenty years. During these years we have witnessed a remarkable change in attitude as well as general policy. The late commencement of competition advocacy has not hindered the relatively great speed with which reforms have been enforced.

The deregulation process was set in motion in 1985 by the establishment of a competition and price committee. The purpose of the committee was to find guidelines for the abolishment of price regulation and the promotion of competition. Price regulation was

extensive in Finland at that time. It was a legacy from the post war scarcity of goods. By price control the government held back pressures for price increases. (Rekola 2004, 33.) By the late 1980s the tendency had turned from traditional regulation by the government to the advocacy of freer competition as a means to direct the economy. As a result the committee urged each ministry to go through all existing regulatory mechanisms in order to abolish all unnecessary ones and to actively prevent the creation of new mechanisms that restrict competition. (Purasjoki – Jokinen 2001.)

The committee also proposed competition issues to be centralized to a new agency that would be occupied solely by these issues. This laid foundations for the Finnish Competition Authority (FCA) that operates as an independent subordinate to the Ministry of Trade and Industry. The FCA was founded in the first of October 1988 to introduce competition policy to Finland, a mission which was vigorously enforced in the institution during its first years. Alongside deregulation, the FCA works also in the field of competition restrictions and acquisitions. (Purasjoki – Jokinen 2001.)

The first concrete reform of the FCA was the abolition of common price regulation right after its foundation in 1988. The same year competition legislation was renewed by issuing a new competition act. Along with the prevention of a dominating market position, this act emphasized free entry. The act was also directed to promote the removal of cartels with the help of the endogenous dynamics of the economy. (Hallberg 2004, 36–37.) These changes weighed in on the birth of an action program dedicated to competition promotion issued by the government a year later in 1989. This program strongly emphasized deregulation and was the first official guideline to eliminate harmful regulation. (OECD 1991, 68.)

The same year the Council of State launched a program aimed at reforming and simplifying administrative permissions. At that time there were, on average, 1 700 administrative permissions. These permissions included a large number of unnecessary business licenses that restricted entry and business operations. The licensing system also incurred unnecessary administrative costs. The majority of provisions had been created in the 1970s when a strong support for government control prevailed. At that time government control was seen to ensure the equal treatment of citizens and firms. The purpose of the reform was to abolish unnecessary permissions, simplify permission procedure, decrease paperwork and shorten the time of hearing as well as to remove overlapping permits. Necessary permissions were replaced by less heavy administrative systems such as notification procedures and ex-post regulation referring to the monitoring of business, which is less restrictive than controlled entry. For example, real estate business and procurement of housing underwent a transfer from licensing to notification procedure in 1993. (Ministry of Finance1991, 1992 and 1993.)

Since the end of the 1980s numerous provisions and restrictions on business have been removed. Unnecessary permissions based on needs-testing have been abolished. In general, entry to the industry has been facilitated in many ways. Concurrently with deregulation, new provisions have been implemented. However, these new regulations have been designed in general in such a way that they do not impede competition in vain. On the other hand, competition policy against restrictive practices and market dominance has been amended to support socially and economically beneficial competition. A new act on competition restriction (Statutes of Finland 480/1992) was issued in 1992, which was another milestone in the Finnish regulatory reform. The act introduced a stricter line towards cooperation in business. The act banned, for instance, price recommendations provided by various trade associations. These were previously commonly used especially in the field of professional services to ensure uniform pricing (Kojo, telephone interview, 11.8.2005; Myllys, telephone interview, 11.8.2005).

The year 1993 marked a great change in the level of competition in Finland as restrictions relating to foreign ownership were removed. This opened the Finnish market at a stroke. Other remarkable changes were made in 1994 and 1995 when Finland joined the European Economic Area (the EEA) and the EU respectively. These events finally opened the borders, permitted unrestricted import, and encouraged foreign firms to establish offices in Finland. Protectionist regulations had been eliminated already during accession talks. However, the majority of regulations relating to international trade were removed the first of January 1995. From 1995 onwards markets were no longer divided nationally. (Kilpailuvirasto; OECD 1991, 68.)

In spite of late awakening for deregulation, Finland has been highly commended for speedy regulatory reform. Especially the privatization of state-owned enterprises was extensive in the last years of the 20th century compared to other European countries. Finland was among the first countries to liberalize energy and telecommunications industries. The GSM network was opened to competition already in 1990. This for its part promoted the rise of the Finnish telecommunications sector. Network and operations services were separated in 1997 and in 2003 network operators were required to lease extra capacity of last-mile fixed lines to their competitors, which decreased the power of network owners to control the business. (Ministry of Finance 1999.) Competition intensified further in the mobile subscriber connections when mobile phone numbers became portable in 2003 (Ficora 2004). Finland has also been able to show example in deregulating the energy sector, in which production and distribution were separated already in 1995. Two years later consumers could choose freely their supplier. In 1998 the change of supplier became free of costs. These reforms are only examples of all those reforms that these two industries have undergone during the past fifteen years. Despite of extensive deregulation, competition does not work perfectly in these industries as, for in-

stance, high electricity prices indicate. (Fingrid; OECD 2003 a, 34–35; OECD 2003 b, 42–43; Høj – Wise 2004, 24–27.)

Figures in Annex 1 depict the state of product market regulation in Finland in relation to other countries. As these figures illustrate, product market regulation is not very extensive in Finland in international comparison. However, its degree is neither especially low. The standing of Finland has ameliorated greatly during the past ten years. (Figure 19) In the mid 1990s Finland used to be among the countries with tightest product market regulation. By the beginning of this decade, the degree of regulation had decreased to the average level in OECD countries. (Conway – Janod – Nicoletti 2005, 29.) Barriers to trade and barriers to entrepreneurship are relatively low, but the Finnish ranking suffers from extensive government control (Conway et al. 2005, 11; OECD 2005, 15; OECD 2004, 86–92). Indicators of product market regulation put relatively much weight on large industries. In addition to network industries, these sectors often include the retail industry. Product market regulation in the former is low in international comparison. But the retail industry disfigures the indicator of Finland. (Høj – Wise 2004; OECD 2004, 92–111.)

A multiplicity of new provisions has emerged in the past twenty years in Finland in tandem with deregulatory policies. Increased regulation is for a great extent due to the EU membership. On one hand, deregulation enforced nationally has concentrated on the removal of entry barriers and to increasing competition. Augmented EU-driven regulation, on the other hand, concerns the conduct of business and has social purposes. These regulations relate mostly to product safety, international standards, and the protection of environment. The role of the government has changed so that it has a broader mandate for social issues but less power in economic areas. (Chang 1997, 709; Wienert 1997, 43.) The adoption of EU directives has increased bureaucracy as well as administrative work for both, regulators and firms.

The Organization for Economic Co-operation and Development (OECD) that monitors regulatory reform in its member countries has thanked Finland for extensive reforms in the early 1990s. According to the OECD, deregulation boosted growth when Finland was experiencing a deep recession in the early 1990s. However, the recent feedback has been less positive. The deregulation process has decelerated remarkably after the accession to the EU. This does not concern only Finland but seems to be an international trend. The greatest exuberance has simmered down. Extensive public ownership restrains competition in numerous network industries. Many industries are also very concentrated like, for instance, construction and retail. Additionally, import penetration is relatively low in comparison to other EU countries. Therefore OECD has recommended Finland to be active in further deregulation of the product market. (OECD 2004, 73–117.)

5.2 Service stations

The Finnish service station business has undergone major changes during the past twenty years. In the beginning of the 1980s the industry was strictly regulated and there was no threat of entry. Since government set the highest consumer price for fuel, there was basically no competition over price. Due to price regulation, competition was about sales volume and market share where close customer connections and a dense service station network were important. (Lähde 1999, 7)

Shop activity in service stations is regulated by the kiosk act. In the beginning of the 1980s the kiosk act dated back to the year 1969. The act restricted extensively the assortment by listing one by one those items that were allowed to be sold. The list was very short and included, for instance, tobacco, newspapers and magazines, cheap toys, film, batteries, sunglasses, and toiletries. From groceries, only the sale of candies, soft drinks and ice cream was allowed. (Statutes of Finland 436/1969, 230/1971) The list was extended in 1984 to include few more items like coals, disposable plates and cups and lottery tickets. From groceries only ready-made sandwiches and fruits were added to the list. The amendment of the act extended more the assortment of kiosks than that of service stations. Kiosks were allowed to sell a narrow range of groceries, like coffee, sugar, eggs, cereals, margarine, and vacuum-packed sausage products. This gave kiosks a better standing compared to service stations. (Statutes of Finland 831/1984.)

There were no restrictions on the trading hours of kiosks and service stations in the 1980s. They had the freedom to be open 24 hours a day and seven days a week. (Statutes of Finland 436/1969) This was a remarkable competitive advantage for service stations compared to corner stores because it gave them the exclusive right for Sunday trade together with kiosks. This advantageous position was undermined in 1989 when trading hours of all stores in sparsely populated areas were fully deregulated (Kajalo 2002, 71–74; Statutes of Finland 918/1989). Competition for service stations increased as normal stores in these areas could be open as they wished.

The year 1984 marked the beginning for deregulation of service stations when margins in the retail of petrol were deregulated. The reform proceeded in 1988 by the removal of all price regulation. This indicated the removal of wholesale and producer prices of fuel from government control. Prices decreased remarkably in 1985 but this was more due to the cheapening of crude oil. The consequences of deregulation were felt for the first time in the beginning of the 1990s. In 1990 import of fuel was still the monopoly of state-owned Neste. This monopoly was decontrolled a year later when import became subject to a license. Licenses were first granted only to two importers Neste and Suomen Petroli, which is the sister company of Teboil. Import licenses were abolished completely the following year. (Nupponen, telephone interview 19.9.2005.) Price competition took off

when a new and cost-effective distribution system of fuel, unmanned distribution stations, was introduced in Finland in the early years of the decade (Lähde 1999, 8). These changes and the further deregulation of the shop activity lead to a structural change in the industry.

The year 1991 brought the overdue deregulation of assortment to kiosks and service stations. A new amendment of law (Statutes of Finland 726/1991) replaced the detailed list of items by a short list of goods whose sale was prohibited. Basically all goods whose price was less than 500 Finnish marks (84 euros) were allowed to be sold[18]. The reform of 1991 brought groceries to service stations and permitted the creation of convenience stores. Thus, the reform enabled an improvement of service in the favor of consumers (Kajalo 2002, 75; Mäkelä, telephone interview 16.12.2005). From then on consumers had a possibility to buy daily groceries on seven days a week from early in the morning until late in the evening, and even 24 hours a day in some service stations. The number of service stations with a concept store selling groceries and other daily goods increased rapidly (Figure 7). Firms had anticipated the 1991 reform. Esso had tested the convenience store concept by opening one even already a year earlier, though its actions were regarded as against the spirit of regulation (Kajalo 2002, 76).
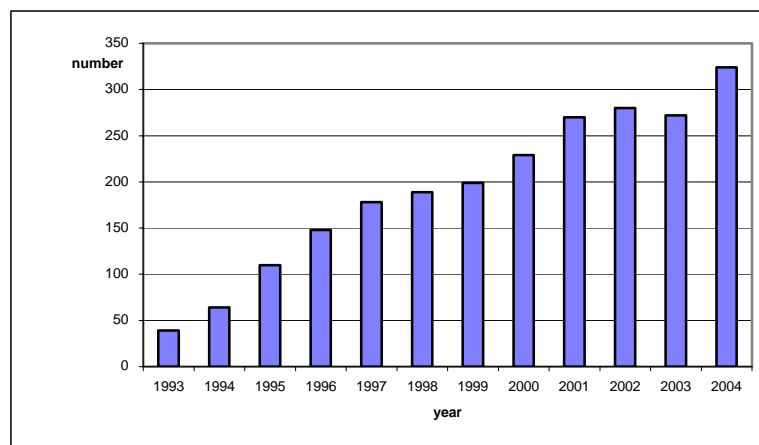

Figure 7   The development of the number of concept stores in the service station industry (Finnish Oil and Gas Federation19)

Service stations responded to the changed competitive setting not only by improving service and opening convenience stores. Some stations chose an opposite strategy. By transforming old traditional service stations to unmanned stations it was possible to cut

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[18]   There were few exceptions, however. The trade of goldsmith products, home electronics, agricultural or forestry machines, office equipment, photographic or optical products, as well as textiles, bags, clothes and shoes was prohibited (Statutes of Finland 726/1991).
[19]   The statistics of The Finnish Oil and Gas Federation are based on information announced by the service stations themselves. Therefore the statistics can be inexact.

costs and increase efficiency. Low fuel prices attracted price conscious customers who were willing to substitute service to lower prices. There have thus been two opposite trends. The number of unmanned stations increased rapidly after their launch in the beginning of the 1990s. This development can be seen in the entry and exit rates of unmanned stations (Figure 8). There have been continuously more entries than exits.
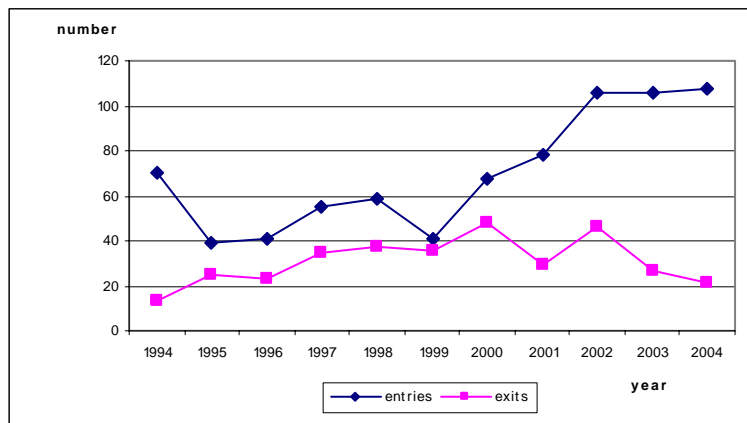

Figure 8   Entry and exit of unmanned stations (Finnish Oil and Gas Federation)

The success of unmanned stations and stations with convenience stores has snookered traditional service and filling stations, which have adjusted by cutting costs. The least efficient stations have been forced to close down. More firms have exited than entered the industry since the beginning of the 1990s even if the difference between entries and exits has narrowed lately (Figure 9). Hence, traditional service stations with fuel distribution and a small café have become rarer.
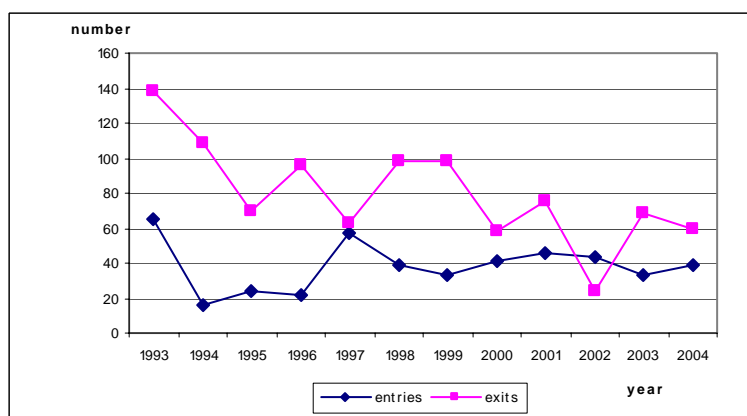

Figure 9   Entry and exit of service and filling stations
(Finnish Oil and Gas Federation)

The reform of 1991 contributed to a structural change that led to a temporary thinning of the distribution network and to a permanent change in its structure. The number of stations had remained relatively stable in the 1970s and 1980s. After 1991 the number of stations plunged rapidly (Figure 10), which was due to the excessive exits of stations. By the end of the decade entries dominated exits and the number of stations was increasing. By the end of the year 2004 the number of stations had restored to slightly below 2000, which is close to the pre-reform level (Figure 10).
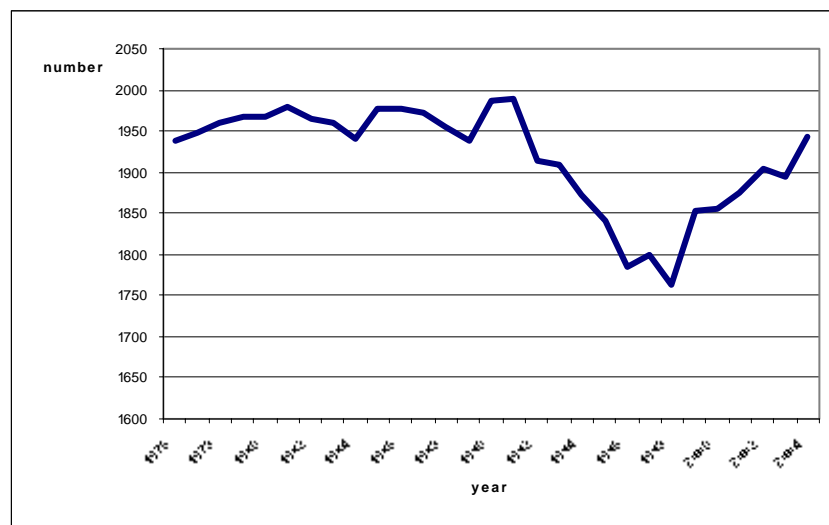

Figure 10   Total number of stations between years 1976–2004[20]
(Finnish Oil and Gas Federation)

Figure 11 illustrates the structural change of the service station industry. The number of traditional service stations has decreased by 43 percent during the past fifteen years. At the same time unmanned stations have gained a share of 43 percent of all stations. The number of convenience store -type service stations has increased continuously. In 1999 only 63 percent of shops in service stations were of the traditional kiosk type and already 36 percent were of corner store type. Groceries and other daily consumer goods are sold especially in the latter. (Lähde 1999)

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[20]   The figure comprises unmanned stations, traditional service and filling stations as well as convenience store type of stations.
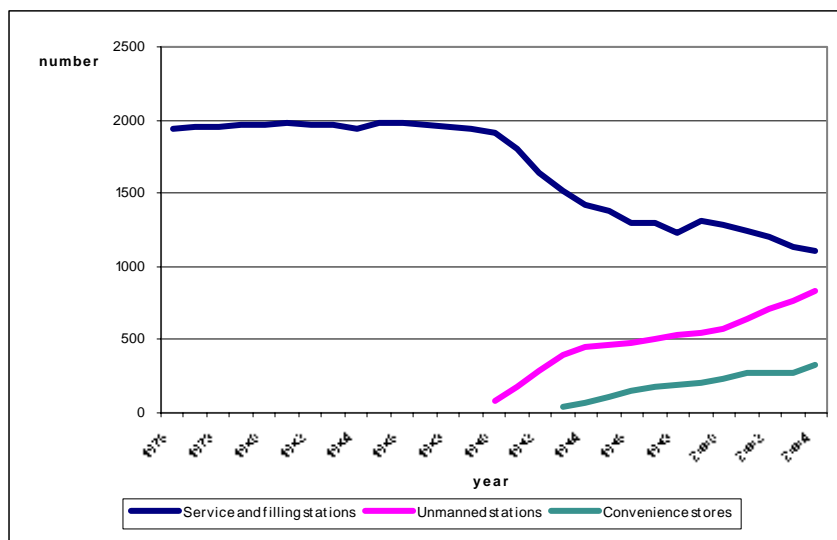
Figure 11   Number of stations according to their type[21]
(Finnish Oil and Gas Federation)

To sum up, the development of the service station industry in the post-reform years seems to be in line with the theoretical predictions of the impacts of deregulation. The reform of 1991 entailed new modes of competition. The entry of new establishments has challenged incumbents, which has led to a large number of establishments exiting the industry. As a result, the total number of establishments curtailed in the 1990s. Moreover, the structure of the industry has changed greatly. There is now more variety of supply than before. The sector has experienced a trend of polarization meaning that some stations compete with better service while others have reduced service to a minimum. Consequently, the nature of business in the sector has changed. Deregulation can also be expected to cause external reallocation. This phenomenon will be discussed in general as well as specifically for the service station industry in chapter 6.4.

The structure of sales of service stations has changed remarkably during the past fifteen years. Fuel has become less and less important an article. In the end of 1980s fuel brought over half of the gross margin on sales. In 1998 its share had decreased to one fourth while shop activity composed 16 percent of sales margin. Daily consumer goods bring the most of the sales margin. (Lähde 1999, 10–11.)

The trading hour regulation of stores, which has undergone major changes in the past few years, affects significantly the sale of daily consumer goods in service stations. Sunday trading was partly deregulated in 1997 when it was allowed in June, July, August and December and in five other Sundays per year. Additionally, evening trade was extended from eight to nine pm. Deregulation proceeded in 2000 when grocery stores of

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[21]   The number of service and filling stations includes convenience store type of stations.

less than 400 square meters were allowed to be open on Sundays around the year. Previously only stores smaller than 100 square meters had the exclusivity for Sunday trading. (Kajalo 2002, 80–92.) Basically only kiosks and the shops of service stations fulfilled this size requirement. The permitting of Sunday trading for grocery stores has meant the deterioration of competitive advantage of service stations that they gained in 1991.

It is interesting to notice that service stations and kiosks seem to have been able to increase their sales at the same time when the victory of hypermarkets has turned out to be detrimental to traditional supermarkets and corner stores. Hence, the sale of daily consumer goods polarizes on one hand to large hypermarkets and on the other hand to grocery shops in service stations and small kiosks. Service stations replace disappearing corner stores in densely populated suburbs and in sparsely populated areas outside towns. The reasons for this can be found in deregulation that enabled the specialization of service stations to grocery sale and in changing buying behavior. Since service stations can be open 24 hours a day, they can benefit the niche of consumers with irregular buying behavior. Additionally, driving consumers living in densely populated areas find shopping in service stations easy. In 1997 service stations had a somewhat three percent share of total daily consumer good sales. (Lähde 1999, 18–26.)

5.3   Restaurants

Concerning service stations, entry was free to the industry but the exercise of business confronted restrictions. Restaurant business, for one, could be pursued relatively freely but there were remarkable barriers to entry. Prior to the 1990s restaurant business was tightly controlled by licenses. Establishing a restaurant was subject to a license granted by Country Administrative Boards (Statutes of Finland 502/1969). A new act (Statutes of Finland 727/1991), which entered into force in 1992, replaced this license by a notification procedure. However, since the license had had to be granted if the prerequisites for the granting existed, the reform did not affect directly the founding of business. It however decreased bureaucracy between entrepreneurs and Country Administrative Boards. The change meant less paperwork for entrepreneurs and reduced the time it takes to establish a restaurant. The reform thereby made founding a restaurant easier. The new act permitted also foreigners to establish a restaurant. It also prolonged opening hours from one am an hour to two am and enlarged product range so that those products that could be sold in kiosks were also allowed to be sold in boarding houses and restaurants. (Ministry of Finance 1991, 8–9 and 1992, 19–20.)

Even if the removal of the license procedure decreased bureaucracy and in this way made entry to the industry easier, its deregulatory value was relatively small since serving was still subject to a license. The license was based on needs-testing and granted by the supervisory board of Alko (Statutes of Finland 459/1968). Licenses to dispense alcohol were allocated regionally and were few in number (Aittoniemi, telephone interview 19.8.2005). Only licenses to serve medium strength beers were granted without needs-testing (National Research and Development Centre for Welfare and Health 1997, 19). The license to dispense alcohol was withdrawn in January 1995. From then on everyone meeting the requirements of applicability and possessing a good financial standing had to be granted a permit to dispense alcohol, which are nowadays regulated by the National Product Control Agency for Welfare and Health. (Statutes of Finland 1143/1994.)

The reform of 1995 eased requirements for the permit so much that business in the industry got too wild. For this reason the conditions for the permit were tightened again in 2002. This amendment, which entered into force in January 2003, clearly defined requirements concerning the applicant and licensed premises. (Aittoniemi, telephone interview 19.8.2005; Statutes of Finland 764/2002.) Figure 12 clearly shows how the number of granted licenses jumped after the reform of 1995 and sank again in 2003 due to the tightening of requirements.
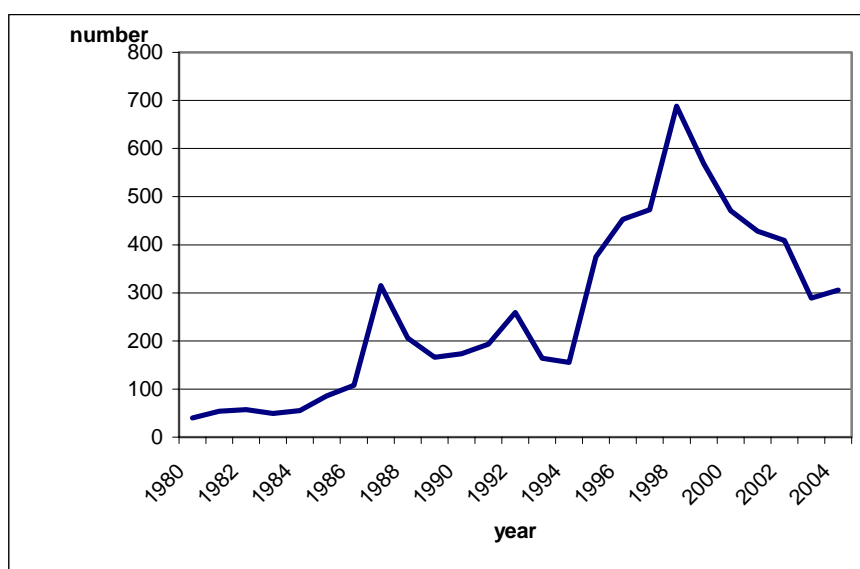

Figure 12   Granted permits to dispense alcohol in 1980–2004
(National Product Control Agency for Welfare and Health)

The year 1995 entailed another major change as the value added tax was introduced due to Finland joining the EU. This meant tightening of taxation for restaurants. Especially the taxation of milk and meat tightened greatly. This change had a remarkable

impact on restaurants, for which these groceries are important products. Previously milk and meat were basically tax free as the deductions from the purchase tax were extensive (Statutes of Finland 559/1991). The introduction of the VAT in 1995 raised taxation for these goods to 12 percent. Additionally, taxation for restaurants jumped from 14 to 22 percent. (Aittoniemi, telephone interview 19.8.2005.)

The reform of 1995 deregulated also dance in pursuance of licensed serving, which had been subject to license granted on a yearly basis (Statutes of Finland 252/1987 and 1143/1994). Moreover, a restaurant serving other alcohol besides medium strength beer had to have at least one substitute for the person in charge of serving prior to 1995. This rule had posed difficulties for small restaurants mainly occupied by the owner. Also this provision was changed in 1995 so that substitutes were no longer needed. (Statutes of Finland 473/1995, 727/1991 and 502/1969.) The acceptance procedure for the substitute had been removed already in 1992. Prior to this civil servants had assessed the aptitude of the substitute concerning, for example, occupational suitability. (Ministry of Finance 1991, 8–9 and 1992, 19–20.)

Figure 13 depicts how there were more entries than exits in the industry in 1995. Hence, the reform of 1995 seems to have contributed positively to the number of establishments in the industry. Also the regulatory change of 2003 is visible in the figure as exits turned to be dominant in proportion to entries in that year. To conclude, regulatory changes have had an impact on entry of new establishments to the industry. However, entry and exit rates tell nothing about the possible structural change. Therefore, it is necessary to examine restructuring further. This will be done in chapter 6.4.3, where worker reallocation in service station and restaurant industries will be examined.
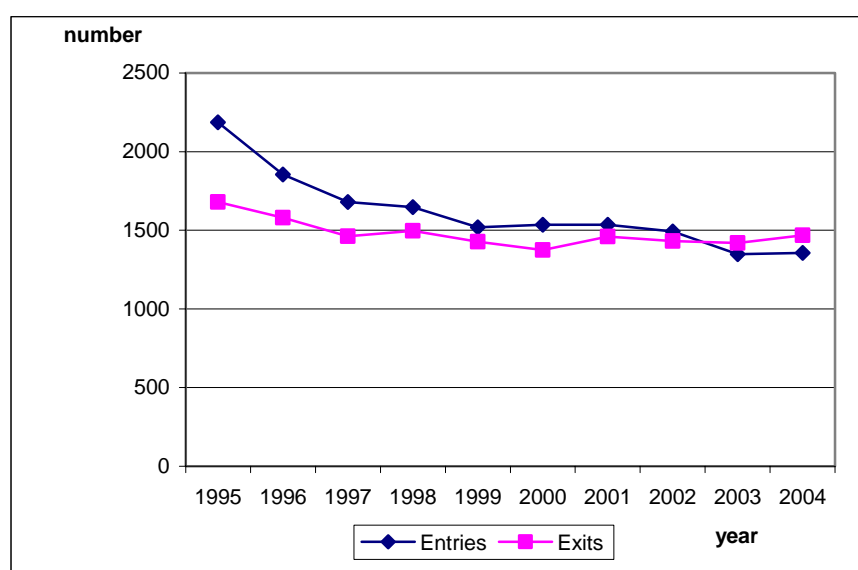

Figure 13   Number of entries and exits in restaurant industry
                 (Finnish Hotel and Restaurant Association)

6   CONTRIBUTION OF DEREGULATION ON PRODUCTIVITY

6.1   Productivity-enhancing effects occur through three channels

The removal of regulations ameliorates efficiency directly by decreasing the costs of doing business, for instance in the form of reduced bureaucracy and administrative costs (Nicodème – Sauner-Leroy 2004, 4 – 5). This direct effect of deregulation is found to have very little contribution to productivity growth because it increases only static efficiency. They are the indirect effects of deregulation, which occur through an increase in the degree of competition, that increase productivity significantly. These effects ensue from the removal of entry barriers, which enables the potential entry of rivals. (Cincera – Galgau 2005, 3; Chang 1997, 720 – 721; Disney et al. 2003, 691; Nickell 1996, 741; Vickers 1995, 7.) An increase in competitive pressure affects productivity through three channels (Figure 14).
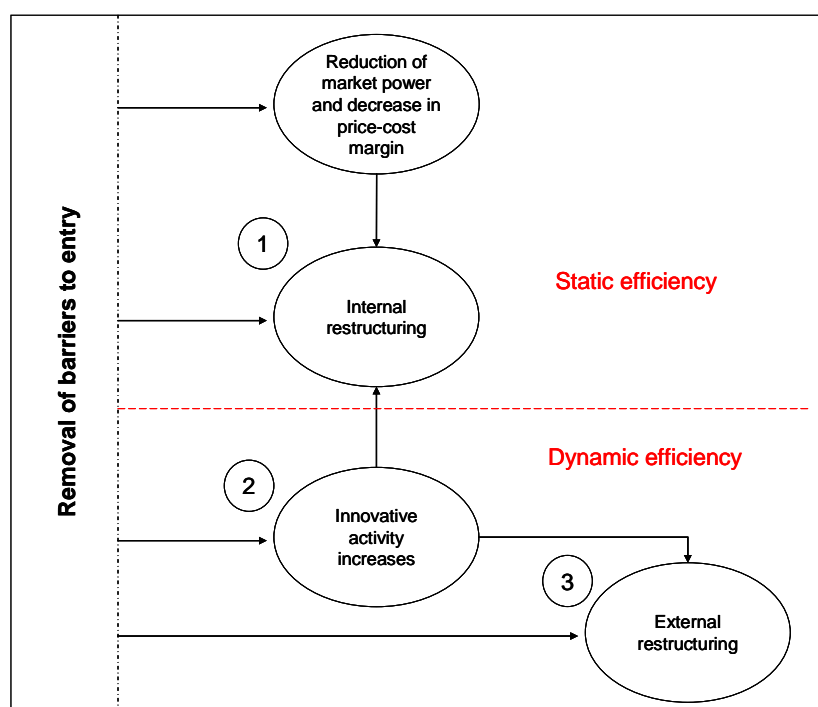
Figure 14   Deregulation affects productivity indirectly through three channels[22]

(elaborated by the author by Nicodème – Sauner-Leroy 2004, 11–18; Griffith – Harrison 2004; Cincera – Galgau 2005, 21)

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[22]   These channels are equivalent to productive, allocative and dynamic efficiency often used in the literature. The writer prefers to use the above-mentioned terms because they describe better productivity-enhancing micro-level dynamics.

First, the reduction of market power, or the threat of it, forces firms to lower prices to the level of costs. As the profit margin narrows, firms have an incentive to cut costs to compensate for this loss. (Harberger 1954; Leibenstein 1966; Nickell 1996.) Fat trimming is enforced by internal restructuring. Internal restructuring has a great positive effect on productivity because it increases efficiency. Despite being large, this is a one-time effect (Chang 1997, 720). Hence, internal restructuring does not have any impact on the growth trend. In contrast, the second and third channels have a pronounced effect on productivity in the long term as they increase dynamic efficiency.

The second channel by which deregulation can promote productivity is through incentives to innovate. Intense competitive pressure motivates firms to escape competition by increasing R&D effort (Aghion et al. 2001; Boone 2000), which contributes positively to dynamic efficiency. The positive impact of innovative activity on productivity is two-fold as process innovations lead to internal restructuring which increases static efficiency and thereby labor productivity (Ahn 2002, 4).

Moreover, increased pressure for efficiency intensifies interactions between firms. This leads to external restructuring, the third channel, where factors of production are reallocated so that the market share tilts towards efficient firms. This race leads to inefficient establishments contracting and eventually exiting the industry. This can also be due to vigorous competition for innovations, which causes firms unable to innovate to shrink. (Boone 2001, 712–713; Ericson – Pakes 1995; Jovanovic 1982.) The exit of inefficient firms has been found to have had a substantial positive impact on industry labor productivity growth in Finland (Maliranta 2003, 130).

The benefits of internal restructuring in terms of productivity are extensive but do not extend to long run (Chang 1997, 720; Disney et al. 2003, 691; Nickell 1996, 741).The direct impact of external restructuring on productivity is limited to a level effect because the benefits it incurs will be eventually used up. However, this level effect was remarkable in Finland in the 1990s. Between years 1991 and 1995 the contribution of external restructuring was 2.7 to around six percent annual total factor productivity growth[23] (Maliranta 2003, 302). True, long-term growth can be derived solely from innovations, which change the rate with which productivity grows. Since selection speeds up innovative activity, external restructuring has also another, indirect, effect on productivity growth. This implies that the overall impact of external restructuring is outstanding. On the other hand, innovations accelerate structural change. Thus, external restructuring and innovations are strongly interconnected so that they intensify one another. Next, each of these effects will be discussed in detail.

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[23] when using the modified Bernard and Jones decomposition method (Maliranta 2003, 85–87).

6.2   Internal restructuring

Competition has a strong impact on productivity growth because it reduces dead-weight loss[24] (Harberger 1954; Leibenstein 1966; Griffith 2001). As regulations restrict entry to the industry, they protect firms from price competition. This permits incumbent firms to maintain a high price level and to earn large profits. The removal of entry regulations reduces incumbents' market power by introducing a threat of more efficient firms entering the market and stealing incumbents' market share. Deregulation thereby obliges firms to lower prices to the level of costs in order to make entry less profitable for new-comers and to avoid Bertrand competition. When mark-ups shrink, so does the dead weight loss. (Aghion – Schankerman 2004; Harberger 1954; Nickell – Nicolitsas – Dry-den 1997, 794; Sauner–Leroy 2003) This Harberger-effect results in larger output and higher productivity (Griffith – Harrison 2004, 105). Given the decrease in the price level, consumers benefit the most in terms of welfare (Winston 1993). In Finland, wel-fare loss attributable to monopoly rents between years 1970 and 1979 has been esti-mated to have been between 0.2 and 0.6 percentage points of GDP annually (Wahlroos 1984).

   Narrowing profit margins lead to fat trimming within firms. Fat trimming, or internal restructuring, is carried out by organizational changes and investments in more efficient production technology. The reallocation of factors of production to more cost-effective use increases micro-level efficiency. This is the mechanism emphasized by Leibenstein (1966). As competition enables a better comparison of performance it decreases infor-mation asymmetry and relieves principal-agent problems within firms. This contributes for its part to the more efficient use of factors of production. The introduction of the Single Market Programme in Europe over a decade ago has been shown to have in-creased the degree of competition, which has led to increased efficiency within firms, which, in turn, has increased productivity. Efficiency gains have been found to occur frequently in firms where management and ownership are separated, in other words, in firms, which suffer frequently from principal – agent problems. (Griffith 2001, 21–25.) Firm-level productivity increases translate to increased aggregate productivity. (Cincera – Galgau 2005; Griffith – Harrison 2004; Leibenstein 1966; Nickell 1996.)

   Since productivity enhancing restructuring takes place within firms, its impact on productivity is called the within effect (see for example Scarpetta et al. 2002, 11). The importance of the within effect to a positive productivity development varies across in-dustries and according to the business cycle. It is more pronounced in mature industries

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[24]   The aggregate profit margin in the industry can rise in medium term, however, when low cost firms enjoying higher mark-ups gain more market share. This effect disappears in the long-run due to external restructuring which will be discussed in chapter 5.4. (Aghion – Schankerman 2004, 803–806)

and more emphasized in periods of economic expansions. (Scarpetta et al. 2002, 5, 12; Foster – Haltiwanger – Krizan 2001, 13; Foster – Haltiwanger – Krizan 2002, 42.) According to Maliranta (2003, 265) the contribution of the within component to productivity growth is typically between 50 and 80 percent in Finnish manufacturing.

As competition leads to internal restructuring and boosts output, it may have a positive impact on investment rate (Alesina et al. 2003, 26; Griffith – Harrison 2004, 105). Higher capital formation, in turn, increases the marginal product of labor and thereby labor productivity within firms. (Cincera – Galgau 2005, 27; Nicoletti – Scarpetta 2005b, 7). Alesina et al. (2003, 26) have been able to trace this positive effect of competition on investments to the credit of regulatory reforms in OECD countries. The impact of deregulation on investment is found to be strong with large reforms that concern markets where the initial level of regulation is low. In other words, small changes in heavily regulated environment are likely to have a minor impact. It has been estimated that a remarkable decrease in the degree of regulation would contribute to a two-percentage increase in investment on average in OECD countries in the long run (Alesina et al. 2003, 5; Nicoletti – Scarpetta 2005b, 14).

Internal restructuring is the immediate response of firms to changes in the competitive setting. It has only a short-run positive contribution to productivity growth. Hence, it explains fluctuations in productivity growth only over the business cycle. In the long run productivity differentials are due to changes in dynamic efficiency. (Scarpetta et al. 2002, 12.)

6.3   Innovative activity

The second way in which deregulation promotes productivity is that it spurs innovative activity. Efficiency gains that can be attained by internal restructuring are limited. Sooner or later resources are allocated in the most efficient way. When factors of production are in their most efficient use in all firms, static efficiency gives no longer competitive advantage. Investments in R&D represent another source of efficiency and competitive advantage. On one hand, product innovations increase the demand of the firm. On the other hand, process innovations permit ever more cost-efficient production. The positive effects of entry deregulation concerning innovations are naturally highly dependent on industry-specific conditions (Boone 2001, 705).

Entry liberalization in an industry or country that is far from the technological frontier forces backward firms in interaction with firms in the frontier. The presence of technologically superior rivals motivates firms to acquire better technology. This they can do by adopting previously made innovations. Imitation enables backward firms to

gradually catch up the frontier. When the industry or country reaches the frontier, technology adoption is no longer sufficient for surviving in competition. In such a case the technological progress of the firm risks slowing down. To avoid this, the firm has to start innovating itself instead of merely copying innovations made by others. As competition can be escaped only by innovating, competition in the frontier is very intense and innovations are born frequently. (Acemoglu et al. 2002; Aghion et al. 2002, 17–19.)

The magnitude of the positive effect of deregulation on productivity is argued to depend on the initial level of technological sophistication. In the case of a backward industry or country entry liberalization has no significant impact on innovative activity since it promotes imitation and not R&D activity. However, imitation and augmenting experience provide a basis for a high investment rate, which contributes positively to productivity. The further followers are from the technological frontier, the greater is the speed with which they grow. This means that that the further the industry or country is from the technological frontier, the more severe negative effects entry restrictions have on productivity. (Acemoglu et al. 2002, Nicoletti – Scarpetta 2003, 33–36; Scarpetta – Tressel 2002, 19; Scarpetta et al. 2002, 24.) Catch-up with the technological frontier is found to be more rapid in relatively standardized service industries than in manufacturing industries, which use more diversified technology. (Nicoletti – Scarpetta 2003, 33; Scarpetta et al. 2002, 24.) Given this piece of information, promoting competition and the removal of unnecessary barriers to competition in service industry is a high priority policy issue.

When the initial level of technological sophistication is high, in other words the industry is among the frontier firms, the removal of barriers to entry has a very strong impact on innovative activity. Incentives to innovate increase greatly as firms can escape competition with the help of innovations. The fact that the use of advanced technology makes the entry of rivals more difficult gives further motivation for innovating. Consequently, the frontier grows very rapidly. (Aghion et al. 2002, 18–19.) Hence, since R&D has a greater impact on productivity the closer the industry or the country is to the technological frontier, the removal of entry regulations has a remarkable impact on productivity development in the case of advanced industries. (Scarpetta – Tressel 2002, 25).

The positive effects of entry liberalization may not realize if imitation is restricted. On the other hand, too easy imitation discourages innovative activity. Hence, the regulation of imitation by intellectual property rights is problematic. It is especially problematic in backward industries, where fast growth would require easy imitation from the point of view of followers. But then, if imitation is too easy, leaders withdraw from R&D and there is nothing to catch up for the followers, in which case overall innovative activity, as well as productivity, would be minuscule. (Acemoglu et al. 29–42; Aghion – Howitt 1992; Aghion et al. 2001, 479–483.)

Since the distance to the technological frontier determines the nature of competition, the timing of regulatory reforms affects innovative activity greatly. This poses challenges to policy-makers. In order for competition policy to promote innovative activity and productivity, it should promote imitation and incentives to innovate correctly taking into consideration the development phase of the industry or country. On one hand, the best policy for backward industries would be to allow imitation. On the other hand, when the industry or country approaches the frontier, policies should concentrate on supporting innovation incentives. Hence, the optimal policy to ensure maximal productivity growth would be to promote investment-based strategy in the early development stage of the industry and innovation-based strategy later. However, it is unlikely that there were only backward or advanced firms in an industry. Rather, industries tend to have a technological frontier as well as backward firms. Thus, it is clear that no such thing as optimal intellectual property rights policy exists. (Acemoglu et al. 2002, 34–42.)

Moreover, the change of policy can be difficult when firms approach the frontier due to political capture. Firms accustomed to a protectionist environment are eager to lobby against pro-competitive reforms. Beneficial, uncompetitive conditions created for firms in their development phase can hamper the industry to develop later on. If the lobbying efforts of firms prove successful, competition may not be created and the industry will never develop innovative but end up in the low competition trap. (Acemoglu et al. 2002, 34–42.)

Vigorous innovative activity in the frontier can lead to innovators dominating the industry. When followers decline according to the selection effect, and entry is difficult as it requires advanced technology, industry concentration increases. Hence, a high level of technological sophistication in the industry can constitute a barrier to entry for potential new entrants. According to Scarpetta and Tressel (2002, 25–26), innovative activity and aggregate productivity are likely to increase in spite of this. When technologically advanced firms dominate the industry, the degree of innovativeness remains high because vigorous competition in the frontier requires continuous innovating. Innovating is relatively easy in a high-technology industry since innovations are based on intra-industry accumulated knowledge, which is extensive. This means that returns on R&D are large. So are also output and industry-level productivity. Interestingly, R&D activity has a meager effect on productivity in high-technology industries with low concentration. When entry to the industry is easy, new innovations become obsolete fast and returns on R&D are not long lasting. Thus, incentives to innovate are small in such a case. (Scarpetta – Tressel 2002, 25–26.)

To conclude, entry liberalization has great potential to boost productivity growth by increasing the speed with which innovations are born. Where as internal restructuring

leads only to a change in the level of productivity, sustained neck-and-neck competition and innovating lift productivity to a new steady-state growth path. Hence, innovations are a long-term source of productivity growth. The importance of free entry to innovative activity is reflected in the finding of a Danish study, according to which more than a half of all innovations are created by entrants (Lentz – Mortensen 2005a, 24). The speed with which Finland caught USA in terms of productivity in the 1990s was astonishing. Rapid productivity growth was mostly due to technological development in Finland (see for example Maliranta 1997). It is interesting that the leap in productivity was preceded by competition-promoting reforms. The timing of these two phenomena in relation to each other cannot be a pure coincidence, which is intriguing. A closer examination of the phenomena might reveal the exact role of deregulation in positive productivity development.

6.4   External restructuring

6.4.1   *Entry and exit catalyze creative destruction*

If there are cost asymmetries between firms, entry deregulation sets in motion external restructuring where factors of production divert from inefficient to efficient establishments. Whereas internal restructuring refers to the reallocation of factors of production *within* firms, external restructuring captures resource reallocation *between* firms. (Caballero – Hammour 1996; Cincera – Galgau 2005; Lentz – Mortensen 2005 a and b.) External restructuring is the third channel through which deregulation can increase productivity. Well-functioning labor and capital markets are preconditions for reallocation to take place, which means that, in addition to product market regulations, also capital and labor market regulations have a great impact on productivity development (Blöndal – Pilat 1997, 34; Caballero – Hammour 1996). Since restructuring is observed mainly by inter-firm worker flows, especially labor market flexibility plays an important role in the process of external reallocation.

External reallocation results in efficient establishments replacing inefficient ones, which contract and eventually, in the medium or long run, exit the industry. This Schumpeterian process of creative destruction has a pronounced effect on productivity as it leaves only the most efficient establishments in the market. (Caballero – Hammour 1996.) The two components of creative destruction are entry and exit. Since external reallocation does not occur unless rivals can enter and exit the industry freely, deregula-

tion has great potential to increase productivity. Hence, it is especially by catalyzing entry and exit that deregulation contributes positively to productivity growth. (Cincera – Galgau 2005; Foster et al. 2001, 47.) Olley and Pakes (1996, 1293), who have surveyed the telecommunications equipment industry in the US, have found deregulation to be followed by an increase in industry productivity generated by a reallocation of capital and a shift in production towards more productive plants.

Let's then see how entry and exit promote productivity. Entry can increase productivity in three ways. First, as deregulation raises the number of firms in the industry, it also increases the number of those firms that have potential to develop successful. The more there are bidders, the more likely it is that there are prospectively efficient and innovative firms among them. Secondly, the threat of competition increases competitive pressure among incumbents and obliges them to increase their efficiency by fat trimming and innovating. Entrants face even a greater degree of competitive pressure than incumbents because their efficiency is smaller on average (Foster et al. 2001, 32). This pressure forces entrants and incumbents to put a great deal of effort to increase their efficiency. Only a handful of entrants survive longer than five years. But those which are successful experience extensive productivity growth and catch incumbents at a high speed. (Cincera – Galgau 2005; Foster et al. 2001, 37.) Thirdly, as efficient firms expand and inefficient contract, the market share tilts towards efficient establishments. This contributes positively to industry-level productivity. (Aghion – Howitt 1992.) They are especially the continuing establishments that seem to have the greatest productivity-enhancing contribution because five sixths of job creation takes place in these vis-à-vis to new firms (Maliranta 2003, 146–147).

The positive effects of exit on productivity are twofold. On one hand, exit accelerates external reallocation by making factors of production redundant in inefficient firms. These resources then transfer to more efficient use to new and continuing firms. On the other hand, the exit of inefficient firms contributes directly to productivity. This impact is strong as it will be shortly explained. (Cincera – Galgau 2005, 22, 72–73; Foster et al. 2001.)

Thus, both entry and exit are important components of creative destruction. Entry functions as a motor for exit by introducing new rivals and ways of doing things. It seems to be more important for growth in high technology sectors and in the service sector. The impact of exit on productivity tends to be especially important in manufacturing and mature industries. Entry in these industries is less important because it requires large sunk costs and is therefore less attractive. (Cincera – Galgau 2005, 22, 72–73; Foster et al. 2001.)

6.4.2   *Impact on productivity depends on time horizon*

External restructuring affects productivity through two components. A between component captures resource redistribution between incumbent firms, whereas a net entry component measures the extent of creative destruction. (Foster et al. 2001; Diewert – Fox 2005.) Both of these effects have contributed greatly to positive productivity development in Finland. The direct impact of entry on productivity has been slightly negative. Hence, the productivity-enhancing effects of deregulation occur mostly through worker reallocation and the exit of inefficient establishments. (Maliranta 2003, 130, 264–265.)

Entry as such has a small contribution to productivity growth[25]. The effect of entry can also be negative, like in the Finnish manufacturing (Maliranta 2003, 130). Since entrants start as small and with relatively little capital, their productivity is low in general. Due to this, an increase in the entry rate leads to a dispersal of performance. If entrants have lower productivity than incumbents, entry contributes negatively to productivity growth. (Foster et al. 2001, 32–37; Maliranta 2003, 261–263.)

But even if entrants' shares of output are not particularly large, they are important for productivity growth in the long run. The importance of entry is that it gives new firms a possibility to increase their efficiency and grow large and productive in the future. Those entrants that are efficient grow at a high speed. Moreover, entry puts incumbent firms under pressure, as a consequence of which they engage in efficiency-increasing activities. Hence, new firms represent the force that catalyzes the redistribution of resources and exit. (Baily et al. 1992; Foster et al. 2001, 32–37.) The contribution of resource reallocation between old incumbents to productivity growth is relatively low. Rather, the importance of external reallocation lies in worker reallocation between young continuing firms. Maliranta (2003, 138–143) has found productivity enhancing restructuring in Finland to have been strongest exactly among the youngest firms. (Maliranta 2003, 138–143.)

The positive effects of external reallocation and creative destruction are not visible until in the medium or long run. The reason for this is that entry induces exit and the reallocation of factors of production with a lag. The contribution of creative destruction on productivity development is measured by a net entry component, which expresses the joint effect of entry and exit. A high entry rate causes net entry to have a negative

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[25]   Some studies (for instance Baily – Hulten – Campbell 1992; Foster et al. 2001) report entry having a large positive impact on productivity. These results are due to an improper way of measurement, where the productivity growth among entrants is compared to the aggregate productivity level in the year of entrance. Entrants are compared to both continuing firms and exiting firms in the past. Instead, the magnitude of entry should be compared against the current aggregate productivity of continuing firms, in which case the effect of entry can be also negative. (Diewert – Fox 2005; Maliranta 1997.) Hence, the contribution of net entry is sensitive to the chosen decomposition methodology.

bearing on productivity in the short run. When a longer horizon is allowed, the exit rate has accelerated and the net entry component turns positive, which contributes positively on aggregate economic performance. Thus, the impact of net entry is strongly positive in the long run. Hence, the short-run effect of deregulation is likely to be productivity deteriorating due to extensive entry and minuscule exit as well as restructuring. However, when exit and restructuring accelerate, so does productivity growth. Thus, creative destruction and external restructuring influence productivity growth positively in the long run. (Cincera – Galgau 2005, 15; Foster et al. 2001.)

However, the long-run impact of entry can also be negative. The positive impact of entry on productivity is suggested to depend on the cost asymmetry of firms. The effect of entry is found to be negative as long as the market is characterized by purely symmetric firms. The impact of entry is positive only when it results in productivity enhancing external restructuring – that is when there are great initial cost asymmetries between firms. (Aghion – Schankerman 2004, 803–806; Lentz – Mortensen 2005 a and b, Vickers 1995, 13–14.) Vickers (1995, 12–16) shows this by estimating the welfare effect of entry in the case of an industry of three incumbent firms and one entrant (Table 1). In his study Vickers regards welfare as the sum of consumer surplus and profit.

Table 1   Welfare effects of entry (Vickers 1995, 22)

Case	Cost structure of the entrant	Cost structure of incumbent 1	Cost structure of incumbent 2	Cost structure of incumbent 3	Is there entry?	Welfare effect %
1	L	L	L	L	YES	- 2.8
2	H	H	H	H	YES	- 2.8
3	H	L	L	L	NO	0
4	H	L	L	H	NO	0
5	H	L	H	H	YES	- 0.4
6	L	L	L	H	YES	+ 1.0
7	L	H	H	H	YES	- 2.1
8	L	L	H	H	YES	+ 3.3

If the potential entering firm has high costs and the majority of incumbents are low-cost firms, entry is not profitable and the potential entrant does not enter (third and fourth cases). As there is no entry, it has no welfare effects either. According to Vickers, entry does not enhance welfare but rather decreases it in the case of purely symmetric firms (cases one and two). Concerning cost asymmetries, high-cost entrants contribute negatively to welfare (case five). The entry of a low-cost firm leads to a positive welfare effect only when it reinforces the majority of low-cost firms in the industry or turns their share to equal with that of high-cost firms, in other words when there occurs reallocation of resources from high-cost firms to low-cost firms (cases six and eight). This means that even the entry of a low-cost firm to an industry characterized purely by high-

cost firms has a welfare deteriorating effect, which is a rather surprising result (case seven). One would expect the low-cost firm to start a price war, which would lead to productivity-enhancing internal as well as external restructuring. Pilat (1996, 129 – 132) has found entry to affect productivity positively regardless of cost symmetry or asymmetry[26]. His empirical results are then contradictory to Vickers' theoretical predictions.

Entry liberalization naturally enables the entry of all firms, be they efficient or not. In the light of the Vickers' theory, deregulation seems to have the most favorable impacts on welfare when it induces the entry of efficient firms and when incumbents are heterogenic in terms of efficiency. However, it has to be remembered that inefficient entrants can develop efficient by time. Vickers' theory does not include the possibility that either entrants or incumbents develop, neither that some of them may have to exit the industry in the long run.

There are great variations in the empirical results of the extent of entry liberalization on productivity. These differences are due to several reasons. First, as the positive effects of restructuring do not occur until in the medium or long run, too short a horizon gives false results (Cincera – Galgau 2005, 15). Time horizon creates problems also because business cycles affect entry and exit rates greatly. Net entry is found to have a greater contribution to growth in cyclical downturns because economic decline accelerates exit (Foster et al. 2001, 32). Another problematic concerns the decomposition methods of productivity. The chosen method has a great effect on the results obtained for the importance of net entry (see for instance Foster et al. 2001). Moreover, country as well as industry specific circumstances[27] also have an impact on results. Therefore, the magnitude of reallocation on industry-level productivity is always case-specific and requires industry-specific calculations.

In spite of difficulties concerning measurement, all recent studies point to the same direction: an increase in the number of firms promotes productivity-enhancing restructuring. Lentz and Mortensen (2005 a, 37) have estimated worker reallocation to have constituted two thirds of aggregate productivity increase in Denmark. Scarpetta et al. (2002) and Maliranta (2003) have decomposed labor productivity in the Finnish manufacturing industry (Figure 15 and Figure 16). Their results show the importance and

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[26]   Only in the case of segmented and differentiated industries, which are often characterized by oligopolies, entry does not have a significant effect on productivity (Pilat 1996, 129).

[27]   Burke and To (2001) give an example of how the positive effect of the removal of barriers to trade on productivity is case specific. In sectors where employees can acquire important human capital, the removal of entry barriers can lead to reduced output and increased prices. In these industries running a business requires extensive knowledge of the specific sector. Entrants are therefore often run by managers which have previously worked for incumbent firms of the industry. Open entry can induce managers of incumbent firms to resign and start a business of their own in the same field. Entry liberalization can therefore lead to incumbent firms raising their executives' salaries. In order for this strategy not to have any effect on the profits, firms have to curtail the number of executives. This leads to reduced output and increased prices. This is of course only one example and concerns only some industries, but depicts well how vulnerable the analysis is to case specific circumstances.

magnitude of creative destruction that took place in Finland prior to and during the years of recession. According to these studies, entry had negative or zero influence on productivity growth. In contrast, the contribution of exit has been large. According to Figure 15 restructuring has been most extensive during the years of recession. It would be interesting to investigate the contribution of the active deregulation policy enforced at that time on micro-level restructuring.
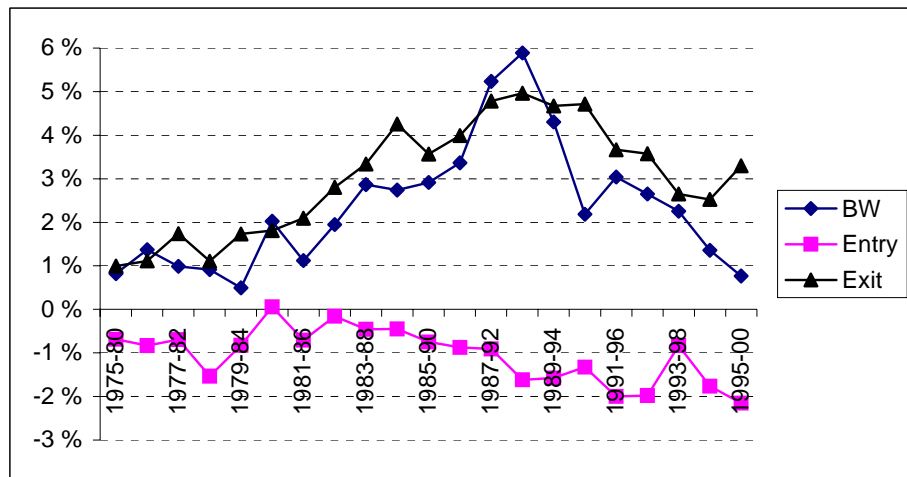

Figure 15   The impact of between, entry and exit components on productivity growth in the Finnish manufacturing industry[28] (Maliranta 2003, 130)
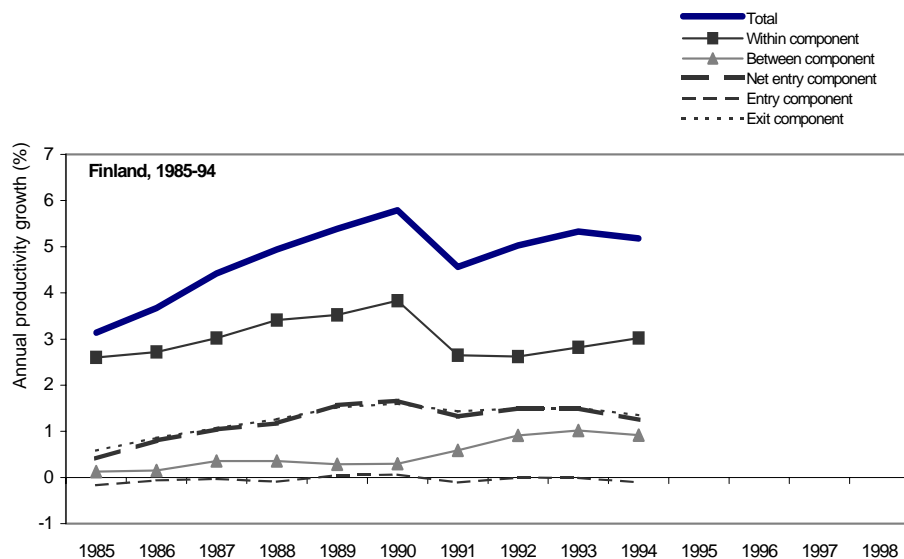
Figure 16   The contribution of labor productivity components on productivity growth in Finnish manufacturing[29] (Scarpetta et al. 2002, 60)

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[28]   Decomposition is based on a modified version of the Bernard and Jones (1996) decomposition method. Obtained results are largely dependent on the method used (see for instance Foster et al. 2001).

To conclude, deregulation is expected to have a major impact in industries characterized by heterogeneities through its impact on industry-level restructuring. The reallocation of factors of production set in motion by entry liberalization plays an important role in positive economic development (Caballero – Hammour 1996; Cincera – Galgau 2005; Nicoletti – Scarpetta 2003, 40; Olley – Pakes 1996, 1293; Scarpetta et al. 2002). Since free entry is a prerequisite for reallocation to occur, deregulation has great potential to impact positively on productivity development. The positive effect of entry liberalization is long-standing. Once enforced, the continuous flow of entrants ensures that competitive pressure and threat is present permanently.

6.4.3   Worker reallocation in service station and restaurant industries

As deregulation promotes competition, it is expected to lead to external reallocation and thereby to increases in productivity. The purpose of this sub-section is to see whether employment and productivity developments in service station and restaurant industries are in line with theoretical interpretations of the consequences of deregulation and increased competition. Entry and exit rates for service station and restaurant industries presented in sub-sections 5.2 and 5.3 demonstrated that regulatory changes in these industries can be expected to have been followed by micro level restructuring. Deregulation can be expected to have had an especially strong impact in service station industry, where it curtailed greatly the number of traditional service and filling stations and enabled the rise of convenience store type of stations.

According to theory, changes in entry and exit rates can be expected to be followed by changes in input shares of establishments and worker reallocation when firms are heterogeneous (Boone 2000; Caballero – Hammour 1996; Foster et al. 2001; Vickers 1995, 12–16). If workers are reallocated from inefficient to efficient firms, industry-level productivity should rise accordingly. To view employment reallocation in service station and restaurant industries, the growth rate of employment measured by log-differences over the moving two-year windows, d ln (L_{it} / $L_{i(t-2)}$), was calculated at the establishment level. The purpose was to see whether employment has increased, which would indicate intensified micro-level restructuring in the industry.

In order for there to have been reallocation of factors of production, the mobility of labor should have increased. Micro level restructuring transpires in the standard deviation (sd) and the inter quartile range (iqr)[30] of the difference of employment growth, d ln

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[29]   Decomposition is based on Griliches and Regev (1995) method. Obtained results are largely dependent on the method used (see for instance Foster et al. 2001).

[30]   The inter quartile range is the difference between the first and third quartiles. It is a more stable measure of statistical dispersion than range.

$(L_{it} / L_{i(t-2)})$[31]. An increase in the variation of employment indicates worker reallocation. The mean, standard deviation and inter quartile range of employment measured by log-difference are illustrated for both industries in Figures 20–23 (Appendix 2). The calculations are based on time series data from the Business Register collected by the Statistics Finland. Figure 20 andFigure 21 clearly show how the variation in employment change increased in service station industry after the year 1991, when the sale of groceries was allowed indicating resource allocation caused by deregulation.

Then again, when looking at the development in the restaurant industry (Figure 22 and Figure 23), there is no clear pattern for the employment change after 1995, when needs-testing for licenses to dispense alcohol was abolished. Inter quartile range did increase between years 1995 and 1997 but then plunged again. The standard deviation does not show any positive change after 1995.

For comparison, variation in employment change was calculated also for two other industries, dispensing chemists and the manufacture of pulp, paper and paperboard, which have had a very different institutional environment compared to the two sample industries of this study. The former of these remains very regulated and is characterized by a low level of competition. On the contrary, the manufacturing of pulp, board and paper has faced extensive foreign competition already for long. Figures 24–27 in Appendix 2 depict variation of employment in these industries. It can be noted that variation of employment has been relatively modest in dispensing chemists. This is no surprise taking into consideration that the industry is relatively uncompetitive. The manufacture of pulp, paper and paperboard, for one, has experienced great fluctuations in employment. These changes have followed changes in monetary policy which was previously exercised to support this important export sector. Hence, fluctuations seem not to be competition-related.

An increase in the variation of employment is a sine qua non for restructuring to have a positive impact on productivity but not a sufficient condition. In order for micro-level restructuring to increase productivity, productivity level should be positively correlated with the subsequent employment growth rate. To see whether labor productivity development explains employment, a following logarithmic regression equation for service station and restaurant industries as well as for dispensing chemists and the manufacture of pulp, paper and paperboard for the sake of comparison was estimated[31]:

$$\ln (L_{it} / L_{i(t-2)}) = \hat{a} + b \ln (Y_{it} / Y_{i(t-2)}) + \varepsilon$$

In this two-year moving window regression employment change is a dependent variable and the change in labor productivity an independent variable. Again, the calculations are based on time series data from the Business Register collected by the Statistics Finland.

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[31]   The author is thankful to Mika Maliranta for his help in calculating the parameters.

Estimation results are tabulated in Appendix 3.Coefficients for service stations are significant at one percent level, except for the years 1996 and 1997 when the coefficient is insignificant. Also coefficients for restaurants are highly significant in general. Only years 1990 and 1991 make an exception. Results are similar also for dispensing chemists. On the contrary, coefficients for the manufacture of pulp, paper and paperboard are generally insignificant. However, since the estimation yielded relatively poor R-squareds as well as somewhat large coefficient standard errors, obtained results have to be interpreted with caution. Therefore, correlation between labor productivity and employment remains open to doubt despite promising coefficients.

Reasons for low R-squareds and somewhat large standard errors are perhaps found in an imprecise measure of productivity level, which was gross output per person. The use of value added for output and worked hours for input might generate better results. Therefore, the dependency of employment variation on changes in productivity should be remodeled. It would be interesting to examine further worker reallocation in these two industries. A deeper analysis might yield more interesting results. For instance, Nurmi (2004, 24) has found increased international trade to intensify the interdependency of productivity and employment in Finnish manufacturing, which indicates that international trade has augmented productivity-enhancing restructuring.

The examination of productivity development in the restaurant industry gives some support for the causal relationship between deregulation and productivity. Figure 28 in Appendix 4 shows the productivity development. Comparing that with Figure 12 and Figure 13 (in pages 46 and 47) elicits the simultaneity of regulatory reforms and changes in productivity. Productivity plunged in 1995, exactly at the same time when entry rate jumped drastically. In 1997 productivity turned positive again which could very well indicate selection within firms and the exit of inefficient restaurants. This interpretation is supported by another productivity decrease in 1998, which is simultaneous with a remarkable increase in the number of granted licenses to dispense alcohol. Unfortunately, extensive time series for productivity in the service station industry was unavailable. Hence, no conclusions of the relationship of deregulation and productivity in that sector can be drawn.

The examination of productivity development and employment variation in restaurant and service station industries is consistent with theoretical analysis of deregulation increasing competition and productivity through external restructuring. The fact that deregulation did not seem to increase employment variation in the restaurant industry can be due to cyclical factors disturbing the otherwise positive effect of regulatory changes. It should be remembered that Finland was experiencing a severe recession in the beginning of the 1990s, at the same time when most of deregulatory actions took place. As recessions cause financial constraints, they have been suggested to reduce the

amount of restructuring in the economy (Caballero – Hammour 2000). However, this issue is still under debate. Some studies have found economic slowdowns to accelerate external reallocation (Disney et al. 2003; Maliranta 2003). Keeping in mind the magnitude of the recession, it would be daring to attribute changes in employment and productivity to the credit of deregulation without further calculations. The timing of deregulation poses also another challenge for the analysis because there is only a twelve years post-deregulation time series available. Since employment impacts are long-term effects, they may not have realized by the year 2002, which is the last year covered by our data.

7   CONCLUSIONS

7.1   Recapitulation

Since competition threatens the secure future of firms, it gives impetus for the amelioration of performance, which can benefit the entire economy. The realization of the threat does not necessitate the actual entry of rivals. Already potential entry is a sufficient menace. Competitive threats are not present in an institutional environment characterized by a multiplicity of anti-competitive provisions. As barriers to entry are gatekeepers to competition, their removal is important for the promotion of competition. Also the abolition of other unnecessary regulations is important as provisions entailing administrative costs for firms make entry unattractive. Once entry to the market is free of restrictions, competition functions endogenously generating long-term benefits.

Deregulation can promote productivity indirectly via competition. The removal of barriers to entry sets in motion a dynamic process of competition that accelerates endogenously. However, the benefits do not arise until in the long run. Productivity gains occur through three channels. Competition or the threat of it obliges firms to renounce high rents and dispose of slack. Fat trimming is enforced by internal restructuring, which refers to the reallocation of factors of production within firms. Secondly, competition increases incentives to invest in R&D as innovations offer strategic competitive advantage. Thirdly, entry and exit lead to external reallocation where resources are reallocated between rather than within firms. This reallocation shifts resources from inefficient to efficient use, which promotes productivity. The productivity gains of external restructuring and innovative activity are far more pronounced than those of internal restructuring.

Large-scale deregulation in Finland was enforced relatively late in comparison to other European countries. The wave of deregulation swept over Finland in the 1990s. Despite this, unnecessary regulations were removed to such an extent that the gap to other countries in terms of regulatory intensity contracted. However, the acknowledged progress decelerated by the turn of the millennium. Currently, Finland is close to the EU-average when measured with the degree of product market regulation.

Product market reforms and their impacts in Finland were assessed in restaurant and service station industries, where regulatory reforms were extensive and facilitated entry. The purpose was to see whether deregulation has induced external restructuring in the two industries. As far as the service stations are concerned, deregulation seems to have promoted structural change. It seems that deregulation curtailed the distribution network temporarily, which can be considered an indication of external reallocation. Another

indication of restructuring is that the mobility of labor increased in the industry after the reform. Moreover, labor productivity development seems to explain variation in employment growth. Thus, the results support the fact that deregulation increases competition and leads to external restructuring.

Concerning restaurants, the impacts of deregulation were less clear. The exit rate experienced a slight diminution rather than growth after deregulation. Moreover, there were no observable changes in the mobility of labor. However, changes in the industry-level productivity seem to have followed regulatory changes or occurred with a slight lag, which could indicate some dependency with the two variables. Additionally, there seems to be correlation between labor productivity development and employment growth. Taking into consideration that most of the regulatory reforms enforced in Finland occurred simultaneously with the deep recession of the 1990s, the detection of the impacts of deregulation on micro-level restructuring would require more in-depth investigations.

To conclude, the results of this study give indication of deregulation increasing the dynamics of micro-level restructuring and thereby productivity in Finland. However, the verification and generalization of this hypothesis would require further research. The use of wider data as well as finer measures could make the interdependency between deregulation and micro-level dynamics more visible.

7.2 Further discussion

In addition to productivity gains, the removal of barriers to entry has wide long-run macroeconomic implications that go beyond the scope of this study. Among these is the influence of deregulation on employment, which can be either negative or positive. First of all, fat trimming means denouncements, which clearly has a negative impact on employment. But then price reductions have an ambiguous effect on employment. On one hand, price competition entails the bankruptcy of inefficient firms, which contributes negatively to employment. But on the other hand, lower price level increases the purchase power of consumers. Increased consumption supports employment. Lastly, but definitely not least of all, the dynamic consequences of the removal of barriers to entry have great potential to boost employment in the long run. The entry of new firms impacts positively on employment. Moreover, if market dynamics function smoothly, denounced labor is employed by entering as well as continuing and expanding firms so that increases in unemployment remain short-term effects. Anti-competitive product market regulations are found to impact negatively on employment (Nicoletti – Bassanini – Ekkehard – Jean – Santiago – Swaim 2001, 6), which supports the supposition that dynamic employment impacts are likely to outweigh static ones. Additionally, extensive

deregulation in labor-intensive service industries in OECD countries has been found to have contributed positively to aggregate employment (Nicoletti – Scarpetta 2005a, 5).

Product market liberalization in Finnish network industries was extensive in the 1990s. The contribution of the reforms to changes in the employment rate of these industries between years 1978 and 1998 has been two percentage points (OECD 2002, 176). The Bank of Finland (2004) has estimated the influence of product market reforms on employment with the Aino model[32], which is a dynamic general equilibrium model of the Finnish economy and a counterpart for the General Equilibrium Model of the International Monetary Fund. According to these results, a significant increase in the degree of competition due to product market deregulation would curtail rents by 0.5 % and boost investments by 0.7 % in the long run. Output would increase by 0.5 % and productivity by 0.2 %. This would contribute to a 0.2 % increase in employment rate, which clearly is not a large figure. (Bank of Finland 2004, 65–68.) The reason why employment in Finnish network industries benefited more than this from liberalization is that, on one hand, the reforms realized were extensive and, on the other hand, these sectors faced very strict regulation prior to the reforms.

The benefits of product market deregulation in terms of employment depend largely on how well capital and labor markets function and permit the reallocation of factors of production. In other words, the benefits of deregulation are dependent on the flexibility of capital and labor markets. (Caballero – Hammour 1996; Blöndal – Pilat 1997, 34.) According to calculations made with the Aino-model, the joint effect of product as well as labor market reforms on output and employment would be 2.9 and 1.7 percent respectively (Kilponen – Ripatti 2005, 71–75). Hence, employment benefits of product market deregulation are likely to be larger when accompanied with labor market reforms. The calculations show also that an increase in the degree of competition in the product market is expected to have a stronger influence on employment variation than reforms in labor market. Thus, product market reforms have an important role in increasing the employment rate.

Anti-competitive product market regulations seem to be especially detrimental for employment in countries where the level of labor market regulation is high (Nicoletti – Scarpetta 2005a, 5). Since Finland is close to the EU average when measured with the degree of employment protection legislation, product market reforms could indeed boost the effectiveness of labor market reforms. Moreover, as product market regulations have a particularly strong impact on service industries, which are important employers, it can be assumed that reforms affecting service sectors, especially if accompanied with labor market reforms, would boos employment significantly.

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[32] The details of the model are reported in the Bank of Finland (2004), 71–77.

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Appendices

Appendix 1   Product market regulation in OECD countries
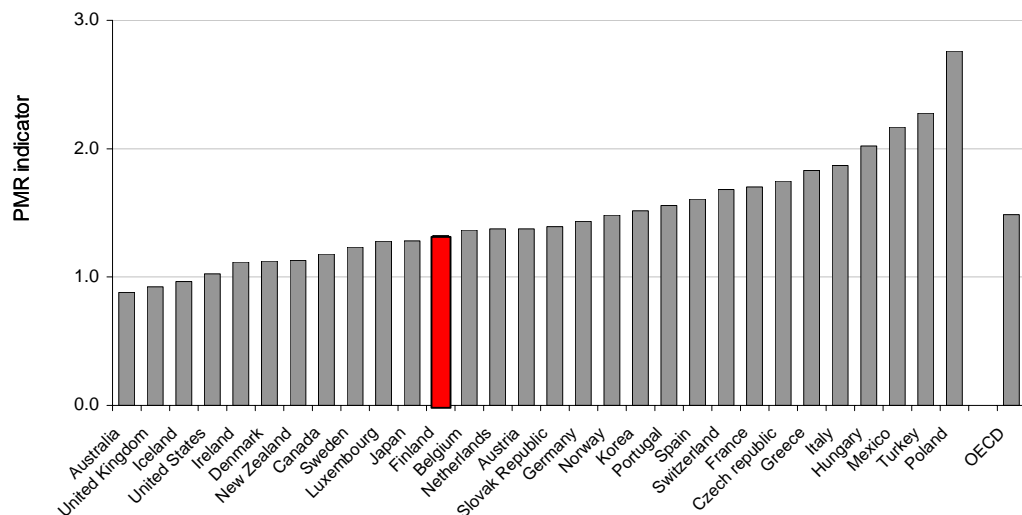
Figure 17   Product market indicators in OECD countries in 2003[33]
(OECD 2005, 15)
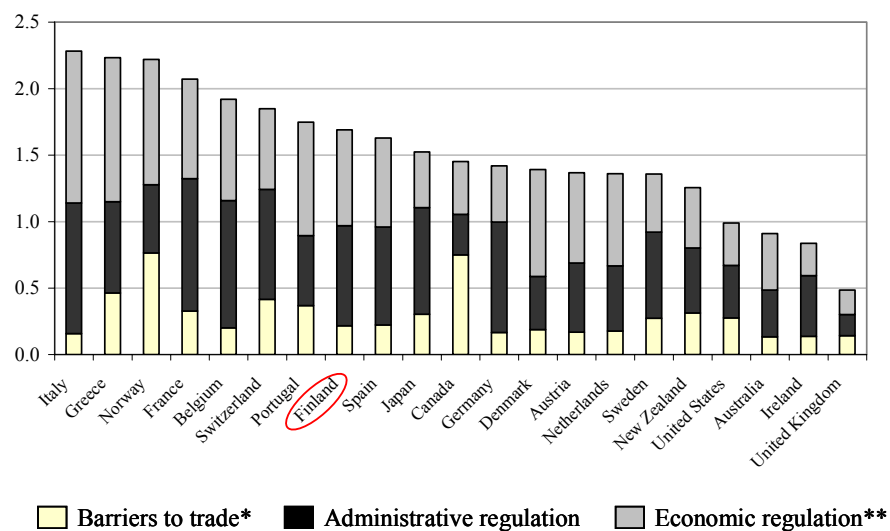
Figure 18   Product market regulation in 1998[33] (Nicoletti – Scarpetta 2003, 26)

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[33]   Indicators range from 0 (least restrictive) to 6 (most restrictive)
*   Includes barriers to trade as well as FDI restrictions
** Comprises barriers to competition and state control

Panel A. 1998

Panel B. 2003
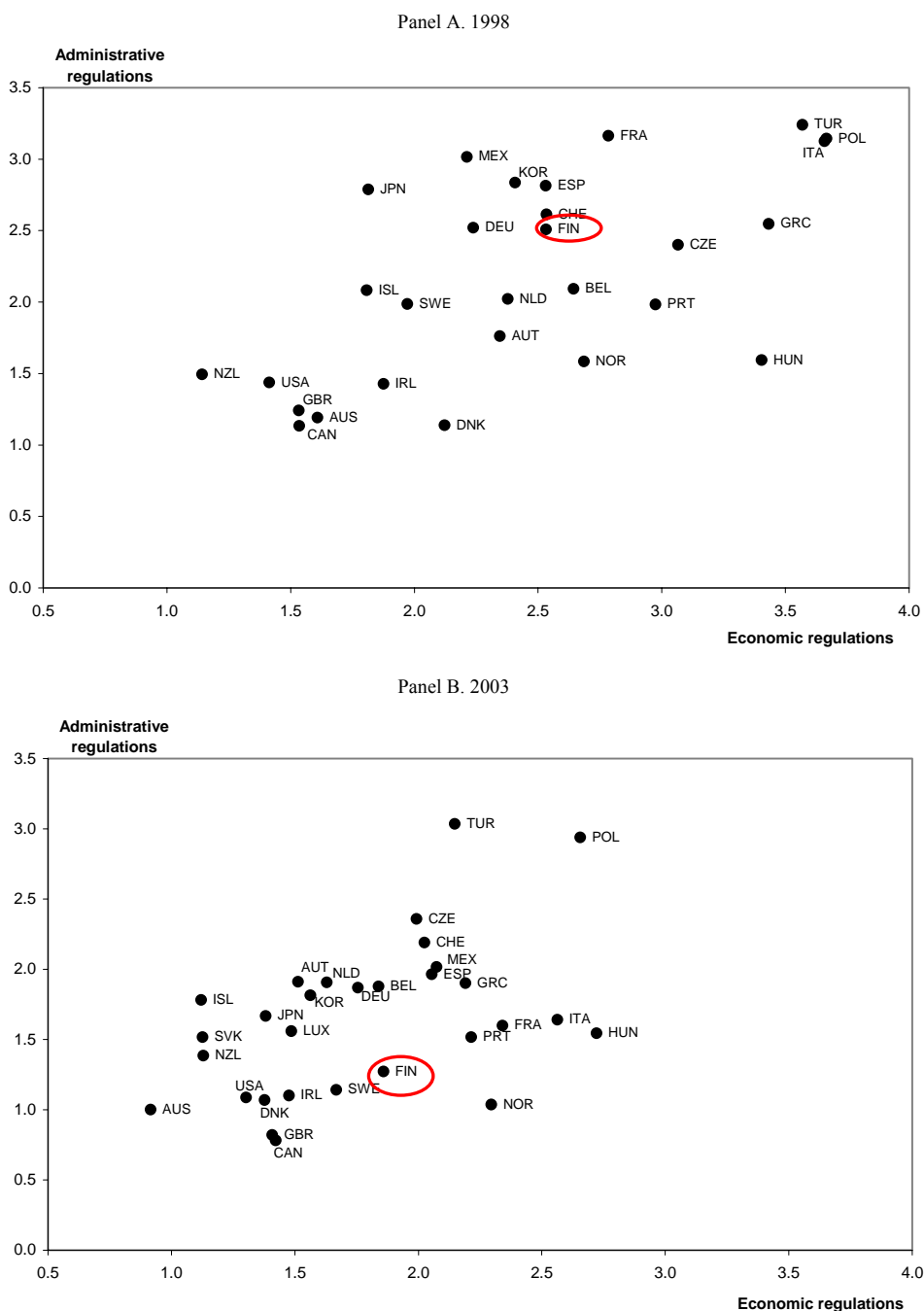
Figure 19   Product market and administrative regulation in selected countries in 1998 and 2003[34] (Conway et al. 2005, 29)

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[34]   Administrative regulation includes reporting, information and application procedures, and the burdens on business start-ups, implied by both economy-wide and sector-level requirements. Economic regulation includes all other domestic regulatory provisions affecting private governance and product market competition 8such as state control and legal barriers to entry in competitive markets). The scale of the indicators is 0 – 6 from least to most restrictive of competition.

Appendix 2   Variation in employment growth[35]
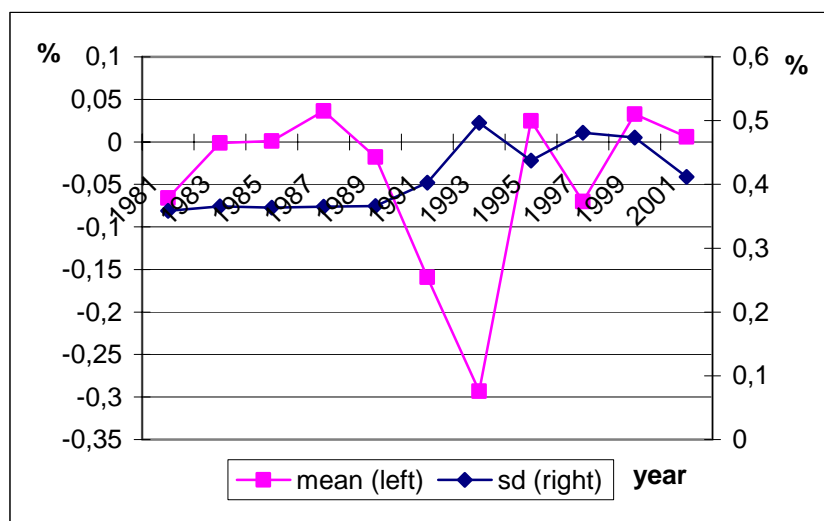
Figure 20   Mean and standard deviation of the difference of employment growth in
                   the service station industry between years 1980–2002
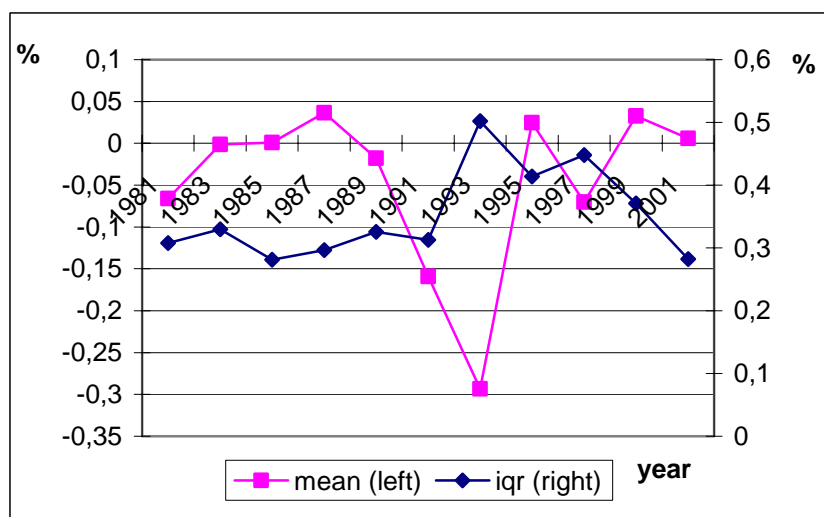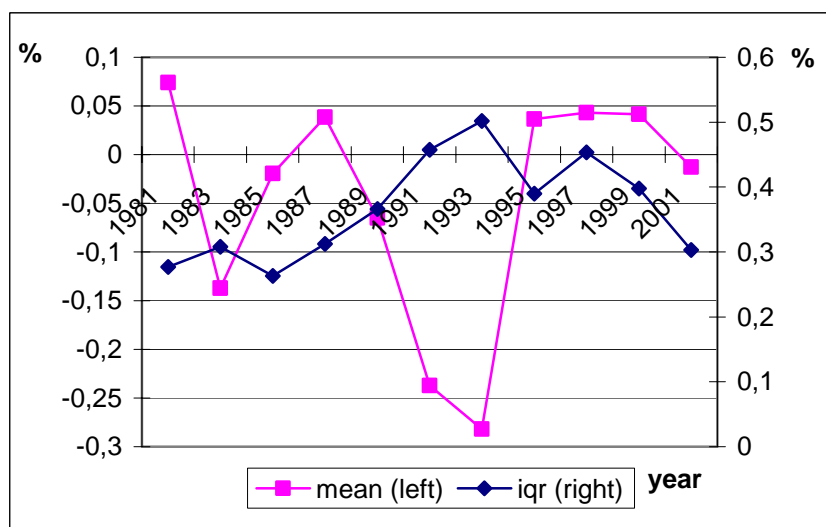

Figure 21   Mean and inter quartile range of the difference of employment growth in
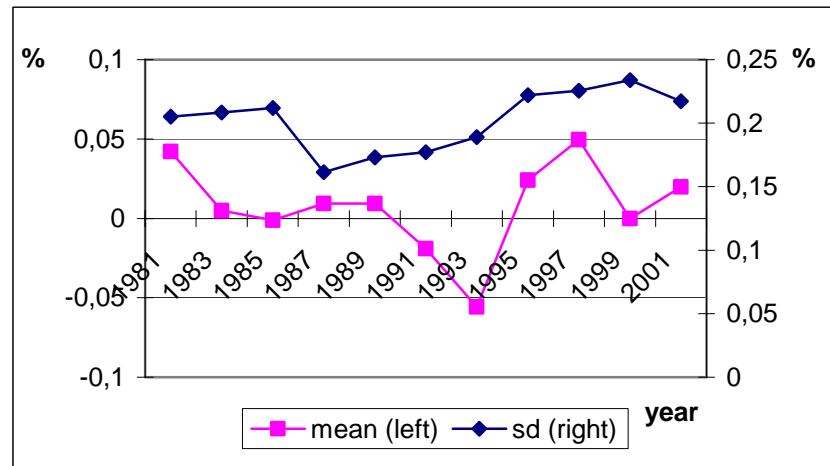   the service station industry between years 1980–2002
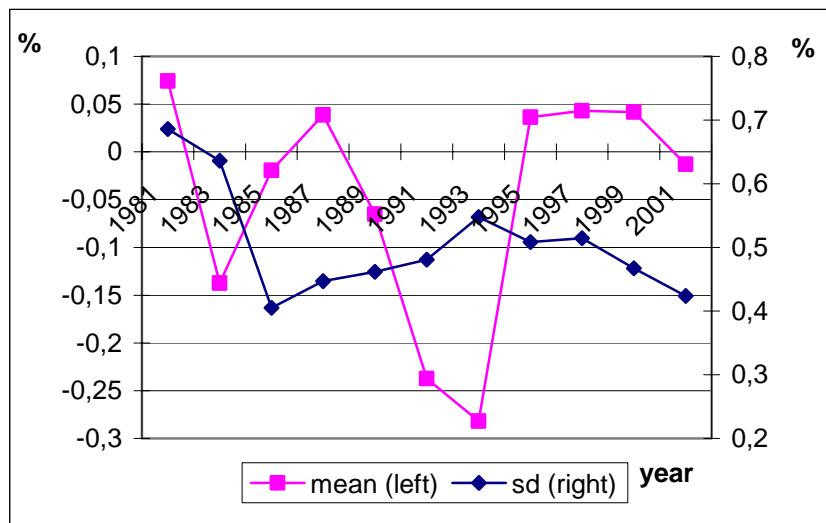
Figure 22   Mean and standard deviation of the difference in employment growth in
                the restaurant industry between years 1980–2002

Figure 23   Mean and inter quartile range of the difference in employment growth in
                the restaurant industry between years 1980–2002

Figure 24   Mean and standard deviation of the difference of employment growth for dispensing chemists between years 1980–2002
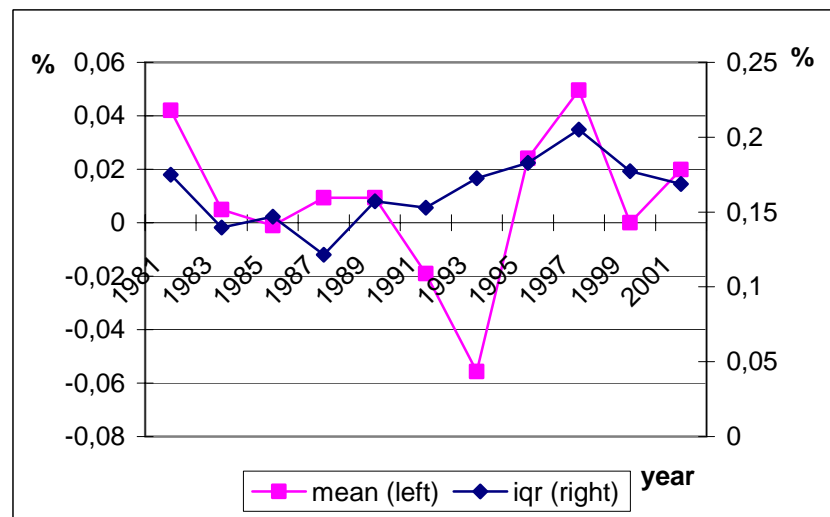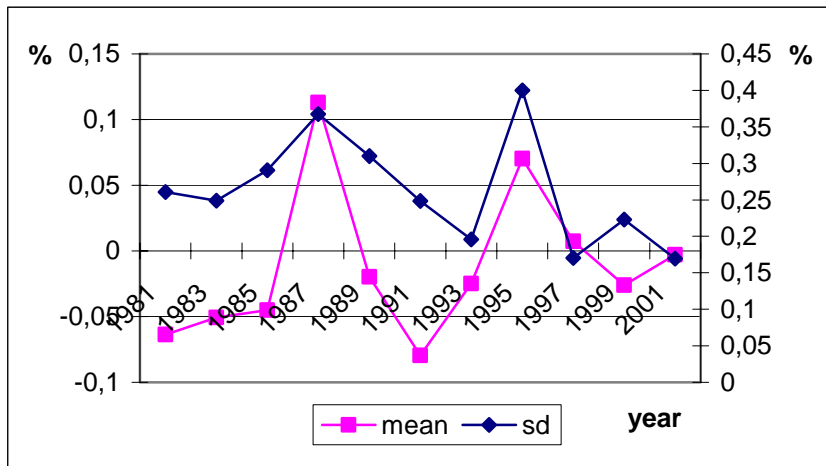

Figure 25   Mean and inter quartile range of the difference of employment growth for dispensing chemists between years 1980–2002

Figure 26   Mean and standard deviation of the difference of employment growth for the manufacture of pulp, paper and paperboard between years 1980–2002
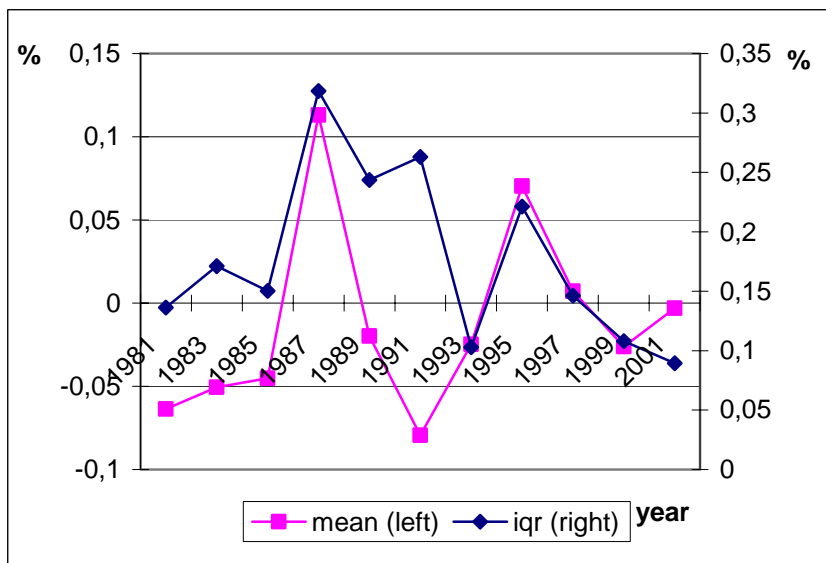

Figure 27   Mean and inter quartile range of the difference of employment growth for the manufacture of pulp, paper and paperboard between years 1980–2002

Appendix 3　　　　　　　　Estimation results

Table 2　　　　Estimation results for four industries

year	Service station			Dispensing chemists			Manufacture of pulp, paper and paperboard			Restaurant		
	coefficient	number of obs.	R-squared	coefficient	number of obs.	R-squared	coefficient	number of obs.	R-squared	coefficient	number of obs.	R-squared
1982	0,122*** (0,020)	1545	0,023	0,205*** (0,037)	633	0,044	0,083*** (0,026)	206	0,050	0,132*** (0,023)	3870	0,009
1984	0,071*** (0,019)	1694	0,008	0,189*** (0,038)	690	0,035	0,004 (0,029)	207	0,000	0,091*** (0,016)	4349	0,008
1986	0,878*** (0,017)	1735	0,015	0,086*** (0,027)	695	0,014	0,354*** (0,059)	84	0,308	0,061*** (0,013)	5207	0,004
1988	0,393* (0,020)	1763	0,002	0,18*** (0,033)	697	0,041	0,068** (0,033)	83	0,051	0,119*** (0,013)	5479	0,015
1990	0,775*** (0,023)	1669	0,007	0,088** (0,034)	717	0,009	0,110* (0,058)	74	0,048	0,002 (0,013)	5828	0,000
1992	0,173*** (0,028)	1464	0,026	0,12*** (0,036)	722	0,015	0,137*** (0,038)	68	0,165	0,207*** (0,022)	3476	0,024
1994	0,073*** (0,022)	1406	0,008	0,167*** (0,038)	753	0,025	0,062 (0,065)	73	0,013	0,049*** (0,018)	3847	0,002
1996	-0,027 (0,021)	1350	0,001	0,215*** (0,038)	75	0,040	0,023 (0,020)	83	0,015	0,125*** (0,020)	4031	0,010
1998	0,100*** (0,020)	1243	0,019	0,016 (0,027)	771	0,001	0,021 (0,048)	87	0,002	0,053*** (0,016)	4249	0,003
2000	0,032* (0,176)	1224	0,003	0,147*** (0,038)	771	0,019	-0,046** (0,023)	87	0,045	0,045*** (0,013)	4501	0,003

*	Significance at 10% level		Base year is 1980
**	Significance at 5% level		Standard errors are in brackets
***	Significance at 1% level		

Appendix 4   Labor productivity in the restaurant industry
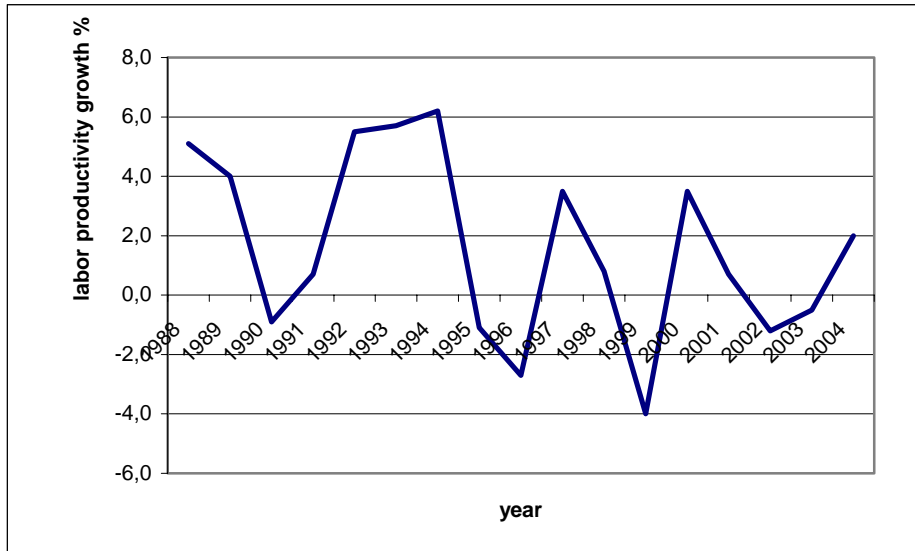

Figure 28   Labor productivity development in the restaurant industry[36]
(Finnish Hotel and restaurant association)

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[36]   Labor productivity is measured as the yearly change in sales per worker.

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