More pros & cons of Merger Control 2012

KONKURRENSVERKET
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More Pros and Cons of Merger Control

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Swedish Competition Authority

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Preface

"More Pros and Cons of Merger Control" is the eleventh in the Swedish Competition Authority's Pros and Cons series. This volume collects the five papers that formed the base of an inspiring and well-attended conference, which was held in Stockholm on November 9. Authors from around the world presented their work and senior officials from competition authorities acted as discussants. The lively debate and many appreciative comments I heard at the conference is testimony of the high professional standard of the contributions and of their relevance and timeliness for competition policy.

I would like to express my sincere gratitude to all contributing authors and to the discussants. I would also like to thank those at the Swedish Competition Authority who have worked with the project, Arvid Fredenberg who managed the project and acted as editor, Saba Zarrani, Agneta Olsson and Anja Kalkitsas, who assisted with the organization of the conference and Kristina Evensen who assisted in producing this conference volume.

Stockholm, December 2012

Dan Sjöblom
Director General

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The speakers

Prof. Mag. Dr. Dr. **Doris Hildebrand**, LL.M. is Managing Partner of European Economic & Marketing Consultants - EE&MC GmbH, in Bonn, Brussels and Vienna. Founded by Hildebrand in 1992, EE&MC is a group of competition economists fully dedicated to and specialized in the application of economics in competition law. Nowadays Hildebrand - as one of the founders of the "*more economics based approach*" in the 90s - is contributing with her team to the "European School of Thought" in EU competition law. The European School subsumes the latest developments in European competition economics.

Hildebrand holds a master's degree (1987) and Ph.D. (1990) in social and economic sciences from the University of Economics in Vienna. She earned a LL.M. degree (1992) and a state doctorate in law (1998) from the University of Brussels (VUB). Her state doctorate commission was chaired by EU Competition Commissioner Karel van Miert. Hildebrand was a researcher at the Department of Economics at Harvard University, Cambridge, USA, in 1989.

Hildebrand is Professor of Economics at University of Brussels (VUB) teaching the course "EU Competition Policy and State Aid" for master students. Hildebrand's past academic affiliations include an Associate Professor of Economics (1994-1998) at the University of Groningen and an Assistant Professor of Marketing and International Management (1991) at the University of Maastricht.

1987-1989 Hildebrand worked as Marketing Manager Eastern Europe for a multinational IT company.

Hildebrand is also a sworn in, authorized antitrust expert at the Higher Cartel Court in Austria and examines on a regular basis for courts as well as for competition and regulatory authorities' competition issues.

She is mother of four children and publishes extensively on competition economics including her book on "*The Role of Economic*

Analysis in the EU Competition Rules – The European School" which will be in the fourth edition 2013 (currently 596 pages). This book is categorized by experts as "classical" work in European competition economics which combines theoretical insights with extensive practical experiences in real world cases.

Hildebrand is member of the ICC Commission on Competition, the IBA and the editorial board of "World Competition". She speaks regularly on conferences.

Professor Michal Gal (LL.B., LL.M., S.J.D.) is Director of the Forum on Law and Markets at the Faculty of Law, Haifa University, Israel. She was a Visiting Professor at NYU, Georgetown, Melbourne and Lisbon. Prof. Gal is the author of the book *Competition Policy for Small Market Economies* (Harvard University Press, 2003) and the main author and co-editor of *The Law and Economics of Israeli Competition Law* (Nevo, 2008). She also published scholarly articles on competition law issues and has won prizes for her research and for her teaching. In 2007 she was chosen as one of the ten most promising young legal scholars in Israel.

Prof. Gal served as a consultant to several international organizations (including OECD, UNCTAD) on issues of competition law in small and developing economies and is a non-governmental advisor of the International Competition Network (ICN). She also advised several small economies on the framing of their competition laws. She is a board member of several international antitrust organizations, including the American Antitrust Institute (AAI), The Antitrust Consumer Institute, the Asian Competition Law and Economics Center (ACLEC), and the Academic Society for Competition Law (ASCOLA).

Tomaso Duso is professor of empirical economics at the Düsseldorf Institute for Competition Economics (DICE) of the Heinrich-Heine University. He has received his PhD with distinction from the Humboldt University Berlin in 2002, and previously was assistant

professor at the Department of Economics of the Humboldt University Berlin and the University of Vienna and a research fellow at the Wissenschaftszentrum Berlin für Sozialforschung. His research interests are in the area of industrial organization, competition policy, and political economics with a focus on empirical issues. Some specific interests are regulation, merger control, research joint ventures, lobbying, and institutions. His articles have appeared in several leading academic journals. Tomaso has advised various public bodies such as different Directorates of the European Commission and the UK Competition Commission in the area of merger control and antitrust in general. He has served two terms as a member of the Executive Board of the European Association for Research in Industrial Economics (EARIE).

Aditi Mehta is the Assistant Chief of the Economic Litigation Section in the Antitrust Division of the Department of Justice. She received her PhD in Economics for Boston University in 2007. Her dissertation was on spatial competition in the nursing home industry. At the Division, Aditi has worked on mergers and antitrust cases in a number of industries including health insurance, hospitals, airlines and consumer products. Her recent research interests include competition in the airline industry and competition in health care markets with particular emphasis on provider payment mechanisms. In addition, she teaches Intermediate Microeconomics and Health Economics.

Lars Sørgard is professor at Department of Economics, Norwegian School of Economics, a position he returned to in August 2007 after three years as the chief economist at the Norwegian Competition Authority. His main research and teaching has been in the areas industrial organization, competitive strategy and competition policy, with a particular focus in his research on merger policy and published in journals such as *RAND Journal of Economics*, *Economic Journal*, *European Economic Review* and *Journal of Industrial Economics*. He has been Research Director at Centre for Industrial Organization

and Economic Policy at SNF 2000-2002, and he has been in charge for various research projects. He has also been involved as a consultant for several private and public firms, as well as public authorities.

1 Introduction

By Arvid Fredenberg

The pros and cons of merger control were high on the agenda ten years ago when we released the first book in the pros and cons series. Some of the issues discussed in the 2002 volume such as ex-post evaluation of merger control decisions are still debated and developed in this volume in both the contributions by Duso and Metha. Other topics are new like the increased use of screening tools like UPP as is discussed in the contribution by Sørgard**.** How economics have come to play a major role in merger proceedings are the topic of Hildebrand's contribution. The proliferation of merger control over the years is remarkable; from 8 jurisdictions in 1989, to 68 in 2004 and 115 in 2009. The contribution by Gal tackles this issue.

The authors have themselves chosen the topics of their contributions, the only requirement being that their choice should have a strong bearing on the pros and cons of merger control. The purpose has been to stimulate discussion and test ideas – not to present a uniform view. Naturally, the opinions expressed are those of the authors alone.

In the first contribution, **Doris Hildebrand** argues that there is a European School of thought in EU merger proceedings. The School is about a special branch of economics, namely European competition economics. She discusses the development of economic thinking in merger control and how ordoliberal thinking influenced the drafters of the EU competition rules. Hildebrand ends with the quite provocative statement that the Chicago School consumer welfare paradigm was never applied in the EU.

Michal Gal raises the question of whether there is a one-size-fits-all merger policy. When looking at small and micro-economies, she concludes that on the one hand, merger regulation is important since it can prevent anti-competitive mergers that create long-term effects

on the economy. The fact that markets are highly concentrated in the first place highlights the arguments for tackling mergers to monopoly. On the other hand, it can be seen as somewhat harsh that a very small jurisdiction should be able to block an international merger that mainly concerns other countries. The administrative burdens a merger control regime imposes can also be hard to justify. A careful balancing of the potential costs and benefits is needed before adopting a merger control regime.

In the third contribution, **Tomaso Duso** reports on the advancements of a project on the evaluation of European (EU) merger control decisions that Damien Neven and Lars-Hendrik Röller presented the first results of at the first pros and cons conference. Have the European Commission scored well in its merger evaluation? Well, the type I and type II errors are quite frequent… In his contribution, Duso illustrates the strengths and the weaknesses of several ex-post evaluation methods in merger control, highlighting which approaches can be used in what circumstances, and finishing by drawing attention to some promising avenues for future research.

Aditi Metha digs (together with co-author Nathan H. Miller) deep into one aspect of ex-post evaluations, namely how the selection of the control group can affect inferences in merger retrospective analysis. Using the Delta-Northwest merger of 2008 as an example she shows that the results can differ substantially based on which control group is used. She ends with a discussion on the possibility of constructing artificial control groups that can best match the treated groups.

In the final contribution, **Lars Sørgard** argues that a traditional approach with focus on market shares and concentration indexes can be a bad predictor for estimating the anticompetitive effects in markets with differentiated products. The new approach with focus on diversion ratios and price-costs margins is much more targeted towards measuring the unilateral effects of a merger. He also notes

that the various test – UPP, IPR and SSNIP (when carried out properly) – share several features.

Taken together, the five contributions shed light on the issue of the pros and cons of merger control. Hopefully, this volume contributes towards a better understanding of the mechanisms of merger control. The conference also benefited from several insights from the discussants as well as from the audience. More information on the series of pros and cons conferences is available at the Swedish Competition Authority's web site, www.konkurrensverket.se.

2 The European School of Thought in Merger Cases

By Doris Hildebrand[*]

2.1 Introduction

The European School of thought in EU merger proceedings relates to the economics that is applied by the Commission and the Courts of the European Union. The School is about a special branch of economics, namely European competition economics. The European approach needs to be distinguished 1) from US antitrust economics and 2) economics as a science.

In particular, the European School differs in the policy recommendations competition economists draw from their economic analyses. The ideology enshrined in EU competition law makes the difference in this respect. It is widely accepted and known that economists often disagree among themselves: First, economists may differ about social objectives. Two economists who agree about the impact of a tariff on the domestic market will diverge in their recommendations for the appropriate tariff level. One economist would recommend a policy to maximize consumer welfare and another one suggests a policy to protect domestic firms from foreign competition. Second, economists may disagree about facts. One economist would try to evaluate the minimum size firm needed in electric power generation to obtain the lowest possible average cost, and that this size is small relative to the size of the market. Another

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economist may propose that it is not possible for economists to measure the minimum lowest-average cost firm size at all, or that if such measurement is possible, that the indicated size is large relative to the size of the market. Economists with such alternative views make different recommendations about merger policy in the electric power industry. Third, some economists may fail to apply scientific procedures correctly. The remedy for this is straightforward, and will manifest itself if the usual process of give-and-take in academic journals runs its course. Finally, economists' policy recommend-dations may differ for reasons of ideology (Lange 1945-1946, pp. 22-24). This is in particular true with respect to EU competition law: The European ideology differs significantly from the US approach and a lot of other branches in economics sciences. To conclude, there are many reasons why European competition economists are different from e.g. US antitrust economists, industrial economists, Chicago School economists, behavioral economists, market-design economists, institutional economists, game-theoretical economists, transaction cost economists, etc. European competition economics is unique in this logic and need to be viewed as it stands: a distinctive School of thought.

From the perspective of the EU Commission, the Courts of the European Union and competition lawyers, such a distinctive approach is mandatory: They are simply scared by the broad diversity of economics economists can offer. Legal scholars expect that competition economics provides guidance for the application of the legal rules. The European legal community needs predictability on which economics/economist they should rely on.

Such guidance was missing in the early years of the 'more economics based approach'. This increased the tension between the two disciplines, law and economics. Lawyers as well as judges were confused by the multiple roles and outcomes economic sciences offer.

Since EU law - and the ideology enshrined in the law - is different from US antitrust law, it is not possible either just to copy

the US economic approach. Instead it is necessary to escape to a School of thought which is already in place since the Treaty of Rome went into force. This School of thought is a branch of economics that corresponds to the legal requirements enshrined in the Treaties of the European Union and the case law of the EU Commission and the Courts of the European Union. You will find more about the European School of thought in the legal texts and the case law than in an economics book.

By representing a small division in the broad diversity of economics sciences available, this School of thought is gaining ground in the competition community – both in Europe as well as in the US. This paper is a contribution to this process discussing the European School of thought in merger proceedings. The paper is structured as follows: Section 2.2§ discusses the development of economic thinking in merger control and in particular, the misleading assumption of some scholars, that EU competition law is based on the Chicago Schools consumer welfare paradigm. In section 2.3, as a pillar of the European School of thought, the ideology of ordoliberalism is illustrated. In particular it will be discussed that ordoliberal thinking influenced the drafters of the EU competition rules. The challenge to communicate this issue goes partly back to the fact that the original work of the Freiburg Scholars is written in German, a language the Anglo-Saxon competition community does not read that often. The paper closes with some examples of the Courts' case law on economics confirming that the Chicago School consumer welfare paradigm was never applied in the EU.

2.2 Economic Thinking in EU Competition Law

2.2.1 Development of Economic Thinking in the EU

In the very beginning of the EU, the implementation of EU competition law was dominated by Germans. The reason is that Germany was the only Member State which had a competition law at that time. From the 1970s onwards Anglo-American ideas became more important. The entry of the United Kingdom and, especially, the growing dominance of Anglo-American ideas in the academic world are important factors in this: such ideas were more 'fashion'. From a methodological point of view, a more analytical approach was favoured. While it is commonly said that the modernisation of EU competition law began in the middle of the 1990s, the most influential event that marked the beginning of this new era in European competition economics was the Merger Control Regulation 4064/89 (MCR) which came into force in 1990. The ability of the EU Commission to pass judgement on the biggest mergers occurring in Europe, in fact in the world, catapulted the Commission into a position of power and importance that no competition agency in Europe had ever enjoyed (Weitbrecht 2008, p. 84).

In getting ready to apply the MCR, the Commission for the first time relied on experts from the US. Merger control provided the natural breeding ground for the fertilization of sophisticated economic analysis. In those times, the consumer welfare model of the Chicago School entered the arena. According to this Chicago School approach, the sole purpose of competition law is to ensure that consumer (or total) welfare is not jeopardised by actions of undertakings (and governments). Subsequent to the enactment of the MCR, a process of Americanisation began. Some European scholars gradually adopted their own understanding of the term 'competition' towards a version of the consumer welfare approach developed by the Chicago School.

Chicago's claim is that the School must be governed by economic analysis, in particular by basic price theory. This claim – the so-called "sole value" thesis – has two remarkable consequences. First, that other concerns, such as fairness, or the plight of small businesses, or the balancing of power, are irrelevant. Second, that the sole value to be pursued by price-theoretic antitrust must be a specific kind of economic value, namely, efficiency, in both allocative and productive terms. Thus, the focus of US antitrust is on efficiency – or, as it is often said, consumer welfare. If efficiency is to be the sole yardstick, then another central thesis of the Chicago School is that competitive harm consists of adverse price and output effects. A third Chicago cornerstone is faith in freedom of entry (Giocoli, 2012, p. 5).

By replacing the idea that antitrust is for competition with the idea that antitrust is for efficiency, the Chicago School has created the efficiency paradox (Fox 2008, p. 77). Chicago-style is to place excessive trust in the efficiency produced by dominant firm strategies and vertical relationships, as well as in the possibility of free entry. Thus, the approach ends up protecting monopoly or oligopoly and suppressing innovative challenges, eventually stifling that very efficiency it was supposed to enhance. The paradox is even more serious in high-tech industries and intellectual property markets, where the natural drift toward single-firm dominance, caused by the joint action of patents, copyrights and network effects, is furthered by Chicago complacency towards monopoly power. Fox's efficiency paradox is a strong argument to support the claim that "the Chicago School has overshot the mark", i.e., that it has gone much too far in promoting its peculiar "sole value" methodology (Giocoli, 2012, p. 6).

The extent of Chicago success in the field of US antitrust is perplexing. Chicago views have never achieved the same success in economics. It is fair to say, in fact, that economists have never accepted Chicago tight prior equilibrium method and its implication, the static, non-strategic approach to competition. The highly peculiar version of the neoclassical theory of perfectly competitive markets had hardly

had any utility for the analysis of imperfect competition (Martin, 2007). Chicago has been first and foremost a School of antitrust analysis, rather than of industrial economics (Giocoli, 2007, p. 13).

This Chicago School thinking applied in US antitrust law is in contradiction to the Freiburg School of thought enshrined in the Treaty of Rome. This fundamental difference as regards the purpose, which the competition rules of the EU Treaties and the MCR are supposed to foster, occurred without any intervention by the legislator and it was never subjected by the Commission to a public debate (Weitbrecht 2008, p. 85). Some members of the competition community just started to apply the Chicago School thinking.

2.2.2 US Antitrust Law vs. EU Competition Law

Antitrust law in the EU and the US differs. The respective competition systems in the EU and the US are based on different concerns/objectives. The variations in law, policy and enforcement in these two jurisdictions are remarkable (Fejø 1990, p. 13).

In contradiction to the European competition model, the logic of US antitrust policy is that there should be a certain minimum of competition and that this level of competition could not be maintained without an antitrust policy (Fejø 1990, p. 30). Overall, US antitrust policy is primarily designed to protect consumers' freedom in order to guarantee consumers' welfare which is expressed in terms of the production of a variety of products at reasonable prices. In contrast to the EU, US enforcement agencies and courts believe that a robust competitive market would automatically be efficient (Fox 1981 p. 340).

The objective of US antitrust policy, and the related idea of market economy, is based on values as private ownership, the freedom of contract and economic freedom. These values are based on the liberty guaranteed by the American constitution, especially the freedom and equality of the individual citizen. The values

originate from the citizens' wish to protect themselves against the government.[1]

US antitrust analysis has adopted a consumer welfare standard, which is evidence of the influence of the Chicago School of antitrust analysis. The Chicago 'pro-consumer' label is often traced to *Robert H. Bork* and his book 'The Antitrust Paradox'[2]. According to *Bork*, consumer welfare is net social welfare, the sum of producer surplus and consumer surplus (Bork 1956 p. 110). The actual application by US judges of the consumer welfare standard differs from the meaning consumer welfare had in academic contributions.

Although the positions associated with the Chicago School never completely overturned mainstream antitrust, they retained more influence on antitrust law than they ever had in economics (Martin 2006, p. 40). Thus, the Chicago School developed primarily to a School of US antitrust analysis, and only secondary to a School of thought in industrial economics. It did change the landscape of professional industrial economics: Mainstream industrial economists assessed efficiency claims and researched market power explanations of real-world observations. Theoretical research was carried out by using formal models that were consistent with mainstream microeconomic theory. Mainstream industrial economic theory is not neoclassical price theory, nor is it the theory of perfectly competitive markets. Mainstream industrial economists rejected the Chicago School 'good approximation' assumption that prices and quantities in real-world markets can, most of the time, be treated as if they are competitive equilibrium values (Martin 2007, p. 26).

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[1] Over the years, the application of US antitrust policy shifted gradually. It became possible for the government to intervene in the case of abuse by private persons and undertakings.

[2] Pages 7, 15, 50, 51, Bork, Robert H., The Antitrust Paradox.

2.2.3 Chicago School Influence on EU Competition Law

For some scholars, the belief is strong that modern EU competition policy is inspired be the neoliberal ideas of the Chicago School which place great confidence in free markets (Geradin/Girgenson 2011, p. 353). The view is that by establishing the significant impediment to effective competition (SIEC)-test as the new test in EU merger control, the Commission intended to ground EU merger analysis more firmly in modern industrial organization theory, based on the consumer welfare standard (Maier-Rigaud/Parplies 2009, p. 565). The argument in many scientific papers[3] is that the majority of economists generally support the application of an overall social welfare standard in merger control (Bergman/Coate/Jakobsson/ Ulrick 2010, p. 4). The assumption is that the aim of the Commission is to increase consumer welfare (Szilágyi 2011, p. 4). Even members of the EU Chief Economist Team (CET) argue with Chicago School arguments: long ago it was established that under certain assumptions a monopolist cannot increase its profits by leveraging its monopoly power into another market. "*Against this background, it is clear that one needs to establish which of the (restrictive) assumptions of the one–monopoly profit theorem are violated before even considering the possibility of harm"* (De Coninck 2010, p. 931)[4]. *Motta* confirms as well that economic welfare is the objective EU competition authorities and courts should pursue (Motta 2004, p. 30). He identifies economic welfare as a branch of economics that focuses on the optimal allocation of resources and goods and how this affects social welfare. In accordance with *Bork's* reading, he agrees that in each given industry, welfare is specified by total surplus: That is the sum of

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[3] See (Motta 2004, Chapter 1.3) for a discussion and (Anderson and Coate 2005, pp.947-972) for an overview of papers addressing the two merger policy standards.

[4] *See, e.g.,* (Hart & Tirole 1990, pp.205-286); (Choi & Yi 2000, pp.717-743); (Chen Y. 2001, pp.667-685); and (Nocke & White 2005).

consumer surplus and producer surplus (Motta 2004, p. 18). To conclude, the view is strong that in merger policy antitrust enforcers usually focus on consumer welfare, both in the EU and the US (Coate 2005, pp. 189-240).

In contradiction to this view, in the following the economic concept/ideology applied in EU competition law, the ordoliberal Freiburg School is discussed first before continuing to the actual application of economics in merger cases.

2.3 The European School of Thought in EU Competition Law

2.3.1 Stable EU Competition Rules

The European Union has been awarded the Nobel Peace Prize for six decades of work in advancing peace in Europe. On 1 January 1958, the European Economic Community was founded by the Treaty of Rome. The articles on competition in the Treaty remained unchanged since then. With respect to these articles, the drafters of the Treaty of Rome were inspired by the ideas of Ordoliberalism of the Freiburg School.[5] The concept of 'ordo', the Latin word for order, is prominently in the Freiburg School's work. Ordo refers to an ideal economic system that would be more orderly than the laissez-faire economy advocated by classical liberals (Oliver 1960, pp. 81-91).

Scholars at the University of Freiburg (Germany) developed their ideas with respect to a peaceful Europe post-world war in the period

[5] In drafting the ECSC treaty, Monnet relied upon the services of Robert Bowie, an American professor. Bowie's drafts were rewritten in French by Maurice Lagrange. "Lagrange … put them into French treaty language." Bowie (1989, p. 6). In retrospect, it seems evident that more than mere translation was involved. Abuse control exceptions, of the type that appear in Article 101 (3), were unknown to US antitrust. (Martin 2006, p. 50).

between World War (WW) I and II and during WWII. Today it is widely accepted (see for example Gerber 2001, p. 264; Gormsen 2006, p. 10; Cseres 2005, p. 82; Marenco 2002, p. 303) that these ideas of the Freiburg School, not US ideology, determined the legal language in Articles 101 and 102 Treaty on the Functioning of the European Union (TFEU) as well as later on in the Merger Regulation.

The following chapter discusses that in EU competition law neither US antitrust policy nor the Chicago School played a role at all. The ordoliberal ideas of the Freiburg School were the guiding principles in drafting the competition law provisions which remained stable for six decades. In addition, it will be demonstrated that economics as a science did not contribute to the legal language of the competition rules. Instead ideology was the determining factor the way EU competition law is drafted.

2.3.2 Ideology of Ordoliberalism

The term ordoliberalism first appeared in scholarly writings on political economy in the period between the two WW. The instability of the interwar years, plagued by inflation and depression that bred radical ideologies and unleashed devastation on Europe, convinced many intellectuals and politicians that capitalism was untenable.

Freiburg School thinkers on ordoliberalism agreed with earlier conceptions of liberalism in considering a competitive economic system to be necessary for a prosperous, free and equitable society. They were convinced that such a society could develop only where the market was embedded in a constitutional framework. This framework was necessary to protect the process of competition from distortion, as a means of preventing degeneration of the competitive process, to assure that the benefits of the market were equitably distributed throughout society and to minimize governmental intervention in the economy.

According to Freiburg scholars, history has demonstrated that competition tended to collapse, because enterprises preferred private (i.e. contractual) regulation of business activities rather than competition and because enterprises were frequently able to acquire such high levels of economic power that they could eliminate competition. Competition law is viewed by Freiburg scholars as a means of preventing this degeneration of the competitive process. Competition law should enforce competition by creating and maintaining the conditions under which it could flourish (Gerber 1995, p. 44).

Thus, ordoliberalism[6] is a School of liberalism emphasizing the need for the state to ensure that the free market produces results close to its theoretical potential. Ordoliberal theory holds that the state must create a proper legal environment for the economy and maintain a healthy level of competition through measures that adhere to market principles. The concern is that, if the state does not take active measures to foster competition, firms with monopoly (or oligopoly) power will emerge. These companies will not only subvert the advantages offered by the market economy, but also possibly undermine good government.

Ordoliberalism sought to create a proper legal environment for the economy and maintain a healthy level of competition through democratic measures that adhere to market principles, but which limited the economic, political, and social power of individual or groups of private actors (Gerber, 1998).

Development of the Freiburg Ordoliberal School of Thought

The Freiburg Ordoliberal School was founded in the 1930s by economist *Walter Eucken* (1891-1950) and the two lawyers, *Franz Böhm* (1895-1977) and *Hans Großmann-Doerth* (1894-1944). As *Böhm*

[6] Also called German neoliberalism.

later said in retrospect, the founders of the School[7] were united in their common concern for the question of the constitutional foundations of a free economy and society.

While ordoliberalism passionately affirmed competitive free markets, the School was influenced from the historical observation that concentrations of power, in both public and private spheres, distort the functioning of economies. Thus, the long-term viability of free markets requires a rule-bound and limited yet powerful form of government intervention. To quote the liberal academic *Wilhelm Röpke*:

'A market economy and our economic program presuppose the following type of state: a state which knows exactly where to draw the line between what does and what does not concern it, which prevails in the sphere assigned to it with the whole force of its authority, but refrains from all interference outside its sphere – an energetic umpire whose task it is neither to take part in the game nor to prescribe their movements to players, who is rather, completely impartial and incorruptible and sees to it that the rules of the game and of sportsmanship are strictly enforced. That is the state without which a genuine and real market economy cannot exist.'(Röpke 1950, p. 192).

Eucken described this interdependence of the economic and political systems of a national state. A liberal market economy, *Eucken* argued, cannot survive for long in a totalitarian state, nor can a democratic state under the rule of law survive if economic power is highly concentrated. He showed that the specific way in which an economic process develops is dependent upon the specific kind of economic system that prevails (Eucken 1939, pp. 24-37): Every specific kind of economic system is but a combination of a quite limited number or elementary constituting elements, e.g. property rights, competition and money. Thus, economic systems differ in

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[7] The School also includes such authors as *Constantine von Dietze, Leonhard Miksch, Wilhelm Röpke* and *Alexander Rüstow,* notwithstanding more politically notable personalities such as *Alfred Müller-Armack* and *Ludwig Erhard*.

their implications for individual freedom (Eucken, 1939). Ordoliberalism balances freedom of individuals to compete in the marketplace and freedom from state intervention (Oliver 1960, p. 118; Boarman 1964, p. 25; Gerber 1994, p. 33).

In this respect, competition and competition law is not viewed as automatism, but as a task of governmental economic policy. Monetary and other policies designed to foster competition would have little effect, Freiburg scholars argued, if firms could act in concert in setting prices or determining output or if firms with economic power could use that power to foreclose opportunities for competition. Thus, one of the key concepts of Ordoliberalism is the idea of an economic constitution/order. A formal set of rules including competition law should characterize the nature and functioning of the European economic system (Giocoli 2007, p. 3).

To conclude, ordoliberalism of the Freiburg School starts from the very premise that the market order is a *constitutional* order, that it is defined by its institutional framework and, as such, subject to (explicit or implicit) *constitutional choice.* It assumes that the working properties of market processes depend on the nature of the legal-institutional frameworks within which they take place (Vanberg 2004, p. 5).

Social Market Economies

A second element of German ordoliberal stance is the willingness to place humanistic and social values on par with economic efficiency (Boas & Gans-Morse 2009, p. 146). German ordoliberals' concern is that the rules of the game should not favor the powerful and wealthy but should favor limited income redistribution too (Gerber 1994, p. 38). Ordoliberalism primarily assigned the term to a normative ideology with specific claims about how society should be organized around conceptions of liberty and humanistic values (Hanslowe 1960, p. 96). As *Reinhard Behlke* wrote in 1961, *'…liberalism is not to be viewed as a direction in economics or economic policy, but as a humanistically based intellectual orientation'* (Gerber 1994, p. 36).

Müller-Armack coined the phrase 'social market economy' in the 1940s to emphasize the egalitarian and humanistic bent of this new form of liberalism (Boarman 1964, p. 21; Gerber 1994, p. 60). *Eucken* claimed in 1952 that '*social security and social justice are the greatest concerns of our time'* (Gerber 1994, p. 37). This might be true even today.

Representatives of the Freiburg School

Freiburg School economists occupied key positions in the post-war government, and their ideas were influential in German economic policy. *Ludwig Erhard*, the economics minister who presided over the two post-war decades of economic growth that came to be known as the 'German economic miracle': identified with the ordoliberals and implemented many of their prescriptions (Friedrich 1955, p. 510; Oliver 1960, p. 119; Boarman 1964, p. 24; Gerber 1994, p. 61). Nonetheless, *Erhard* referred to his overall development model as a social market economy, with the term ordoliberalism reserved for the philosophy that inspired it.

2.3.3 Ordoliberalism in EU Competition Law

German Influences

EU competition law was an important element of the European 'economic constitution' in the Treaty of Rome, which also includes the freedom to conclude contracts and the guarantee of property rights and which insures the economic freedom of action of every actor. As the only Member State that had a national competition law remotely resembling that of the EU, German thinking was very influential in EU competition law and policy for many years to come. German legislation on competition law developed in the period between 1949-1956, ultimately leading to the enactment of German

competition law in 1957 which entered into force on January 1, 1958, the same day as the Treaty of Rome. Thus, ordoliberal thoughts extended beyond Germany and penetrated the thought, institutions and practices of the EU - as well as of various Member States. Most of the leading representatives in the founding of the European Communities were closely associated with ordoliberalism or at least shared an appreciation for it.[8]

Pragmatic Approach

Ordoliberalism's faith in the free market is moderate and pragmatic. To keep private interests in check, the ordoliberals supported the creation of a well-developed legal system and capable regulatory apparatus that went well beyond the minimalist, night-watchman state promoted by followers of Adam Smith (Megay 1970, pp. 424–425; Gerber 1994, pp. 36–37). Defining the 'rules of the game' of a competitive market society was the Ordoliberal scholar's underlying mission.

The monopoly prohibition was directed primarily at cartels and other anti-competitive agreements between competitors. Market power should be as diffused as far as possible. Moreover, depending on the configuration of the other factors conditioning competition, market power may be diffused even if the market tends toward

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[8] *Walter Hallstein,* for example, was one of the founders of the European Communities and the first president of the European Commission. He had been a law professor in Germany and a friend of *Heinrich Kronstein.* He became associated with the Ordoliberals during the 1940s, acquiring a high regard for the ideas of *Walter Eucken.* Many of his views on the role of law in shaping the future of European institutions clearly reflect Ordoliberal ideas. Another key figure was *Hans von der Groeben,* one of the two principal drafters of the so-called '*Spaak-R*eport', the document on which the Rome Treaty was based. Although they supported the process, Ordoliberals did not provide the primary political impetus for establishing a European common market.

oligopoly or even monopoly. Competition, then, is the primary regulative principle. Within a competitive environment economic actors can optimally unfold their creativity. State intervention is limited to a proper execution of general competition law.

Ordoliberalism in the Treaties of the European Union

Ordoliberalism is embodied in the European Treaties.

The model or concept of a 'social market economy', takes a central position in the economic order. Article 2 (3) of the Treaty of Lisbon reads as: *'The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment.'*[9] Europeans consider such a social market mechanism as the most efficient way to meet the demand from consumers for goods and services.

The European Court of Justice has repeatedly made reference in its judgements on competition issues to Articles 2 and 3 of the Treaty on European Union (TEU) as the basic principles underlying the Treaty's rules of competition (Case C-6/72, *Continental Can v. Commission*, para. 24). It is not only a pragmatic approach that EU competition law should be guided by the objectives of the TEU, but also a historically grown conclusion. Repeatedly the Courts of the European Union have stated that the competition rules are designed to maintain effective competition, meaning that in each market there must be sufficient competition to ensure the observance of the basic requirements and the attainment of the objectives of the TEU. The

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[9] Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community, signed at Lisbon, 13 December 2007, Article 3 (ex Article 2 TEU) in the Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union, *Official Journal C 115 of 9 May 2008.*

maintenance of effective competition is viewed by the European Court of Justice as so essential 'that without it numerous provisions of the Treaty would be pointless' (ibid). This approach is laid down in the Treaty on the Functioning of the European Union (TFEU) too. The economic concept embodied in the TFEU is a normative one: it is given.

Competition, in the European sense, is an unlimited sequence of moves and responses in which profits can be seen as a motive for initiation and imitation of economic efforts. The time competition needs to erode these profits indicates the degree of effectiveness of competition, i.e. determines whether competition itself performs its function in a sufficient manner and exerts sufficient competitive pressure, which cannot be controlled by incumbents. Thus, the ultimate aim of the EU competition rules is to maintain and help to establish competitive market structures.

The goal of EU competition policy, undistorted competition, was not established for its own sake but as a means toward the ultimate of European integration altogether, not merely economic integration. The EU common market evolved, based on the claim that it was necessary to break down barriers between Member States. Implicit in the EU competition rules, the drafters of the Treaty laid down their visions about ways markets work. Another goal of the EU competition rules is the aim to preserve opportunities for small and medium-sized business. In this regard, firstly, the EU is motivated, in coherence with the US, by concerns for consumers' interest, and secondly, but now in contrast to the US, by concerns for efficient businesses. In contrast to the US, 'efficiency' is encompassed in Article 101(3) TFEU. The logic is that in the EU joint ventures, mergers, and other collaborations may be necessary to enhance technological development and thereby allowing European firms to compete effectively in global markets. This is in clear contradiction to the US which adheres to the logic that effectiveness is a natural result of market forces.

Economics had nothing to say, as a science, about which goals EU competition law should adhere. Economics did not contribute either whether EU competition law should seek to maximize consumer welfare or net social welfare. "*The economist as scientist can analyze the consequences of such policies for the welfare of various groups and for society as a whole. The economist as individual may, and very likely will, have personal preferences about such policies. But those are individual preferences, not professional conclusions*" (Martin 2006, p. 64).

2.3.4 European School in EU competition law

Economic Thinking within a Legal Framework

Economists tend to be creative and innovative. However when it comes to European competition economics, this freedom is limited by the legal framework or in other words, by the ideology enshrined in the EU Treaties as discussed in the previous chapter. In contradiction to the US system, the European antitrust approach is a much more stable and predictable one. There is not much room left for innovative experiments or political considerations.

The situation in the US differs: the application and interpretation of US antitrust economics changed over time. Sometimes political powers or new academic insights - in other words, economics that are 'fashion' - influenced the application of US antitrust law. The result is that in the US the goals of antitrust policy change over time whereas in the EU the goals remained stable for six decades of work in advancing peace in Europe.

That is an important element in the European School of thought: based on experiences in two WW, the European society chose in 1957 for a specific economic system. In this economic order, competition plays an important role. Thus, in fact part of the Nobel Peace Prize 2012 should be devoted to EU competition policy. This heritage needs to be respected.

In Europe, competition economists need to know and understand the ideology of the EU competition rules and the legal challenges connected to it. Like lawyers, competition economists are forced to respect the case law of the Courts of the European Union as well as the legal language required to address economic issues. Every economic analysis corresponds to the legal subject matter. In case economists do not see this point, miscommunications and even weak performances of economists in the competition cases are the results. Lawyers and judges are confused by those economists who do not accept that European competition economics is just a branch of economic science within a stable legal framework. The following chapter discusses this special branch of economic thinking in EU merger control proceedings.

2.4 European School of Thought in Merger Proceedings

2.4.1 Merger Regulation 139/2004

On 21 December 1989, under pressure from industry, the Council adopted Regulation (EEC) 4064/89[10], requiring the pre-notification to the Commission of concentrations within its scope - those above the thresholds - and providing for possible prohibition by the Commission. The Merger Control Regulation (the ECR) was amended by the Council Regulation (EC) 1310/97 of 30 June 1997.[11]

2002 marked an important milestone: The Commission faced an important challenge when the General Court overruled three Commission decisions (Case M-1524, *Airtours v. First Choice*, Case M-2283, *Schneider v. Legrand* and Case M-2416, *Tetra Laval v. Sidel)*,

[10] OJ L 395/1, 30.12.1989

[11] OJ L 180/1, 9.7.1997

arguing that the Commission had misevaluated the competitive intensity in relevant industries. Following these remarkable decisions, the EMR was reformed in early 2004. The new Council Regulation (EC) 139/2004 on the control of concentrations between undertakings (the ECMR) came into force on May 1st 2004. Article 2 (2) and (3) ECMR states as follows:

"2. A concentration which would not significantly impede effective competition in the common market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position, shall be declared compatible with the common market.

3. A concentration which would significantly impede effective competition, in the common market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position, shall be declared incompatible with the common market."

A merger may significantly impede effective competition in a market, for example, by removing important competitive constraints on one or more sellers, who consequently may increase market power. The most direct effect of the merger will be the loss of competition between the merging firms. Another aspect covered is the case when merging firms are close competitors. Products may be differentiated within a relevant market such that some products are closer substitutes than others. The higher the degree of substitutability between the merging firms' products, the more likely it is that the merging firms will raise prices significantly.

The SIEC-Test

The novelty in the ECMR is the notion of 'significant impediment to effective competition'-SIEC-Test in Article 2(2) and (3) - requiring an

extension beyond the concept of dominance.[12] In the past, a merger was blocked if it creates a dominant position, and therefore would likely result in higher prices, less choice and innovation. This concept has been interpreted by the Commission and the Courts of the European Union along the years as applying also to situations of 'joint dominance' or duopolies (Case M-308, *Kali und Salz v. MdK v. Treuhand*, para. *62 & Case M-619, Gencor v. Lonrho*, para. 205-206) as well as to situations of 'collective dominance' or oligopolies (Case M-1524, *Airtours v. First Choice*, para. 97). In the past, the dominance test did not apply in the case of a 'non-collusive oligopoly,' a scenario which typically involves (i) the merger of the second and third largest players in the market, (ii) where the two are the closest substitutes, and (iii) the merged entity would obtain market power and be able to raise prices unilaterally, i.e., what is known in the US as a unilateral competitive effect. Unilateral effects are changes to the economic equilibrium caused by an increase in concentration that materially changes the optimal behaviour of the merging firms. In differentiated product industries, unilateral effects are of higher importance than coordinated effects.

The SIEC-test by stating that a merger must be blocked if it would 'significantly impede effective competition' covers anticompetitive effects in oligopolistic markets where the merged company would not be strictly dominant in the usual sense of the word (i.e. much bigger than the rest). The central question is whether sufficient competition remains after the merger to provide consumers with sufficient choice. Thus in principle, the SIEC-test embodies correctly the ordoliberal ideas illustrated in the previous

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[12] In the past, a merger was blocked if it creates a dominant position, and therefore would likely result in higher prices, less choice and innovation. This concept has been interpreted by the Commission and the Courts of the European Union along the years as applying also to situations of 'joint dominance' or duopolies (*Kali und Salz*/*MdK* and *Gencor*/*Lonrho*) as well as to situations of 'collective dominance' or oligopolies (*Airtours*/*First Choice*).

chapter. The SIEC-test does not make reference to a consumer welfare standard at all.

The SIEC-test recognizes the economic fact that there are at least two ways in which competition may be threatened, other than by single dominant firms. These two ways are conceptually distinct. The first is when a number of firms engage in what economists refer to as tacit collusion, as a result of which their behaviour may approximate that of a single dominant firm.[13] The second is when market concentration is high enough for non-competitive outcomes to result from the individual profit-maximising responses of firms to market conditions even when none of these firms would be considered individually dominant. Situations of the second kind are now captured by the SIEC test.

The analyses in the SIEC-test are analyses of market outcomes or effects. Thus, the modern interpretation of the SIEC-test is the 'effects based approach'.

An immediate implication of this economic approach is that the effect of the merger on the merging firms does not tell the whole story. Non-merging rivals will react to the merger and raise their prices, resulting in a new equilibrium. In other words, when firms compete in prices, the final equilibrium effect will exceed the direct effect on the merging parties. In the end, there are two effects: the initial effect on the merging parties and the final equilibrium effect when the full set of reactions and counter reactions has occurred.

It is the equilibrium effect that affects consumers and that captures the effect of the merger on competition. A merger test - such as the dominance test - that focuses almost exclusively on the market power of the merged firm does not fully capture the full equilibrium effect. It is important to realize that these equilibrium effects do not arise from any collusion between firms, or from any trade-off of

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[13] Tacit collusion is dealt in a number of judgements under the notion of collective dominance corresponding to the 'coordinated effects' studied in the US.

future or current profits. It is simply a change in the competitive equilibrium because of the transaction (Röller & De la Mano 2006, pp. 18-19).

On the other hand, despite creating or strengthening a dominant position a merger may lead to welfare gains for consumers in the form of lower prices or increased innovation. This can happen for at least two reasons. First, the merged entity may attain efficiencies such as marginal cost reductions, which give an incentive to lower prices. If these efficiencies are passed on, this may fully offset the opposite incentive to raise prices resulting from increased market power. Thus, it is possible for prices in the market to fall and total output to rise post-merger. Second, a merger between suppliers may create a dominant position, which enhances countervailing seller power vis-à-vis a dominant buyer. This may lead to increased input and output sales and lower output prices. As a result the creation or strengthening of dominance cannot in itself be sufficient to prohibit a merger.

Efficiencies

In order to determine the impact of a concentration on competition in the common market, the ECMR states that it is appropriate to take account of any substantiated and likely efficiencies put forward by the undertakings concerned. The assumption is that efficiencies brought about by the concentration may counteract the effects on competition. As a consequence, the concentration would not significantly impede effective competition in the common market or in a substantial part of it, in particular as a result of the creation or strengthening of a dominant position. The idea is that competition secures the consumer the desired goods at the lowest price with the sacrifice of the fewest resources. In this sense, competition is a mechanism for promoting economic efficiency. Merger policy is one element in this more general strategy: A merger can entail economic efficiency gains by reducing costs. As *Williamson* (Williamson 1968,

p. 22-23) found, relatively modest cost savings can already outweigh the impact of price increases when considering allocative efficiency.

Efficiency claims are accepted when the efficiencies are generated by the merger. These efficiencies need to be of direct benefit to consumers, as well as being substantial, timely, and verifiable.

2.4.2 Guidance by Courts of the European Union

Role of the Commission

The single-sided interpretation of EU competition law with respect to a Chicago School thinking approach/consumer welfare standard raises serious concerns. However, there is no evidence that the Commission adheres to the consumer welfare paradigm. Currently the Commission touches this argument in a few cases only.

But the Commission's competition policy could change towards a US based approach over time. This worry touches another discussion: the Commission's powerful role combining investigative, prosecutorial and decision-making powers. Those multiple roles of the Commission are controversial (Bronckers/Vallery 2011, pp. 537-539). The risk of such a concentration of powers is thought to be compensated by procedural guarantees during the administrative proceedings and by the possibility of judicial review (Schweitzer 2009, p. 7). However, undertakings and practitioners in EU competition law proceedings often feel that they are treated unfairly and that procedural rights are violated (Editorial Comments CMLR 2011, p. 1406). This argument holds for both - infringements as well as merger cases. With respect to judicial review, it seems that the Courts of the European Union see their mandate mainly as one of objective legality control: The European judiciary review restricts itself to some sort of 'light' review.

In principle the Commission's position as to questions of law, but also with respect to findings of facts, as well as the legal assessment

of those facts, is open to the General Court's scrutiny. In the light of an alleged conflict between effectiveness of competition law enforcement and the full protection of individual rights, the General Court has opted for the first (Schweitzer 2009, p. 25). With respect to the Commission's fining decisions for violations of Articles 101 and 102 TFEU, a change of the judicial review system is about to happen. The Menarini-ruling of the European Court of Human Rights (ECtHR) made a significant contribution to this alteration.[14] Despite the admittedly changes that have occurred both with respect to the Commission's role and the role of the Courts of the European Union, there is still demand for more changes. In particular the "more economics based approach" calls for a "more judicial approach" (Editorial Comments CMLR 2011, p. 1405). Such an increase in the judicial review would be even more important when the Commission decides to turn to the US Chicago School thinking, putting the consumer welfare standard on the front position of its EU competition policy.

Role of the Courts

With respect to merger cases, the judiciary review of past decisions already document that the Courts of the European Unions have a tendency to intervene. By making reference to the basic objectives of the EU Treaties, the Courts are not reluctant to provide guidance to

[14] The enhancement of a company's rights of defense in antitrust cases is based on Article 6 of the Convention and on the respective case-law of the ECtHR which materializes in a detailed manner the principles associated with the due process of law. Cadete E. M. (2012), "European Court Of Human Rights Confirms That Antitrust Procedures Have A Criminal Nature For The Purpose Of Article 6 Of The European Convention Of Human Rights Regarding The Right To A Fair Trial", Modaq. (electronic resource).

the Commission how to apply e.g. the substantive test in merger control proceedings.

On the other side, the Court of Justice has held that the basic provisions of the ECMR, in particular Article 2, confer on the Commission a certain discretion, especially with respect to assessments of an economic nature. Consequently review by the Courts of the European Union of the exercise of that discretion must take account of the margin of discretion implicit in the provisions of an economic nature which form part of the rules on concentrations (see Joined Cases C-68/94 and C-30/95 *France and Others* v *Commission*, para. 223 and 224, and Case T-5/02, *Tetra Laval v. Commission*, para. 119).

Whilst the Courts of the European Union recognize that the Commission has a margin of discretion with regard to economic matters that does not mean that the Courts must refrain from reviewing the Commission's interpretation of information of an economic nature. Not only must the Courts establish, in particular, whether the evidence relied on is factually accurate, reliable and consistent but also whether that evidence contains all the information which must be taken into account in order to assess a complex situation and whether it is capable of substantiating the conclusions drawn from it (see Case C-12/03 P, Commission v. *Tetra Laval*, para. 31, and Case C-413/06 *Bertelsmann and Sony Corporation of America* v *Impala*, para. 69).

According to settled case-law, where the institutions like the Commission have a power of appraisal, respect for the rights guaranteed by the legal order of the European Union in administrative procedures is of even more fundamental importance. Those guarantees include, in particular, the duty of the Commission to examine carefully and impartially all the relevant aspects of the individual case, the right of the person concerned to make his views known and also his right to have an adequately reasoned decision (Case C-269/90, *Hauptzollamt München-Mitte v. Technische Universität*

München, para. 14, and Case T-151/05 *NVV and Others* v *Commission*, para. 163).

Emergence of an Economic Approach Defined by the Courts

Courts were actually applying these principles in a pro-active way. When the Courts had the impression that economic analyses of the Commission were flawed, they passed tough judgements for the Commission: The Courts took the lead. Based on this jurisprudence, in fact a coherent economic methodology developed as a supplement to the legal rules: A School of thought for proper economic analyses emerged. More than fifteen years of ongoing reform in EU competition law with respect to economics shaped a comprehensive body of economic thinking. This body of economic thinking or European School is an independent School of thought – in particular independent from the insights of the US Chicago School. In the following, some merger case reviews of the Courts are described to illustrate that the European competition concept is interpreted by the Courts as it stands.

2.4.3 Case Law of the General Court

Whereas the majority of merger cases is discussed on the Commission level only, a few merger cases have been reviewed by the Courts of the European Union. In particular, these judgements shape European competition economics. Taking reference to the discussion of the Commission's powerful role combining investigative, prosecutorial and decision-making powers, the guidance from the merger cases reviewed by the Courts should get more attention.

The GE/HONEYWELL Case[15]

The General Court approved the contentious prohibition decision of the merger between General Electric (GE) and Honeywell. However, several arguments of the Commission's decision were rejected by the Court. In the contested decision, the Commission applied some economic models and concepts in theory and explained certain conclusions on the basis of these models. The Court found that the Commission did not succeed in applying the economic theory correctly to market realities. The General Court claimed that the likely effects on the market were not properly evaluated.

Theory of Harm/Competition Concerns

Among other issues, the Commission was worried that the merged firm could bundle jet engines with avionics and non-avionics products and offer those packages for very attractive prices leading to foreclosure of competitors. This rationale was based on the 'Cournot-effect-theory', which means that the profit-maximizing price for two complementary products is lower if these are offered by one instead of two firms.[16]

The Judgement

This reasoning was partly flawed since the jet engines were produced jointly by GE and SNECMA. SNECMA had no stake in the manufacturing of the avionics and non-avionics products. Price reductions that lead to higher sales for avionics and non-avionics

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[15] Case T-210/01, General Electric Company v. Commission.

[16] The reason for this is that a price reduction for one good increases the demand for both goods since they are complementary. However, increase in demand for the second good is not taken into account, if the goods are produced by separate firms.

would not benefit SNECMA. Therefore, GE would need to compensate SNECMA for the price reductions or rather bear the full costs of the discounts. Such an action would reduce the profitability of this strategy for GE considerably. Therefore, the real likelihood of such a strategy was debatable.

Another major issue in this case is that the Commission did not examine demand side reactions to such product offers. The General Court argued that the Commission assumed a competitive threat through bundled offers without examining if the reaction of the demand side would lead in fact to such a foreclosure effect. This error was aggravated by the fact that the Commission stated several times during the investigation that an empirical survey would be necessary to substantiate such a theory. Such an empirical survey of the demand side reactions was never carried out in this case and the General Court therefore criticized this inaccuracy: *'In the absence of a detailed economic analysis applying the Cournot effect theory to the particular circumstances of the present case, it cannot be concluded from the Commission's brief mention of that theory in the contested decision that the merged entity would have been likely to engage in mixed bundling after merger'* (Case T-210/01, *General Electric Company v. Commission*, para. 462).

Thus, according to the Court a mere discussion of economic models does not suffice. The Court made clear that the application of these models to reality must go along with appropriate empirical studies. Convincing conclusions can only be drawn, if the applicability of theories to a specific case is given: *'The Commission could produce convincing evidence … by relying on the Cournot effect only if it demonstrated its applicability to this specific case.'* (Case T-210/01, *General Electric Company v. Commission*, para. 462).

The Schneider/Legrand Case

Schneider Electric SA (Schneider) and Legrand SA (Legrand) are two large French industrial groups. Schneider notified its proposed

acquisition of Legrand to the Commission. The Commission prohibited the merger (Case M-2283, *Schneider v. Legrand*, para. 99). The markets that caused most concern were the markets for electrical switchboards, where the merged parties had combined market shares of 40%–70% in a number of countries, and the market for wiring accessories, with combined market shares in certain countries up to 90%. Although the Commission found that France was likely to be the country with the most severe competition issues, concerns were also raised in Denmark, Spain, Greece, Italy, Portugal and the UK.

Theory of Harm/Competition Concerns

The Commission claimed that the relevant markets were national because of differing standards and prices. Despite defining national markets, the Commission looked at the merged group's position across the EU as a whole and argued that the merged entity's range of products and wide geographic presence buttressed dominance in any single national market.

Another area of debate in this case was how to treat the sales of components used within vertically integrated channels. Three major competitors to Schneider and Legrand have vertically integrated retail arms that sell direct to end-users. Schneider and Legrand do not. Thus for example, all Schneider and Legrand's circuit-breakers are sold in wholesale markets. On the other hand, some circuit breakers manufactured by a competitor by-pass this wholesale market, as they are directly installed by the retail arm at the end customer's location. The Commission argued that vertically integrated channel sales to end users are not 'sold' in the wholesale market where Schneider and Legrand operate, and therefore would not constrain the 'market power' of the merged entity.

The role of distributors was also important in this case. Essentially, the Commission argued that the merged entity would have an 'unassailable' position viz-a-viz distributors who would then favour the merged entity's products over those of other

competitors. Regardless of the size or number of distributors in a market, these distributors would have no power or interest in resisting price increases by the merged entity despite vast differences in the structure of distribution across the seven countries in question. In some countries, such as Spain and Italy, hundreds of distributors exist and the top ten have a small fraction of sales. In other countries, such as France or Portugal, distribution is much more concentrated.

The Judgement

In its judgement, the General Court accepted in principle the Commission's analysis as to whether the operation leads to the creation or strengthening of a dominant position in the relevant national product markets, and that the Commission could take into consideration transnational effects, (Case T-310/01, *Schneider v. Commission*, para. 171) i.e. effects resulting from the presence of the combined entity across Europe. On the facts however, the Court found that the Commission merely added the positions held by the merging parties on the various national product markets without really reviewing these positions in detail and had extrapolated certain characteristics from certain national product markets (in particular the French market). According to the Court, the Commission failed to demonstrate the relevance of these elements in its analysis of the competitive situation in the different national product markets under investigation. The Court found that the Commission was wrong to draw inferences from Schneider's position at an EU level for the various national markets.

The Court held that the Commission's analysis was insufficiently clear and lacked country-specific analysis on the detailed workings of individual countries' distribution networks. The Commission did not provide detailed country specific data; instead it relied on sweeping across-country statements. The Court called this type of analysis 'abstract and detached'. Hence, in future the Commission will be required to provide detailed country-by-country analyses.

Thus, the generalizations and the specific local examples relied upon by the Commission were not supported by the facts. On the basis of very detailed and critical analysis of the contested parts of the Commission's reasoning, the Court stated that it was not convinced by the Commissions case. The Court concluded that in future, *a detailed case-by-case and market-by-market analysis* by the Commission is required to determine whether the terms 'portfolio' or 'captive' make sense in the particular circumstances of each product and geographic market.

The Tetra Laval/Sidel Case

The case originated from the Commission's prohibition in 2001 of the merger between Tetra Laval, which, according to the Commission, had a dominant position in carton drinks packaging, and Sidel, a market leader in the production of machines used for making PET plastic bottles. (Case M-2416, *Tetra Laval v. Sidel,* para. 452).

Theory of Harm/Competition Concerns

The Commission concluded that the merger would have resulted in anticompetitive 'conglomerate effects'. In particular, although Tetra Laval and Sidel did not previously have a competitive relationship, either as direct competitors or through a vertical relationship, the Commission believed that the combination of the parties' businesses in potentially converging areas would encourage Tetra Laval to leverage its existing market power to persuade its customers to choose Sidel's PET bottling machines in future (Case T-5/02, *Tetra Laval v. Commission*, para. 336).

The Commission's leveraging theory was the most significant aspect of the decision. The Commission's approach was as follows: currently packagers of juice, milk and other 'sensitive' products primarily use carton. With advances in technology, they will increasingly be adding PET to their product offerings. Thus, the

Commission assumed that in the future a substantial customer overlap might be possible. The supposition is that Tetra Laval will offer juice and milk packagers a good deal on future carton purchases if they agree to buy SBM machines from Sidel. The claim was that this would shift demand from rival SBM producers. Under the Commission's theory, the payoff to Tetra/Sidel post merger would be reduced competition in the supply of SBM machines to the sensitive segment. By marginalising rivals, Tetra would be able to enjoy higher prices in this sector in the long run. *"Leveraging is possible not only when the products in question are complements in the economic sense of the term, but also when they are commercial complements, that is to say, when the products are used by the same group of customers. This is so when, for example, as in the present case, the products in question are related and belong to closely neighbouring markets…"* (Case T-5/02, *Tetra Laval v. Commission*, para. 169)

For its concern to have much plausibility the Commission needed to find that sales of SBM machines to packagers in the sensitive segment constituted a distinct market, separate from sales to other end uses such as carbonated soft drinks and water. Tetra Laval contended that even if it could discriminate by end use on the demand side (which it denied) it still could not exploit any market power even with 100% of the sensitive segment. This is because on the supply side little, if any, extra investment or technology was needed to serve the sensitive segment. Any rival serving carbonated soft drink and water users (which are and will remain the major uses of PET) could equally well serve the sensitive segment.[17] Hence, any attempt to marginalise or foreclose competitors by shifting demand in the sensitive segments could not be profitable.

[17] Demand conditions and the degree of competition in the market for SBM machines were also relevant factors for the assessment of leveraging.

The Judgement

The Court did not accept that the Commission had demonstrated significant or growing competition between carton and PET. As a result, it rejected the potential competition argument.

The Court held also that the factual evidence was against the Commission's approach in the decision, which on this point had contained no relevant evidence. Special investments are needed, if at all, only in filling machines (in which Sidel is not a major player) not in SBM machines, which are generic across segments and interoperate with all filling equipment.

The Court's approach confirms that leverage theories can have a role to play in merger cases. The economics of leveraging focuses on the motivation that a firm has to extend its monopoly power in one market to an adjacent market. In principle it could accomplish this in several ways such as bundling products together through price discounts or through technological ties. But the fact that a firm has an ability to leverage does not mean it will have the incentive to do so.

The Tetra Laval/Sidel judgement recognizes that most conglomerate mergers are neutral or pro-competitive and requires the Commission to produce convincing proof of anti-competitive effects before it can block a merger (Case M-2416, *Tetra Laval v. Sidel*, para. 327).

The Impala Case

The Courts of the European Union have qualified economic analyses performed by the Commission in merger proceedings several times as 'flawed'. However, the ruling of the General Court in the *Impala* judgement (Case T-464/04, *Impala v. Commission*, para. 76) is remarkable in this respect.

The interesting issue is that the Court annulled for the first time a merger approval and ruled in favour of Impala, an independent music label that had brought this case to the Court. The issue at hand

was the question of whether the merger between Sony and BMG would lead to the creation of a collective dominant position on the market for recorded music. (Case M-3333, *Sony v. BMG*, para. 60-154).

The Judgement

The Court criticised in its judgement as insufficient the line of argument and claimed that the Commission needed to apply detailed econometric analyses to support its conclusions (Case T 464/04, *Impala v. Commission*, para. 327).

This judgement is of particular interest because the Court itself developed the required economic standard of proof to assess a collective dominant position. Other judgements discussed the collective dominance concept in theory. In the Impala judgement, the Court clarified which economic tools are mandatory to assess the effects. This means that in fact the Court himself specified the actual implementation of the 'more economics based approach' thereby providing legal certainty as required by many lawyers. The requirement of the Court is that *'a delicate prognosis as regards the probable development of the market and of the conditions of competition on the basis of a prospective analysis, which entails complex economic assessments …supported by a concrete analysis of the situation existing at the time of adoption of the decision'.*

The Court stated - consistent with game theory findings - that collusion is only possible if it is based on sufficient transparency, a deterrent mechanism, and low potential competition. However, the Court made clear that the Commission failed again in applying economic theory correctly to a real world case. According to the Court, it is not sufficient to describe the appropriate economic theory and assume that the prerequisites in a certain case are fulfilled. What is necessary is to investigate thoroughly if the preconditions are fully met. According to the Court, it is the task of the Commission to apply theories to market realities and perform complex economic assessments (Case T-464/04, *Impala v. Commission*, para. 250).

The Ryanair Case

In 2006, the Irish government privatized the flag-carrying airline Aer Lingus retaining 25.35 per cent of the share capital. Ryanair, an Irish low cost carrier acquired 19.16 per cent of Aer Lingus's issued share capital on the open market during this privatization. On 5 October 2006 Ryanair launched a public bid for the company. During the course of the public bid, Ryanair increased its shareholding to 25.17 per cent.

The Commission's decision is based on a detailed economic analysis of the merger. Whereas in the past the Commission was criticized for poor reasoning and for a failure to adopt modern sophisticated analytical tools, in this case the Commission has undertaken a detailed analysis. It appears that the decision is based largely on quantitative rather than qualitative analysis (Massey 2008, p. 13)

Theory of Harm/Competition Concerns

The Commission considered that the implementation of the concentration would significantly impede effective competition, in particular as a result, first, of the creation of a dominant position on 35 routes from and to Dublin, Shannon and Cork, and, second, of the creation or strengthening of a dominant position on 15 routes from and to Dublin and Cork. The effect would, the Commission felt, have been to reduce choice for consumers, leaving them exposed to a high risk of price increases (Koch 2010, p. 41). The results of the Commission's fixed-effects regressions on Aer Lingus price indicate consistently that Ryanair exerts a competitive constraint on Aer Lingus' prices (De la Mano & Pesaresi & Stehman 2007, p. 78).

The Commission opposed to the transaction on the following grounds: very high market shares on a large number of routes, elimination of competition between the closest competitors on Irish routes, barriers to entry to the affected markets are high and

competitors were not likely to replace the loss of competition (Gadas & Koch & Parplies & Beuve-Méry 2007, pp. 69-70).

The Judgement

The Commission's econometric analysis was contested by the parties. The price regression analysis was carried out in order to enable the Commission to test and assess the econometric observations submitted by Ryanair and Aer Lingus, and to evaluate what the likely impact of each of them on the other's fares might be.

The Court agreed with the Commission that the analysis confirmed and complemented the conclusions derived from the qualitative evidence, namely that Ryanair and Aer Lingus are close competitors. It stated that those results were also in line with the opinion of the majority of the people surveyed during the customer survey, from which it is apparent that the parties to the concentration are 'closest competitors' where other airlines operate on the route. Consequently, the Commission did not exceed the limits of the discretion in relation to economic matters that it enjoys under the case-law.

The Court confirmed as well that efficiencies are relevant to the competitive assessment when they are a direct consequence of the notified concentration and cannot be achieved to a similar extent by less anti-competitive alternatives.

As regards consumer benefit, the Court stated that the relevant benchmark in assessing efficiency claims is that consumers will not be worse off as a result of the merger. For that purpose, efficiencies should be substantial and timely, and should, in principle, benefit consumers in those relevant markets where it is otherwise likely that competition concerns would occur. The incentive on the part of the merged entity to pass efficiency gains on to consumers is often related to the existence of competitive pressure from the remaining firms in the market and from potential entry. The greater the possible negative effects on competition, the more the Commission has to be

sure that the claimed efficiencies are substantial, likely to be realised, and to be passed on, to a sufficient degree, to the consumer. As regards that point, the Commission's Guidelines state that it is highly unlikely that a merger leading to a market position approaching that of a monopoly, or leading to a similar level of market power, can be declared compatible with the common market on the ground that efficiency gains would be sufficient to counteract its potential anti-competitive effects.

Ryanair did not dispute the assessment that any efficiencies are unlikely to be passed on to consumers in view of the very high market shares of the merged entity on most overlap routes. Therefore, even if Ryanair's claim that all cost savings are used to lower fares further in order to drive higher volumes were to be established, Ryanair's actual priority is still probably that of maximising profit. "*On markets where all competition is eliminated as a result of the merger, it is likely to be much more profitable not to pass on to consumers the claimed reduction in Aer Lingus's fixed costs*." (para 441).

The General Court followed regarding the efficiency arguments the Commissions' guidelines. The General Court stated that those dominant positions that are monopolistic, quasi monopolistic or very significant are sufficient, in themselves, to validate the finding that the implementation of the merger should be declared incompatible with the common market. If a merged undertaking does not have a dominant position, efficiency gains may outweigh the harm to competition on the condition that the benefits reach the consumers.

This approach is not only consistent with past case law, but is also reflecting the traditions of the Freiburg School (Szilágyi 2011, p. 9).

2.5 Conclusion

Competition economists are used to perform analyses in legal proceedings. Experts typically provide economic analysis critical to the definition of relevant product and geographic markets through the application of economic principles, theories, and statistical estimates helping to evaluate the substitutability of products as well as projecting the likelihood of anticompetitive effects. Direct statistical evidence relating to price sensitivity and product substitutability and studies of competitive events are valuable too. Economic expert evidence and analysis is also helpful in the evaluation of any claimed efficiencies. This paper illustrated the role of European competition economics in merger proceedings. Based on this analysis, conclusions can be drawn with respect to the appropriate skill set of an EU competition economist.

Modern EU Competition Economics

To identify the appropriate economic theory of harm is the first and most important step in any analysis. In this respect, the economic expert needs to understand the legal framework including merger case law of the Commission and the Courts of the European Union. Any economic analysis which contradicts to these basic legal requirements is useless. These economic analyses can be split up in 1) economic principles and 2) economic techniques. The roles of economic principles and empirical testing are rather different - requiring different know how as well.

Economic Principles

Economic principles are necessary to 'frame' a case, which in turn is fundamental arriving at a particular theory of harm. This typically involves - within an established theoretical framework - information about the structure of the industry, the firms, the structure of

demand and the technology, as well as a preliminary understanding of possible strategies. The extent, to which economic theories are important in framing a merger case, can be called economic principles (Röller 2005, p. 16). Indeed, the contribution of economics is mostly not about number-crunching but about the development of a sound understanding of competitive interactions (Neven 2007, p. 7). Moreover, competition analyses are not the area in which new theoretical economic insights could and should be tested. Instead, competition analyses should be coherent with the legal framework and case law available. A good economist needs to identify the legal challenge first, before starting with his work.

Economic Techniques

The second aspect refers to the operationalisation of these economic principles. In fact, we are talking about techniques. The operationalisation techniques in merger cases include e.g. the evaluation of factual economic evidence as well as the use of econometric analyses. From the technical perspective, such an operationalisation is not a big issue: Technically it is the same task whether an empirical expert performs regression analyses in a labor market assessment or in merger proceedings. However, the contribution of an economist by simply applying econometric analysis without an understanding of the key economic principles in EU competition law is more than critical. Thus, economic principles and econometric theory plus generally accepted approaches and methodologies are required to guide econometrics in competition law (Scheffman and Coleman 2002, p. 3). Nobel-laureate *James Heckman* noted it in his Noble lecture in a more scientific way: 'economic theory plays an integral role in the application of econometric methods because the data do not speak for themselves on many questions of interpretation. Econometrics uses economic theory to guide the construction of counterfactuals and to provide discipline on empirical research in economics' (Heckman 2000,

p. 257). To conclude, the major and most important role of economists in merger cases is to shed light on the economic theory of harm and on the framework of the assessment.

Whereas such a combination of interdisciplinary analyzing skills was neglected by some economists in the past, modern European competition economics cannot survive without it: Today European competition economics is a true mixture of both disciplines - law and economics. As lawyers and judges became more interested over time in economics, economists need to add legal qualifications to their skill set too. This integrated approach is manifested in the European School of thought.

After more than 15 years of application of the more economics based approach in EU competition law, senior scholars find together, in particular in Brussels, to continue contributing to the unique European competition approach. Still a huge amount of research needs to be done which is e.g. supported by the University of Brussels (VUB). However, the most critical challenge lies in the education of competition economists. European competition economics require a special skill-set which currently university master programs rarely offer. There are a few programs so far only, which are in children shoes themselves. Thus, a lot needs to be done in order that the European School of thought reaches a similar importance in the EU like the Chicago School in the US.

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3 Merger Policy for Small and Micro Jurisdictions

By Michal S. Gal[*]

3.1 Introduction: The Importance of the Question

Merger policy is an important tool for limiting privately-erected artificial barriers to competition. Its unique qualities, mainly the fact that it is applied ex ante in order to prevent external changes in market structure which harm social welfare, and the fact that it is the most effective tool in a competition law's toolbox for limiting oligopolistic coordination, serve to explain its spread around the world. Countries of all sizes and economic characteristics have adopted it into their competition laws, from India to Guernsey, from China to Barbados. Indeed, the number of countries with merger

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regulation has increased from 8 in 1989 to more than 110 in 2009, and the number is still growing.[1]

This wide-spread adoption raises the question of whether there is a one-size-fits-all merger policy, or whether some jurisdictions' economic characteristics affect their ability to effectively apply a merger policy in a way which requires some fine-tuning. This question, which generates interesting scholarly and practical debates,[2] is addressed in this paper, focusing on small and on micro jurisdictions. The latter, in particular, bring some of the tradeoffs involved in the design of merger policy to an extreme and provide an interesting and under-explored case study.

Two forces push and pull merger policy. On the one hand, the "follower push" whereby jurisdictions- mostly small, developing or young- benefit from transplanting and following the laws of large, developed jurisdictions with efficient and effective merger regimes.[3] The follower push is often comprised of both internal and external forces. On the other hand, the "unique characteristics pull" whereby the characteristics of a jurisdiction affect its ability to effectively

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[1] See Simon J. Evenett, The Cross-Border Mergers and Acquisitions Wave of the Late 1990s, 9655 NA'L BUREAU OF ECON. RESEARCH WORKING PAPER SERIES (2003); White & Case LLP, White & Case Survey Reveals 115 Jurisdictions with Merger-Control Laws Worldwide (Jan. 14, 2009) , http://www.whitecase.com/press_01142009.

[2] For some recent books see, e.g., MARCO BOTTA, MERGER CONTROL REGIMES IN EMERGING ECONOMIES- A CASE STUDY ON BRAZIL AND ARGENTINA (2011); A. E. RODRIGUEZ & ASHOK MENON, THE LIMITS OF COMPETITION POLICY THE SHORTCOMINGS OF ANTITRUST IN DEVELOPING AND REFORMING ECONOMIES (2010). For the effects on limited resources on competition law see, e.g., Michal S. Gal, When the Going Gets Tight: Institutional Solutions When Antitrust Enforcement Solutions Are Scarce, 41 LOY. U. CHI. L. J. (2009). Many of the discussions in the OECD, UNCTAD and ICN focus on the effects of different economic characteristics on optimal competition law.

[3] Of course, the merger regimes of large, developed jurisdictions are not always similar. The major follower push is towards US or EU law.

enforce a transplanted law and pull towards adopting a merger policy that best fits its characteristics. Designing a merger law mandates each jurisdiction to find its optimal balance between these two forces and may vary from one jurisdiction to another, depending, inter alia, on the jurisdiction's trade ties and the effectiveness of its enforcement system. Yet these forces do not necessarily lead in different directions; Rather, many parts of a merger regime may fit both the follower and the followed jurisdictions (e.g., adopting a Significant Lessening of Competition test as a benchmark for merger illegality). The challenge is to identify those instances in which the unique characteristics pull leads in a different direction and is stronger than the follower push and to design rules accordingly.

Section 3.2 briefly explores the two forces noted above. The following chapters focus on the "unique characteristics pull." Section 3.3 introduces the methodology. Section 3.4 then explores the effects of the unique characteristics of small size on merger policy. This paper attempts to carry the analysis one step further than that previously performed by the author[4] by proposing a methodological framework to assist in the analysis and by focusing on aspects not previously explored. Section 3.5 performs such an analysis for micro economies, a subject which so far has been largely neglected in the literature. Of course, dealing with all aspects of merger policy in such jurisdictions is beyond the scope of a short paper, but some relevant observations and suggestions are offered, based on theoretical observations as well as real-world examples.

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[4] MICHAL S. GAL, COMPETITION POLICY FOR SMALL MARKET ECONOMIES (2003); Michal S. Gal, *Size Does Matter: General Policy Prescriptions for Optimal Competition Rules in Small Economies*, 73 U. OF S. CAL. L. REV. 1438, 1468 (2001); Michal S. Gal, *The Effects of Smallness and Remoteness on Competition Law - The Case of New Zealand*, 14(3) COMPETITION & CONSUMER L. J. 292 (2007).

3.2 The Push and Pull of Optimal Merger Design

3.2.1 The Follower Push[5]

Strong motivations exist to follow the merger policies of other jurisdictions, even if the imported law does not completely match domestic conditions. These motivations are generally stronger the smaller the jurisdiction, the less developed it is, and the greater the perceived success of the merger policy in the followed jurisdiction. Yet the strength of such motivations may differ among jurisdictions. These motivations are sketched briefly below. [6]

Following another's rules may result from external pressures of foreign jurisdictions or international institutions. In some cases such pressure is subtle, and results from a wish to liberalize international trade or to create a common ground for understanding, applying and cooperating on issues of competition laws around the world.[7] In other cases the adoption of certain competition laws serves as a requirement of trade or financial benefits (e.g. loans by the World Bank). Yet it is interesting to note that while the European Union requires in its trade agreements some level of similarity in the

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[5] For elaboration see Michal S. Gal & Jorge Padilla, The Follower Phenomenon: Implications for the Design of Monopolization Rules in a Global Economy, 76(3) ANTITRUST L. J. 899 (2010).

[6] For elaboration see Michal S. Gal, The 'Cut and Paste' of Article 82 of the EU Treaty in Israel: Conditions for a Successful Transplant, 9(3) EUR. J. OF L. REFORM 467, 471-74 (2007).

[7] See, e.g., the International Competition Network, http://www.internationalcompetition network.org (last visited Oct. 21, 2012).

application of competition laws,[8] these requirements do not apply to merger law. Indeed, as elaborated elsewhere, copying its merger regime -particularly its mandatory notification procedure- might create a boomerang effect on its firms.[9]

More often following one's law is voluntary, based on internal motivations. Adoption of "ready-made" and pretested rules saves the costs of determining what content ought to be given to the law. Moreover, benefits flow from the transplanted law's application in its home jurisdiction: an established law has a long history of implementation, interpretation, and academic discourse in its saddlebag, and such sources continue to flow with its on-going application, thereby generally increasing legal certainty. The transplant can also help push through new concepts and ease their acceptance.

Additional benefits arise when we add trade to the analysis. One benefit is a reduction in the learning and compliance costs of firms wishing to trade beyond their jurisdiction which, in turn, serves to create a more competitive environment.[10] Legal transplants reduce the costs of domestic exporters of learning which competition law issues they might face in the followed jurisdiction. For the same reason, transplants may increase the incentives of foreign firms to import into the follower's market, all else equal.[11] Finally, transplants might better enable competition authorities to work together towards joint solutions to cross-border mergers. These considera-

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[8] See, e.g., Euro-Mediterranean Agreement establishing an Association between the European Communities and their Member States, of the one part, and the State of Israel, of the other part, 2000 O.J. (L 147/3), art. 36; Agreement on the European Economic Area, O.J. 1994 (L 1), art. 53 to 64.

[9] GAL & PADILLA, supra note 5. Indeed, in most trade agreements there is no requirement to follow merger policy.

[10] *See*, *e.g.*, GAL, *supra* note 6.

[11] Of course, the content of the domestic law is also an important parameter. The stricter the law generally the higher the entry barriers it creates.

tions might explain, at least partially, the fact that Greenland and Faroe Islands, which are Danish political dependencies, have followed the Danish Competition law.

3.2.2 The Pull: The Effect of Unique Characteristics on Optimal Merger Policy

Legal transplants can be unsuccessful and even harmful if they do not deal effectively with the special characteristics of the following jurisdiction. Relevant characteristics include not only socio-economic ones but also enforcement conditions, such as the level of economic analysis that can be performed at all levels of the decision making process, the legal and practical tools at the decision maker's disposal to gather the relevant information, the legal weight given to a decision by an expert decision maker, and political influences on the decision maker. As a result, laws which may promote efficiency under certain conditions might instead generate high error costs under inferior institutional conditions that would, in turn, reduce domestic welfare.[12]

Accordingly, designing an optimal merger law requires creating a balance between these two competing forces. As argued below, the special characteristics of small and of micro economies leave many of the merger policy prescriptions of large economies intact; yet in some cases the unique characteristics pull mandates legal changes. But before we explore possible deviations, Chapter II focuses on a methodological tool to assist in the analysis.

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[12] Mark A. Dutz & Maria Vagliasindi, *Competition Policy Implementation in Transition Economies: An Empirical Assessment*, 44 EUR. ECON. REV. 762, 770 (2000).

3.3 Decision Theory Methodology

The basic challenge for the design of a merger policy is similar everywhere: Creating an efficient and cost-effective regime. Indeed, all jurisdictions seek the optimal balance between a theoretically-optimal merger regime which "gets it right" every time and the practical costs such a review creates, including the length and costs of the proceedings. Yet, as this paper elaborates, the special characteristics of some economies affects the size of the costs involved and thus the optimal set of rules.

To assist us in making this claim, we make use of decision theory. This methodology, first introduced by Ehrlich and Posner[13] and later developed in the competition law realm by Beckner and Salop,[14] Popofsky,[15] Kerber,[16] Evans and Padilla,[17] and others, sets out a process for choosing among potential rules when information is costly and therefore imperfect, in order to design effective and practical legal rules. Accordingly, the rule-maker must balance between process costs and error costs imposed by the chosen rule on decision makers (including the Competition Authority, the merging parties and potential parties to a future merger).

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[13] Isaac Ehrlich & Richard A. Posner, *An Economic Analysis of Legal Rulemaking*, 3 J. OF LEGAL STUD. 257 (1974).

[14] C. Frederick Beckner III & Steven C. Salop, *Decision Theory and Antitrust Rules*, 67 ANTITRUST L.J. 41, 43–5 (1999).

[15] Mark S. Popofsky, *Defining Exclusionary Conduct*, 73 Antitrust L.J. 435 (2006); Mark S. Popofsky, *Section 2, Safe Harbors, and the Rule of Reason*, 15 Geo. Mason L. Rev. 1265 (2008).

[16] Wolfgang Kerber, *Competition Policy with Optimally Differentiated Rules Instead of 'Per Se Rules Vs Rule Of Reason'*, J. OF COMP. L. ECON. 2(2), 215 (2006).

[17] David S. Evans & A. Jorge Padilla, *Excessive Prices: Using Economics to Define Administrable Legal Rules*, 1 J. OF COMPETITION L. ECON. 97 (2005).

Process costs include information costs (e.g., the costs of gathering factual information such as the market shares of the parties seeking to merge and of their rivals and the height of entry barriers into the market) as well the costs resulting from the decisional process (e.g., the operational costs of the Competition Authority and the courts; the costs of analyzing the relevant information; the loss of revenue by the merging parties resulting from postponing the merger until a decision has been reached). Error costs arise from a decision based on imperfect information and include "false positives" (costs from condemning a merger that does not harm welfare) and "false negatives" (costs from allowing a merger that harms consumers).

The decision maker must determine whether the error costs justify an investment in process costs, and if so- in what type of information and who should provide it. Let me give two intuitive examples. Safe harbours include those cases in which error costs from a presumption that the merger will not significantly harm competition are so low that they do not justify an investment in seeking further information beyond the factual finding of very low market shares or turnover of the merging parties. Likewise, the decision to move to a second stage in-depth analysis of a proposed merger is based on the assumption that the additional process costs are justified by the benefit to society from the reduction of error costs from wrongful merger decisions. Decision theory supports the general conclusion that given high information costs of analyzing the potential effects of a proposed merger, where the costs of false positives are much higher than those of false negatives, merger policy should be more lenient, and vice versa.

These decision-theoretic considerations apply to all jurisdictions. Yet the special characteristics of some economies may change the optimal rules because they affect the relative size of process and/or error costs . As elaborated throughout this paper, small and micro economies affect both types of costs. For example, given the more limited effect of the market's invisible hand, false negative error costs

are often much more significant (in relative terms) than in large economies. Accordingly, decision theory provides us with a methodological tool to recognize the effects of size and to decide which rules are cost-effective and which are not. The rest of the article explores some specific implications. These implications fall into two groups. In the first, the relative size of process and/or error costs might lead to the adoption of a completely different legal rule than large economies. In the second, the size of these costs might strengthen the case for adopting a law which is optimal to both large and small economies, because the relative price to be paid by a small or a micro economy for a sub-optimal law is higher than that paid by a large one.[18]

3.4 Small Economies

3.4.1 A. Definition[19]

For the purposes of this paper, a small economy is defined as an independent sovereign economy that can support only a small number of competitors in most of its industries when catering to demand. Market size is influenced by three main factors: population size, population dispersion, and the degree of economic integration with neighboring jurisdictions. Accordingly, if a country with a small population is economically integrated into a large one (e.g., Andorra into Spain), it will not be considered small for competition law purposes. Some examples of small economies include New Zealand, Malta, Singapore, Hong Kong, Macao, and Israel.

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[18] GAL, *The Case of New Zealand*, *Supra* note 4.

[19] GAL, SMALL ECONOMIES, *Supra* note 4.

3.4.2 B. Basic Economic Characteristics[20]

Research has shown that there are three main economic characteristics of small economies: high industrial concentration levels, high entry barriers, and suboptimal levels of production. These characteristics result from the basic handicap of small economies—the large size of minimum efficient scales of production or distribution relative to demand.

These unique economic characteristics create a basic tension between productive efficiency and competitive conditions. If a given number of firms can operate efficiently in a market, productive efficiency requires that the market contain only this number of firms—all operating at efficient, productive levels. At the same time, productive efficiency imperatives often cause industrial concentration in small economies to be high enough in many markets to allow market power to be realized. Dynamic efficiency might also be affected by concentration levels and by market power.

In addition, small economies are often characterized by high levels of aggregate concentration in which several large business entities control a large part of the economic activity in the market. Also, their business and political elites are often intertwined.

3.4.3 C. Some Implications for Merger Policy[21]

1. General Observations

These facts have significant implications for merger regulation. They imply that **mergers may be necessary in order to achieve efficient scales of production**.[22] In other words, the limited size of domestic

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[20] *Id.*

[21] *Id.*

[22] Scale and scope economies are defined in the attached glossary.

demand often prevents firms from reaching minimum efficient scales. Mergers are an important way for firms to grow to such efficient sizes which, in turn, serve to reduce productive inefficiency and sometimes also dynamic inefficiency.[23] Most importantly, mergers are an important tool for the realization of potential efficiencies in oligopolistic markets. In such markets firms might prefer to operate at sub-optimal levels rather than grow internally, in order to not change the status quo significantly (thereby engaging in oligopolistic coordination). Mergers may also be the best-- and sometimes the only-- response of domestic firms to the lowering of trade barriers and the potential entry of more efficient foreign competitors. Finally, domestic firms may need to merge in order to increase their international competitiveness in foreign and international markets.[24] In decision-theory terms, this implies that the costs of false-positive errors are high.

Yet such characteristics often imply that **mergers often significantly increase the market power of the merging parties**. This is because in a small market protected by high entry barriers there might be no actual or potential competitors that could significantly constrain the market power of the merged entity. In decision-theory terms, the costs of false-negative errors are high.

Small size also implies **limited resources**, both human and financial. Even if resources are not limited in relative terms (when controlling for the size of the population), they are often small in absolute terms. Accordingly, even if we assume that the absolute size of the process costs of merger analysis in all economies is similar, the relative impact of such costs on small economies is much more significant in relative terms. For the government, spending scarce resources on merger review implies less funds for other regulatory activities, including cartel and abuse of dominance prohibitions.

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[23] Economic efficiency, and its three basic types, are defined in the attached glossary.

[24] See GAL, SMALL ECONOMIES, *Supra* note 4, at chapter 6.

Such a reduction is especially problematic if these regulatory activities are characterized by economies of scale or learning-by-doing. For private parties, the costs of merger review might be high relative to the benefits to be had from the merger, which might be low in absolute size to begin with, thereby reducing incentives to enter into welfare-enhancing mergers. In decision-theory terms, process costs are high.

Finally, the fact that the business and political elites are often intertwined implies that institutional arrangements have to be made so that the decision maker **should be as independent as possible** from political forces, in order to ensure that the decision is not tainted by narrow political considerations which fail to give sufficient weight to public policy considerations.

These characteristics create a **basic tension between setting rules and standards in merger analysis**. Rules are less costly to apply because determining whether they have been violated is a relatively mechanical process rather than one requiring the exercise of discretion or the determination of numerous facts. Process costs are thus reduced. Also, rules facilitate monitoring of the decision makers as the correlation between the rule and the decision is more easily observable, thereby generally increasing motivation to invest time and effort in a correct analysis and reducing errors resulting from political economy influences. On the other hand, the small size of the economy makes it harder to rely on generalizations, given large error costs. This tension plays out in all merger regulatory tools.

The effects of such characteristics on merger policy have been analyzed elsewhere.[25] Such implications include, inter alia, the need to adopt a relatively flexible balancing approach that gives much weight to long-term dynamic considerations and recognizes that

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[25] *Id*. See also International Competition Network, Special Project for the 8th Annual Conference, Competition Law in Small Economies (2009), p. 30-1, available at:
http://www.internationalcompetitionnetwork.org/uploads/library/doc385.pdf

high concentration is often a necessary evil in order to achieve efficiency; the need for the illegality test to capture significant increases in both unilateral dominance and oligopolistic coordination; the need to focus on the effects on welfare rather than on protecting competition per se; the inability to rely on rigid structural assumptions as the only or the main element in merger analysis; and the need to recognize that small economies can rarely make a credible threat to prohibit mergers of large, foreign firms even if they significantly affect their economies (and thus they are "effect-takers").[26] Note, that many of these suggestions are applicable to large economies as well, the difference being that the price that small economies would pay for deviations from such rules would be relatively higher, given that in large economies the market's invisible hand has stronger corrective powers in most markets. Since the previous work was published, additional observations have accumulated. Three such observations are analyzed below: the implications of aggregate concentration on merger policy, the importance of dynamic analysis of market conditions, and the practical application of the balancing test. Note that some of these observations are applicable to large economies as well, yet the small size of the market increases the costs of not dealing with them effectively.

2. Aggregate Concentration Concerns[27]

Apart from high concentration levels in many specific markets, small economies often also suffer from high aggregate concentration levels

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[26] See also Michal S. Gal, *Antitrust in a Globalized Economy: The Unique Enforcement Challenges Faced by Small and Developing Jurisdictions*, 33 FORDHAM INT'L L. J. 101 (2009).

[27] Some parts are based on GAL, SMALL ECONOMIES, *Supra* note 4.

in their economy.[28] Indeed, many if not most small economies are characterized by a small group of economic entities which control a large part of the economic activity through holdings in many markets (hereinafter: "conglomerates"). For example, in Israel the largest 16 conglomerates controlled almost half of the market value of all Israeli firms in 2009.[29] In Hong Kong, the largest 16 conglomerates controlled firms generating 84% of the country's GDP and in Singapore almost 50%.[30] These numbers tell only part of the story, since conglomerates often also control essential markets, including financial institutions and telecommunications.

So - why should we care? As studies performed mostly in the past decade show, high levels of aggregate concentration raise special welfare issues. Conglomerates can create positive effects on

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[28] Of course, some large economies suffer from similar problems, such as the Chaebols in Korea, the Keiretzu in Japan and the Business Houses in India. See, e.g., Stijn Claessens, Simeon Djankov, Joseph Fan & Larry Lang, *The Benefits and Costs of Internal Markets: Evidence from East Asia*, 7 EMERGING MARKETS REV. 1(2006); Mara Faccio & Larry Lang, *The Ultimate Ownership of Western European Corporations*, 65 J. OF FIN. ECON. 365 (2002); See Randall Morck, Daniel Wolfenzon & Bernard Yeung, *Corporate Governance, Economic Entrenchment, and Growth*, J. OF ECON. LITERATURE 43(3) 655 (2005) for a survey of studies. There are many reasons for the development of such groups, many of which are not related to size. Yet due to the absolute size and high entry barriers of small economies, the instances of high aggregate concentration levels are often more prominent and more difficult to erode in them.

[29] Tamir Agmon & Ami Tzadik, *Business Groups in Israel* (The Research and Information Center of the Israeli Parliament, 2010).

[30] Stijn Claessens, Simeon Djankov & Larry Lang, *The Separation of Ownership and Control in East Asian Corporations*, 58 J. OF FIN. ECON. 81 (2000). In Singapore the problem is further exacerbated by the f presence of many large and resource-rich Government-Linked Companies. See, e.g., Burton Ong, *The Origins, Objectives and Structure of Competition Law in Singapore*, 29(2) WORLD COMPETITION 269, 272-4 (2006).

the economy. The substantial resources and varied experience of conglomerates, as well as their economies of scale and scope (e.g. distribution, marketing, billing, etc.) often enable them to enter markets more readily than other firms, especially when entry barriers are high. Moreover, their vast financial means and diversified holdings portfolios enable their business units to tap into a larger pool of retained earnings thereby enabling them to take more risk in product development programs or in entry into new markets and increase their ability to overcome short-term financial obstacles. Where governments and market institutions do not function well, conglomerates may allow firms to overcome such obstacles. Most importantly, they may overcome what is known as missing institutions problems arising from inefficient enforcement of contracts and from inefficient external financial markets.[31] Moreover, group reputation substitutes for underdeveloped legal and regulatory mechanisms that leave outside investors vulnerable to exploitation risks and information asymmetries in the market.[32] Conglomerates might also create scale economies in recruitment and in the development of human resources. Accordingly, conglomerates

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[31] See, e.g. Takeo Hoshi, Anil Kashyap & David Scharfstein, Corpotate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups, Q. J. OF ECON. 106(1) 33 (1991); Tarun Khanna & Krishan Palepu, *The Right Way to Restructure Conglomerates in Emerging Markets*, 77 HARVARD BUS. REV.125 (1999); Yishai Yafeh & Tarun Khanna, *Business Groups in Emerging Markets: Paragons or Parasites?*, 45 J. OF ECON. LITERATURE 331 (2006).

[32] Tarun Khanna & Krishan Palepu, *Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups*, 55(2) J. OF FIN. 867 (2000).

may have positive effects on the competitiveness of firms and markets.[33]

At the same time, however, high levels of aggregate concentration raise significant competitive concerns.[34] Aggregate concentration might increase the instance of oligopolistic coordination in and across markets. Given their current and potential multi-market contact, conglomerates are often likely to create a reciprocal status-quo, thereby not entering each other's market or not engaging in aggressive competition in markets in which they potentially compete.[35] Conglomerates might also create strong deterrence for the entry or expansion of competitors which are not related to another conglomerate into their markets. For one, conglomerates may find it more profitable to engage in predatory behaviour, because such conduct has wide externalities: it signals to competitors in the many markets in which they operate that the price of competition will be high. These effects, in turn, might lead to stagnation and poor utilization of resources, which negatively affect

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[33] See also Ronald W. Masulis, Peter K. Pham & Jason Zein, *Family Business Groups around the World: Financing Advantages, Control Motivations and Organizational Choices*,

24(11) REV. OF FIN. STUD. 3556 (2011).

[34] I shall not touch here other concerns, such as agency problems resulting from pyramidal holdings which are less relevant to competition concerns, although they enter the welfare analysis. See, e.g., Lucian Aye Bebchuk, Reinir Kraakman & George Triantis, *Stock Pyramids, Cross-Ownership and Dual Class Equity: The Mechanisms and Agency Costs of Separating Control from Cash-Flow Rights*, *in* CONCENTRATED CORPORATE OWNERSHIP 445 (Randell K. Morck ed., 2000); Heitor Almeida & Daniel Wolfenzon, *Should Business Groups be Dismantled? The Equilibrium Costs of Efficient Internal Capital Markets*, 75 J. OF FIN. ECON. 133 (2006).

[35] See, e.g., CONCENTRATED CORPORATE OWNERSHIP (Randell K. Morck ed., 2000).

growth and welfare.[36] A study of the Israeli market, for example, has shown that firms controlled by conglomerates usually had lower growth rates and were less profitable but were more likely to survive than firms not belonging to such conglomerates.[37]

The second major concern is a political economy one: given their size and economic impact, large conglomerates may well attempt- and sometimes succeed- to translate their economic power into political power in order to create, protect and entrench their privileged positions, thereby enjoying benefits such as government protection from the perils of competition in the form of government-erected barriers to the entry and expansion of their rivals. The greater the protection, the larger the profits that can be used for future lobbying.[38]

Moreover, a concentrated economic landscape also implies that lucrative employment opportunities are often quite concentrated in conglomerates, thereby possibly limiting efficient regulation by some regulators seeking future employment opportunities in the private market. Furthermore, often the public is highly affected by such conglomerates, through employment or savings or as suppliers and consumers, a fact which implies that such conglomerates might be considered "too big to fail" and be protected by the government from competitive forces that might erode their power and harm the public in the short-term. The fact that the specific firms in the conglomerate are often tied in mutual guarantee agreements implies that a significant harm to each part of the conglomerate can affect the viability of other parts, thereby creating a domino effect, a fact which might increase governmental protection for any part of the conglomerate. A related concern focuses on the ability of public opinion to limit the welfare-reducing effects of conglomerates.

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[36] *Id*; Morck, Wolfenzon & Yeung, *supra* note 28.

[37] Agmon & Tzadik, *supra* note 29.

[38] See, e.g., Morck, Wolfenzon & Yeung, *supra* note 28.

Because of the size of their advertising budgets as well as their political power, their coverage in at least some of the media outlets might be more favourable and not expose all the harm they create to the competitiveness of the economy, thereby reducing the knowledge of the public of such effects which is an essential ingredient in the ability of public opinion to bring about a change in market conditions. Note that such effects may exist regardless of competitive concerns in specific markets,[39] although competition among conglomerates can often significantly reduce such political economy effects.

Competitive forces are further stifled when conglomerates also control major financial institutions. In such situations, it is often harder for new or maverick competitors to get the credit needed to enter or expand in markets which the conglomerate controls or in which a large loan to an existing competitor has been granted. Indeed, a vast literature has shown that economic growth requires that savings be directed into value creating investments. Perfect capital markets allocate capital to each investment opportunity until its marginal return equals the market clearing equilibrium interest rate. However, when capital markets are imperfect, inequality reduces investment opportunities, worsens borrowers' incentives, and generates macro-economic volatility.[40] All the factors explored above lead to what is known as the entrenchment problem.

As a result of the above, and as many studies have shown, when aggregate concentration is high the unit which is relevant for

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[39] See, e.g. Lawrence J. White, *What's Been Happening to Aggregate Concentration in the United States? (And Should We Care?)*, N.Y. UNIV., working paper No. EC-02-03 (2001), http://archive.nyu.edu/bitstream/2451/26182/2/2-3.pdf (last visited Oct. 21, 2012).

[40] For a survey of the literature see, e.g. Philippe Aghion, Eve Caroli & Cecilia Garcia-Penalosa, *Inequality and Economic Growth: the Perspective of the New Growth Theories*, 34 (7) J. OF ECON. LITERATURE 1615 (1999).

economic analysis is often no longer the freestanding firm, but rather the economic unit of which it is part through formal (e.g. ownership) and non-formal (e.g. family ties) connections. Indeed, in the past two decades the larger economic unit (referred to in this paper as a conglomerate) has become center stage in finance, corporate governance, innovativeness, competitiveness and other economic analyses. It is time that it start affecting competition law as well, as error costs, especially of false negatives, are high.

How should this affect merger policy? Mergers can potentially strengthen the effects surveyed above. Of course, a merger of two or more conglomerates can significantly increase aggregate concentration levels. But even a merger among firms controlled by such conglomerates may raise anti-competitive concerns by leading to interdependent cooperative conduct between the parties that extends beyond the specific market by placing the parent firms in dangerous proximity to discuss and act jointly on wide aspects of their business and by creating an aura of cooperative team spirit that is apt to dampen competitive intensity between the firms involved. The danger is especially high when the merged entity constitutes a significant part of the business of one or more of the conglomerates, as it should not be expected that parties that share much of their economic interests in one market will compete vigorously as before in another.[41]

The above analysis implies that **mergers should be analyzed through a wider lens**, which takes account not only of the effects of the merger in the specific market, but also its effects on other markets in which the parent or holding companies of the parties to the merger operate. Such effects include, of course, portfolio effects, but may go beyond them to include the effects of aggregate concentration on how the market operates. Indeed, it might be the

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[41] *Decision of the Director of Competition Authority not to Grant an Exemption to Middle East Energy*, Director of Israeli Competition Authority (unpublished, May 13, 1997).

case that a merger does not have significant effects in the market in which the specific merger takes place, yet significantly affecting the economy. In small economies, in particular, ensuring that the potential self-correcting powers of the market are not further stifled is of special importance. In decision theory terms, the increased process costs from gathering additional information about related firms beyond the current market are justified given the very high error costs resulting from an analysis focused only on the specific market in which the merger takes place.

The wider-lens approach should affect, of course, the analysis of mergers among conglomerates or firms controlled by them, whether or not they have horizontal or vertical relationships. Unless foreign trade is significantly influential, such mergers should be looked upon with considerable skepticism. Business transactions that may reduce future competition between these large players, even if they increase efficiency in the specific transaction at hand, should be analyzed in a broader perspective, which takes into account the long-term dampening of potential competition between conglomerates that can reduce the degree of contestability in the relevant markets and may even amount to cooperative or collusive behavior, as well as the increase of the additional anti-competitive concerns elaborated above. It is important to emphasize that this policy prescription does not necessarily lead to a complete limitation of conglomerate mergers, especially given economies of scope that such conglomerates can realize, but it does require a much wider analysis of such mergers' effects. This wider-lens analysis is also relevant to the acquisition by a conglomerate of a new firm and even to mergers between firms not belonging to a conglomerate that would allow them to better compete with it.

The special issues raised by conglomerate mergers can be illustrated by the Israeli case of Columbus Capital/Cur Industries.[42] Cur Industries was a large Israeli conglomerate that controlled many firms that held monopoly positions in their respective markets (its firms produced 7% of the Israeli GDP). Columbus Capital was part of the Claridge group, which is an international holdings company with many holdings in the Israeli market, some of which were shared with other conglomerates. Columbus sought to acquire Cur in order to become a major player in the market. The Director of the Israeli competition authority analyzed the effects of the proposed merger both on horizontal competition in markets in which both firms operated, as well as on the potential and existing competition between the merging parties among themselves and with other firms in the market.

The crux of the issue was the effect of the proposed merger on competition among the large conglomerates. In the pre-merger situation (in 1998) three main conglomerates operated in the Israeli market. Given that each of the three controlled a large set of monopolies in markets characterized by high entry barriers that could not be easily overcome by small rivals, the fear of potential competition by other conglomerates was crucial for constraining the strategic decisions of incumbent firms. Any business ties between firms controlled by the conglomerates could potentially reduce their inclination to enter into new markets in which another conglomerate held a dominant position. Accordingly, the Director conditioned his approval of the merger on the severing of all ties of the merged entity with the other large conglomerates and on the merging firms' agreement to obtain his approval for any future business ties with another conglomerate.

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[42] *Conditioned Approval of Merger between Columbus Capital Corporation and Cur Industries Ltd.*, Director of Israeli Competition Authority (unpublished, Jan. 5, 1998).

One basic condition for performing such an analysis is that the merger regulation empower the decision-maker to analyze the merger in a wider context so that the analysis is not focused solely on the effects of the merger in the specific market in which the merging parties operate. Unfortunately, not all small jurisdictions meet this condition, and many if not most merger regulations are still based on the traditional concept of the individual firms as the relevant unit in market analysis.[43] The New Zealand Mergers and Acquisitions Guidelines,[44] for example, which require an anti-competitive effect "in a market", state that "pure conglomerate acquisitions, which involve the aggregation of businesses operating in markets that are unrelated either horizontally or vertically, are unlikely in themselves to lead to the acquisition of a substantial degree of market power *in a market*, except in unusual circumstances." Such circumstances include cases where the merging parties may share some common features even though they operate in different markets, and thus can be potential entrants into each others' markets. It is interesting to note that, as elaborated below, whereas competition constraints are

[43] Section 21 of the Israeli Competition Law, 1988, SH No. 1258 p. 128 (Isr.) focuses on effects on the "same market".

[44] Guidelines, Section 10.2

assessed only with regard to a relevant market, the analysis of benefits from the merger is not limited to any specific market.[45]

Of course, applying merger policy is not without its costs or limitations. One question to ask is whether it can deal effectively with all the issues raised by a conglomerate-dominated market structure. Indeed, other policy tools that go beyond merger policy might also be needed in order to deal with the problems enumerated above as well as others (e.g., when the conglomerates are based on a pyramidal structure which allows the exploitation of shareholders at the lower levels of the pyramid).[46] For example, small economies which suffer from a very high degree of aggregate concentration which stifles competition in their economies should consider making changes to such a structure regardless of merger activity. In Israel, for example, a new legislation was adopted which seeks to create a degree of ownership separation between financial and productive institutions and limit the levels of control in a business pyramid.

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[45] A note regarding the New Zealand (and Australian) regulatory systems is in place: The Commerce Act prohibits any person from acquiring a firm's assets or shares if that acquisition would have, or would be likely to have, the effect of substantially lessening competition in a market. However, it also allows a person proposing a merger to (voluntarily) seek clearance or authorization from the Commission. The Commission will clear a merger if it is satisfied that the merger will not have, or would not be likely to have, the effect of substantially lessening competition in a New Zealand market; and it will authorize a merger where it is satisfied that the merger will result, or will be likely to result, in such a benefit to the public that it should be permitted even though it is likely to substantially lessen competition. Public benefits are not relevant in a clearance decision; they are relevant in an authorization decision. Such benefits are also not relevant where a merger proceeds without a clearance or an authorization.

[46] For a tax tool see, e.g., Randall Morck, *How to Eliminate Pyramidal Business Groups: The Double Taxation of Intercorporate Dividends and other Incisive Uses of Tax Policy*, 19 NAT'L BUREAU OF ECON. RES. 135 (2005).

Furthermore, institutional as well as democratic mandate issues arise: whether the Competition Authority is the proper body to make decisions that affect the economy in many inter-connected ways, and even if so, which considerations should it take into account (e.g., should only competitive issues be taken into account or whether also broader public policy issues that might come under the "public benefit" rubric of some competition laws). These issues, which require further elaboration, are beyond the scope of this paper. Yet it is hoped that this paper will assists in raising awareness to them.

3. Dynamic Analysis of Market Conditions

In small economies in particular it is very easy to **fall into the market share trap**, whereby current market shares serve as strong indicators of the effects of the proposed merger on competition. Indeed, widely-used preliminary indicators of market power such as C4 and HHI are based on market shares. When current market shares are high, as is the case in many mergers in small economies, such indicators might easily lead to a preliminary conclusion that the merger would be harmful to the economy. Yet, especially in small economies a **dynamic analysis of relevant markets** and especially of potential competition is needed in order to realize the real effects of the merger on one's domestic markets. In decision theory terms, the increased process costs from gathering additional information about market conditions beyond current market shares are often justified given the very high error costs resulting from an analysis based mostly on market share analysis.

The recent merger of *Nippon Steel and Sumitomo Metal Industries*. which was analyzed by the Competition Commission of Singapore, serves as a good example.[47] The merger created a steel megalith of the two main foreign main steel pipe and sheet manufacturers that

[47] Proposed Merger between Nippon Steel Corporation ("NSC") and Sumitomo Metal Industries, Ltd (Dec. 21, 2011).

sold their products in Singapore. The market share analysis revealed that the merging parties enjoyed very high joint market shares in many product markets. Yet a dynamic analysis of potential competition revealed that competition in finished steel product markets is regional in nature, and barriers to entry and expansion are low. The merger was thus approved. Indeed, when competition is global or regional, the small economy can benefit from it, provided that there are no significant economies of scale or other obstacles in transaction, transportation, storage, repair or any other aspect of import. Furthermore, the fact that an international firm already supplies some part of the market (even if it is currently a small share) might indicate their constraining power on the local market, since their entry indicates that barriers to entry are not too high to prevent sales in the small economy.

New Zealand is another small economy which also squarely recognizes that when barriers are low, market shares are not a good indicator of the effects of the merger.[48] Rather, the focus should be on dynamics and adjustment costs, as what matters is how fast entry might erode price increases.[49] Accordingly, the New Zealand courts apply a "LET test" for entry: whether entry is Likely, sufficient in Extent, and Timely. Under the LET test, even mergers of firms with current market shares of 100% were approved: The *South Pacific Seeds/Yates* merger is a case in point. The merging parties held 100% of the seed distribution market. Yet a dynamic analysis of market conditions revealed low/moderate barriers to entry and evidence of

[48] New Zealand Bus Ltd. vs. Commerce Commission (2007), NZCA 502, para. 146.

[49] Dennis W. Carlton, *Why Barriers to Entry Are Barriers to Understanding*, 94(2) AM. ECON. REV. 466 (2004).

possible near entrants, which led to the approval of the merger.[50] Accordingly, while the small market size constrains the number of efficiently-sized firms that can operate in the market (competition *in* the market), it does not necessarily constrain competition *for* the market. It is noteworthy that mergers to monopoly are almost never approved in large economies.

Interestingly, the time horizon applied in the case of *New Zealand Bus* for entry is set at three years,[51] which is 50% longer than that set until recently in the US authorities' merger guidelines.[52] This temporal extension is not trivial: given the natural high concentration levels of the economy which are further increased by the merger, the costs imposed on the domestic market

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[50] South Pacific Seeds PTY Ltd and Yates Ltd, decision 508 (Sep. 25, 2003), http://www.comcom.govt.nz/clearances-register/detail/408 (last visited Oct. 23, 2012); See also MediMedia (ZN) Limited and Adis International, decision 516 (Dec. 18, 2003). The merging parties held a 100% market share in the supply of medicines information to GPs. There were some competition concerns but it was concluded that the pharmaceutical companies and GPs would have countervailing buyer power. http://www.comcom.govt.nz/clearances-register/detail/416 (last visited Oct. 23, 2012).

[51] New Zealand Bus, *supra* note 48, para. 155. It is interesting to note that the case involved the tendering of bus services and so entry can only occur depending on the frequency of the tenders and the contract lead times. It could be argued that entry over a longer period was more relevant in that particular case.

[52] The current 2010 US Horizontal merger guidelines no longer specifies a timeframe for the LET test and is fact-specific. DOJ & FTC Horizontal Merger Guidelines (2010), http://www.justice.gov/atr/public/guidelines/hmg-2010.pdf (last visited Oct. 23, 2012). Section 9.1 state that "entry must be rapid enough to make unprofitable overall the actions causing those effects and thus leading to entry, even though those actions would be profitable until entry takes effect."

from increased market power during this period might be quite significant. Yet a temporal extension may be justified in those cases in which the long-term benefits to the economy from the merger are significant and could not be realized otherwise. Once again, small size may affect the size of these benefits since high degrees of concentration might be necessary for operating efficiently. Two tools are nonetheless suggested in this regard. First, the adoption of a more flexible time horizon, whereby the length of time is not similar in all cases, but rather the length of time increases correlatively with the size of the potential long-term benefits, up to a preset time limit. Singapore's Merger Guidelines adopt such an approach. The Guidelines state that "Entry within less than two years will generally be timely, but this must be assessed on a case-by-case basis,"[53] thereby leaving the door open for longer periods in special cases. Indeed, it might be possible to read New Zealand cases as reflecting such a flexible facts-based approach to the temporal aspect as well.[54] Second, concessions might be accepted from the merging parties aimed to reduce some of the costs the merger creates in the period before benefits are realized. Interestingly, even large economies have begun to be more flexible in the conduct remedies applied in merger decisions although the rhetoric that "competition law does not engage in sector-specific regulation" still reigns.

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[53] CCS Guidelines on The Substantive Assessment of Mergers, para. 7.8 (2007), http://www.ccs.gov.sg/content/dam/ccs/PDFs/CCSGuidelines/substantiveassessmerger_Jul07FINAL.pdf (last visited Oct. 23, 2012).

[54] In *Air New Zealand* the court adopted a two year period. Air New Zealand Limited and Qantas Airways Limited, final determination, para. 242 (Oct. 23, 2003), http://www.comcom.govt.nz/airnewzealandquantas/ (last visited Oct. 23, 2012). While Air New Zealand is an earlier case than New Zealand Bus, they can be read jointly as determining the temporal element based on each case's unique facts.

4. Balancing Test

As emphasized elsewhere, small economies should adopt a balancing approach for merger regulation.[55] A balancing approach recognizes that a merger should be permitted if the benefits resulting from a merger are greater than it's disadvantage and offset its anti-competitive effects. While balancing is a clear concept in theory, it raises some important practical issues, some of which have been flushed out in decisions of small economies in recent years.

The ultimate test case for a balancing approach is a merger to monopoly. The US Guidelines, which at least in theory adopt a balancing approach, clearly state that "efficiencies almost never justify a merger to monopoly or near- monopoly."[56] Some small economies, however, have taken a different approach. In the recent New Zealand case of *Cavalier Wool Holdings*[57] such a merger was approved. The case raises some interesting issues worth discussing.

Cavalier involved a merger of New Zealand's only two wool scouring companies (scouring is the process in which wool clipped from the sheep is cleaned). The High Court rejected the claim that mergers to monopoly require a different standard than other mergers.[58] Several interesting points are worth noting.

Most importantly, are the distributive aspects of the New Zealand approach. Whereas most jurisdictions apply a (wide or narrow) consumer welfare test to merger analysis, New Zealand (as well as Australia) applies a total welfare standard that disregards the locus

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[55] GAL, SMALL ECONOMIES, *supra* note 4.

[56] U.S. Horizontal Merger Guidelines, *supra* note 52, Section 10.

[57] Cavalier Wool Holdings Limited and New Zealand Wool Services International Limited, decision 725 (June 9, 2011), http://www.comcom.govt.nz/cavalier-wool-holdings-limited-new-zealand-wool-services-international-limited (last visited Oct. 23, 2012). Cavalier was an authorization case, as elaborated in note 45 *supra*.

[58] *Id*, Sections 107-117.

of benefits, so long as they affect the local economy.[59] Accordingly, a merger will be authorized if the potential public benefits arising from the proposed merger offset its anti-competitive effects. The standard of proof is the civil standard of balance of probabilities. Efficiency considerations are important aspects of "public benefits" and include, inter alia, industrial rationalization resulting from more efficient allocation of resources and from lower production costs and improvement in the quality and safety of goods and services.

The rationale for this approach is expressed in the 1999 Australian Guidelines: "[t]he concept of a benefit to the public is not limited to a benefit to consumers; a benefit to a private party which is of value to the community generally is a public benefit. A merger may result in economies of scale or other resource savings which may not be immediately available to customers in lower prices but may be of benefit to the public as a whole. The community at large has an interest in resource savings, releasing those resources for use elsewhere."[60] Merger policy thus subordinates the welfare of consumers, by way of lower prices, to the long-run productivity of the entire economy. This approach is in line with the view that productivity growth is the most important determinant of long-term consumer welfare and a nation's standard of living.[61] Such considerations gain extra force in a small economy in which the

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[59] See, e.g., Air New Zealand, *supra* note 53; the Australian case of Re Qantas Airways Limited [2004] Australian Competition Tribunal 9 Oct. 12, 2004), http://www.austlii.edu.au/au/cases/cth/ACompT/2004/9.html (last visited Oct. 23, 2012).

[60] ACCC Merger Guidelines (1999), sections 6.42 and 6.43. It is noteworthy that in 2007 the power to authorize mergers at first instance was transferred from the ACCC to the Australian Competition Tribunal.

[61] Michael Porter, *Competition and Antitrust: Toward a Productivity-based Approach to Evaluating Mergers and Joint Ventures*, 46 ANTITRUST BULL. 919, 934-35 (2001).

tradeoff between allocative, productive and dynamic efficiency is more pronounced.

Yet, as recognized by the Australian court in *Quantas*,[62] and by the Canadians in *Superior Oil*, such an approach does not necessarily have to be dichotomic- as consumer welfare considerations, including distributive effects, might come into the analysis of public benefits. The weight that should be accorded to cost savings may vary depending upon who takes advantage of them and the time period over which the benefits are received.[63] Indeed, it might be argued that the social uprising in the past several years in countries all around the world strengthens the case for more inclusive growth. The World Bank's recent statements have gone along the same line, based partially on social stability arguments. It should be emphasized that the issue is one not only of pure economics, but also of value judgement. Also, even a total welfare approach does not necessarily have to automatically justify all mergers that increase total welfare. Rather, attempts must be made to structure the merger such that consumer welfare will be increased. Only if such changes are highly costly or significantly limit the significant benefits created by the merger, should it be allowed.

In *Cavalier*, the merger eliminated a significant competitive constraint, as it allowed the merger of the only two remaining New Zealand scouring companies. The anti-competitive effects of the merger were significant, as it was estimated that a price increase of at least 5% to 10% would be realized before motivations for new entry

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[62] Re Qantas, *supra* note 59, para. 189: "[C]ost savings achieved by a firm in the course of providing goods or services to members of the public are a public benefit which can and should be taken into account for the purposes of s 90 of the Act, where they result in pass through which reduces prices to final consumers, or in other benefits, for example, by way of dividends to a range of shareholders or being returned to the firm for future investment."

[63] *Id*. The Canadian balancing of weights approach seems to go along the same line.

would be created. Yet it was concluded that the public benefits outweighed such effects. The public benefits recognized included, inter alia, savings in production and administration costs from the consolidation and rationalization of scouring services that would enable the realization of economies of scale, and the creation of a cost-savings super store for the storage of wool. Rationalization of production was especially important, given the significant decline in wool clip in New Zealand and the development of competition mostly in China.

An interesting question is whether a wide approach should be taken with regard not only to public benefits but also with regard to public detriments. New Zealand Courts have given different answers to this question. In *Telecom* the Court stated in obiter that "[t]he very concept of benefit to the public allows for some netting out.of any detriments to the public from the acquisition itself."[64] This decision refers to a wide concept of net detriments to the public, under which detriments that fall outside the defined markets can offset the positive public benefits claimed. Yet no New Zealand decision has ever viewed net benefits in this wide way. The Commission's approach has been to consider detriments from the lessening of competition in the market(s) in which competition is likely to be lessened, whereas any benefits likely to accrue to the New Zealand public are considered irrespective of the relevant market(s) in which competition is likely to be lessened.[65] A net approach is taken only with regard to the costs in realizing

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[64] *Telecom Corporation of New Zealand v Commerce Commission* [1992] 3 NZLR 429 (CA)at 528.

[65] Cavalier, *supra* note 56, at Section 64; *New Zealand Bus Ltd v Commerce Commission* [2008] 3 NZLR 433 (CA) at 271.

efficiencies.[66] In *Cavalier* the Court left the question open. Yet it would seem that if the goal of the analysis is to benefit the public as a whole, all relevant factors should be taken into account. Otherwise, the analysis is unbalanced.

This approach can be contrasted with that of another small economy, Israel. In the recent case of *Kaniel/Lagin* the majority of the Antitrust Tribunal rejected a merger to monopoly.[67] There, the only two Israeli manufacturers of aluminum cans sought to merge. The firms produced 90% of the cans sold in Israel, while the rest was imported. They argued that the merger was necessary to enable them to increase dynamic efficiency by updating the technology used in producing cans. Following its reading of the Supreme Court cases of *Dor Alon* and *Eurocom*,[68] the Tribunal emphasized that harm to competition is the major test to determine the legality of the merger. Mergers to monopoly would be generally allowed only when no barriers to entry or expansions exist. Efficiency considerations would only be taken into account, if at all, if they increase consumer welfare. In the case at hand, the production efficiency gains, as large as they may be, would not be translated into lower prices, and thus were deemed to be irrelevant for the analysis. In my view, this approach which gives almost no weight to efficiency considerations

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[66] Cavalier, *supra* note 57, at Section 74. It has been argued that this approach is consistent with the wording of the anti-competitive agreement authorisation provision and the structure of the merger authorisation provision, which requires the Commission to first examine whether a significant lessening of competition is likely before proceeding to an authorization. While this may be true, the criticism expressed in this paper regards the policy level - whether such a system is welfare enhancing.

[67] Competition Case 36014-12-10 Kaniel et al v. Antitrust Authority (June 10, 2012) (Isr).

[68] Civil Appeal 3398/06 Dor Alon et al. v. Director of the Competition Authority (Supreme Court, Des. 6, 2006) (Isr); Civil Appeal 2982/09 Eurocom et at vs. Director of the Competition Authority (Supreme Court, Aug. 20, 2009) (Isr).

is too extreme, as it blocks those mergers that can significantly benefit social welfare.

It is also noteworthy that the New Zealand Commission uses several tools to ensure that the merger will indeed benefit the public. Like many other jurisdictions, benefits should be real rather than pecuniary, must be merger-specific and should not be simple transfers of wealth. Furthermore, the Commission is required to quantify, in so far as possible, detriments and benefits rather than rely on purely intuitive judgement to justify its conclusion that the costs are outweighed by the benefits.[69] Given assessment problems the Commission is not obliged to determine a single figure, but may set a likely range for the quantified effects.[70] Moreover, in *Woolworths* the New Zealand High Court rejected the claim that the probability of all competing counterfactuals should be weighed in order to assess the effects on competition.[71] Instead, the competition effects of the worst case are assessed. These tools create a higher level of certainty that indeed benefits would outweigh detriments.

3.5 Merger Policy for Micro-Economies

What happens when you take these traits of small economies to the extreme? This is the question micro-economies pose. Does an extremely small size of one's domestic market strengthen the need for a merger policy or is there no justification for an investment in such a policy? And even if such a justification exists, how should the law be affected, if at all? These questions, which to my knowledge have not as of yet been explored in depth in the literature, are the focus of the analysis below.

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[69] Cavalier, *supra* note 57, Sections 91-106.

[70] *Id*., Section 105.

[71] Commerce Commission v. Woolworths New Zealand Ltd [2008] NZCA 276, Sections 120-1.

A. Definition of micro-economies

Micro-economies have not, as of yet, been defined for competition law purposes. Several institutions define groups that include also micro economies, but often the defining parameters are chosen to serve another purpose. For example, the WTO defines a group of "small, vulnerable economies" based, inter alia, on their very low share of world merchandise trade (no more than 0.16 per cent).[72] This definition may serve well the WTO for trade purposes, since it exemplifies the limited trade effects and negotiating power such jurisdictions have in world trade circles. Yet it captures a wide array of countries, some of which do not have a small domestic population (such as Cuba with a population of approximately 11M), and thus is a better indicator of the level of market development and its openness to trade rather than its size for competition law purposes.

We define a micro-economy as a sovereign economy[73] which (1) has a population of up to 200,000 and (2) is not economically immersed into a large jurisdiction. This population threshold barely meets the suggested population threshold for one competition law

[72] World Trade Organization, http://www.wto.org/english/thewto_e/minist_e/min11_e/brief_svc_e.htm (last visited Oct. 23, 2012). Additional parameters include their shares of agricultural and non-agricultural products.

[73] Including political dependencies, so long as they are self-governing and thus adopt and enforce their own laws. For example, Jersey and Guernsey are British Crown Dependencies. Greenland is a self-governing overseas administrative division of Denmark. This definition is in line with the approach taken by the OECD: *Small Economies and Competition Policy: A Background Paper*, OECD Global Forum on Competition 6 (Feb. 7, 2003). See also Charles Webb, *Multum In Parvo: Competition Law in Small Economies Compared*, THE JERSEY L. REV. 315 (2006).

administrator.[74] It is random in the sense that those jurisdictions that almost meet the threshold may have similar characteristics, but it is nonetheless a rough and useful indicator of the characteristics noted below. Several sub-groups can be identified, including miniscule economies (e.g., Nauru and Tuvalu with a population of about 10,000). While these are undoubtedly micro-economies, they require a different analysis and most of the recommendations below do not apply to them. Most importantly, there is no justification for them to invest in a merger law. Indeed, the empirical findings show that no miniscule economy has adopted such a law.[75] Accordingly, all jurisdictions below a threshold of 50,000 are exempted from the analysis below with a strong recommendation to join a regional agreement with competition law arrangements, as many have already done.[76] The second condition, which requires that the jurisdiction not be economically immersed into a large one, is designed to ensure that political boundaries are relevant for the economic analysis which stands at the basis of competition law. Accordingly, jurisdictions such as Andorra, Lichtenstein and San Marino do not fit the definition despite their very small population. Such jurisdictions can often rely, to a large extent, on positive externalities from competition law enforcement in the large jurisdiction of which they are part.

We identify twenty-three jurisdictions that meet this definition (excluding miniscule economies), which are listed in Table A annexed to this paper.[77] Most are located either in the Caribbean

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[74] Abel Mateus estimates that, to function effectively, an agency requires around five to seven professionals per million of population. Abel M. Mateus, *Competition and Development: What Competition Law Regime*? (2010), manuscript available at: http://ssrn.com/abstract=1699643 (last visited Oct. 23, 2012).

[75] Faroe Islands, which has a merger law, is very close to the threshold.

[76] For a full list see Table A in the appendix.

[77] *Id*.

region (e.g., Antigua and Barbuda, St. Vincent and the Grenadines, St Lucia, Curacao) and East Asia and the Pacific (e.g., Kiribatii, Marshall Islands, Micronesia). Almost all are island economies. Micro economies that are not islands are usually economically immersed into their large neighboring economies and thus do not fit the definition. While some micro-states are high-income countries (e.g., Jersey, Greenland, Guernsey), most are low-middle income countries.[78] Yet it is important to emphasize that the level of income, or the stage of development, is not an integral part of the definition. Rather, the focus is only on the extremely small size of the domestic market and thus captures both developing and developed economies. Of course, the development stage might nonetheless affect optimal law. While this issue is beyond the scope of this paper,[79] two observations are offered. Most importantly, competition law is a second-tier law, to be adopted only when other, more basic laws are in place and are enforced (e.g. property and contract law). Moreover, even within competition law, the regulation of anti-competitive agreements and abusive conduct by dominant firms is often rightly perceived to be a more important investment than merger control. Accordingly, quite a few small, developing economies that adopted the other two legs of competition law, did not adopt merger control. Second, the higher the GDP, the less competition law enforcement affects the ability to finance other regulatory functions. Accordingly, it should come as no surprise that those micro-economies with a functional competition law are generally high income economies (Greenland, Guernsey, Jersey,

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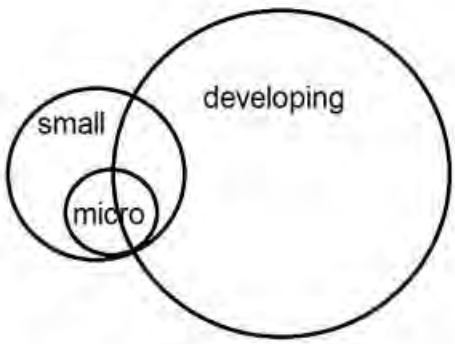
[78] The World Bank, http://data.worldbank.org/income-level/ (last visited Oct. 23, 2012).

[79] For exploration of the effect of development on optimal competition law see, e.g., Gal, *When the Going Gets Tight*, supra note 2; OECD, *Cross-Border Merger Control: Challenges for Developing and Emerging Economies* (2011), http://www.oecd.org/daf/competition/mergers/50114086.pdf (last visited Oct. 23, 2012).

Faroe Island, US Virgin Island). It is also noteworthy that another strong correlation is found between the fact that a micro-economy is a political dependency of a large jurisdiction and the fact that it has a competition law (Greenland, Faroe Island, US Virgin Island). Often their laws strongly resemble those of the large jurisdiction, even if it is not cost-effective to apply such a law.

Drawing 1: How definitions relate to each other



It is noteworthy that the United Nations' definition of Small Island Developing States (SIDS) captures many of the jurisdictions that come under the definition of micro-states suggested above. SIDS are defined by the UN as a "distinct group of developing countries facing specific social, economic and environmental vulnerabilities,"[80] including a narrow resource base depriving them of the benefits of economies of scale, small domestic markets and heavy dependence on a few external and remote markets. Currently, the UN lists 52

[80] Small Island Developing States: Small Islands Big(ger) Stakes, p. 2, http://www.unohrlls.org/UserFiles/File/UN_SIDS_booklet_5x6-5_062811_web.pdf (last visited Oct. 23, 2012).

SIDS.[81] The UN definition was designed to capture those jurisdictions which are highly disadvantaged in their development process due to size and remoteness which require special support from the international community. It thus does not capture all the micro-economies for competition law purposes and leaves outside those jurisdictions which are not islands or are not developing. Furthermore, its definition of smallness is vague and quite wide, as countries like Cuba, with a population of approximately 11 million, are included.

B. Basic Economic Traits[82]

The most important characteristic of micro economies is, of course, their extremely small domestic demand. Given that they are not economically immersed into a large jurisdiction, almost all markets are **highly concentrated**, with a very small number of players operating in them. High concentration is often needed in order to produce efficiently.

In addition, micro-economies suffer from quite **high transport costs** from their major trading partners. The main reason for this is that almost all are islands economies and are therefore constrained to the use of air and sea transport for imports and exports. Where a micro economy is an archipelago, transportation costs might be high even between internal markets. This problem is exacerbated by the

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[81] list: UN-OHALLS, http://www.unohrlls.org/en/sids/44/ (last visited Oct. 23, 2012).

[82] Builds mostly on the Commonwealth Secretariat and a World Bank Joint Task Force, *Small States: Meeting Challenges in the Global Economy* (2000), http://siteresources.worldbank.org/PROJECTS/Resources/meetingchallengeinglobaleconomyl.pdf (last visited Oct. 23, 2012) (hereafter: Task Force). For some of the most important research on SIDS see, Lino Briguglio, *Small Island Developing States and Their Economic Vulnerabilities*, 23(9) WORLD DEV. 1615 (1995).

fact that many micro-states are off the major sea and air transport routes. Finally, micro economies tend to require relatively small and fragmented cargoes, leading to high per unit costs. When transport is infrequent and/or irregular, a related **cost of keeping large stocks** is created, which results from tied up capital and warehousing. [83]

These two factors, in turn, imply that **entry barriers** into markets are generally high and that potential competition from foreign entrants is also often limited, even when a liberal trade policy is adopted.

Studies have shown that these basic characteristics often create several economic effects which pose special development challenges.[84] Most micro economies concentrate production and exports on one or two major industries (e.g. sugar, tourism, oil, banking) and thus depend on a narrow range of products.[85] This **limited diversification** is often the only way that such economies can realize economies of scale and create international tradable goods.[86] Yet such concentration of production also means that they are significantly **vulnerable to external shocks** such as events in global markets, changes in the global trade patterns, natural disasters and environmental changes, over which they have little if any influence and which cause high volatility in national incomes.[87] Indeed, many micro economies are in regions susceptible to natural

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[83] *Id*, Task Force.

[84] *Id*.

[85] Briguglio, *supra* note 82.

[86] D. Worrell, "Economic Policies in Small Open Economies: Prospects for the Caribbean, Economic Paper No. 23 (London: Commonwealth Secretariat. 1992), p. 9-10.

[87] Briguglio, supra note 82; Christopher D. Easter, "A Commonwealth Vulnerability Index for Developing Countries: The Position of Small States," The Round Table: The Commonwealth Journal of International Affairs 351 (1999).

disasters such as hurricanes, cyclones, drought and volcanic eruptions. Furthermore, almost all micro-economies have negligible control on the prices of the products they export and import (price-takers). This also renders them very exposed to what happens in the rest of the world.[88] Since most of the adverse events affect the entire population, risk pooling at the national level is not feasible.[89]

It is interesting to note, however, that some jurisdictions have **successfully used their smallness to their advantage**. To explain this observation, let us start from the premise that in some industries consumer choice is based, to a large extent, on the strength of a commitment to ensure that the consumers' long-term interests will not be harmed. The banking industry serves as an example. Secrecy of transactions may be especially important to some consumers. A micro-economy which specializes in banking might be able to use its small size as a commitment device to do all in its power to protect such secrecy: otherwise it might significantly harm the main industry on which its economy is based. Accordingly, the vulnerability of the economy aligns consumer preferences with those of the micro economy, and strengthens the credibility of its commitment to its consumers.[90]

As a result of limited demand coupled with limited production capabilities, **many of the products are produced elsewhere** and are imported into the micro economy. Interestingly, part of the demand for imports is based on changes in traditional consumption patterns which were often designed to take account of production capabilities. As consumption patterns converge with those of large, developed countries, traditional economic activities and the

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[88] Task Force, *supra* note 82.

[89] *Id*.

[90] On the other hand, however, they might be more vulnerable to external pressures.

structures that support them become less capable of meeting social needs.[91]

Micro economies also face **significant diseconomies of scale in providing public services**, as often they do not have sufficient institutional capacity to perform basic governmental functions. At the same time, the size of government spending is often very large relative to the size of the economy.

C. Some Implications for Merger Policy

These economic characteristics bring to an extreme many of the traits of small economies- from the fact that a merger might often be the only way to realize economies of scale, to the fact that given extremely limited governmental resources, investing in merger regulation often implies that other regulatory tasks - whether within the competition law realm or in other areas of governmental action- would not be performed. Accordingly, below we analyze some of the effects of such traits on merger policy.

1. Rationales for Merger Regulation

The first question to be asked is whether micro-economies can justify the adoption of merger regulation. In a perfect world, without enforcement and compliance costs, the answer would be an unqualified yes. Yet in the real world a positive answer is far from trivial, given the costs imposed on the merging parties as well as on the government. As elaborated below, often the answer is not a dichotomic yes or no, but rather depends on the way that the merger regulation is structured, both substantively and procedurally, in order to create a cost-effective regime. The effect of micro-size is to mandate the jurisdiction to not take anything (e.g., rationales for

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[91] Task Force, *supra* note 82.

regulation, substantive rules or institutional arrangements) for granted.

Let us first raise some of the argument for a (significantly truncated) merger policy. First, preventing certain changes in market structure from their incipiency is especially important for micro economies because **market power, once created, is very difficult to erode** due to the extremely limited self-correcting powers of the market's invisible hand.

Second, **some industries have a very large impact on the economy**. This is because the economies of micro-economies are generally based on one or two major products. In addition, some markets create bottlenecks for many other markets (e.g. transportation services into an island economy, telecommunications services or warehousing). Structural changes in such markets might significantly affect social welfare.

The Jersey case of the *Ferryspeed/Channel Express* merger serves as a good example.[92] The JCRA found that the merger would significantly limit competition in the market for seaborne temperature-controlled freight services between Jersey and the UK, which was a major way for importing many products into the island. The main reason was the further concentration of suitable warehouse space in Jersey's harbor that would result from the merger, which created a significant barrier for competition. The JCRA thus refused to approve the merger, as proposed. In response, the parties restructured their agreement, whereby the warehouse that belonged to one of the merging parties was sold to a third party freight operator. This restructuring provided the new entrant with a key asset necessary to compete in the market.

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[92] JCRA, Decision M 005/05 Ferryspeed (C.I.) Ltd./Channel Express (C.I.) Ltd. (2005) http://www.jcra.je/pdf/060711%20final%20public%20version%20decision%20ferryspeed.pdf (last visited Oct. 23, 2012).

Third, the need to adopt a Merger Regulation is strengthened by the fact that **other competition law tools might be difficult to apply** in order to limit the market power created or strengthened by a merger (e.g. oligopolistic coordination, which is the Achilles' heel of competition law, is much more prevalent in such economies). These three considerations imply that the costs of false-negative errors in merger analysis in micro economies are high.

At the same time, since merger regulation carries enforcement costs, both for the merging parties as well as for the regulator, it might not be cost-effective to engage in such regulation, at least not in a large part of the cases. Several features of micro-economies affect regulatory costs. First, **the size of the market does not necessarily affect the absolute size of the "fixed" costs of merger review**-collecting the relevant facts and analyzing their effect on the market. Such costs are incurred regardless of the size of the economy, because the analytical steps of a merger analysis are similar in markets of all sizes. It may thus not be economically justified to regulate some mergers, or at least to spend large resources to analyze them.

Second, the micro-size of the economy implies that **the effects of many mergers --in *absolute financial terms*-- would be minimal, even if such effects might be high in relative terms.** To give an example, assume that two distributors compete in the market for radios. Further assume that each sells 500 radios a year, for a profit of 2,000 Euros. If these two firms merge, their joint profit will rise to 5,000 due to their joint market power. This implies a significant increase in their joint profit (1000, an increase of more than 20%). Yet in absolute terms, the increase in the costs of radios as a result of the merger will have quite a minimal effect on consumers. Even over a period of five years – longer than that considered in most merger analyses around the world – the cost effect of the merger in absolute terms is small (1,000*5=5,000). In decision-theoretic terminology, the two considerations just explored indicate that process costs of Merger Regulation in micro-economies are high.

Third, **even a small regulatory burden (in absolute size) might limit incentives to enter into some welfare-enhancing mergers**. Since the profits to be had in a micro-economy's markets are quite small, the costs a firm will be willing to invest in the merger process will also generally be quite small. Accordingly, as many domestic firms may already be suffering from high costs due to the limited scales of operation, imposing upon them high merger review burdens might be harmful to the economy. Further harm can result if some of the parties to a potential merger will exit the market, thereby creating a situation that can be even worse compared to what would have occurred had the merger taken place.

Fourth, given extremely limited competitive conditions in most markets (especially where oligopolistic coordination is already strong), the effect of the merger on market conditions might sometimes be small. Fifth, **many of the firms which affect micro-economies are located elsewhere** and are often subject to the merger regulations of large jurisdictions, an issue we shall elaborate upon below. In decision-theoretic terminology, these last three considerations indicate that the benefits of merger regulation in micro-economies can be quite low in some types of mergers.

Finally, **many mergers may be necessary in order to achieve efficient scales of production**. Mergers are an important way of firms to grow to such efficient sizes and to compete with foreign competitors in local markets (as well as foreign markets). Accordingly, a large number of mergers would most likely be justified, despite the increase they create in concentration levels. In decision-theoretic terminology, the costs of false-positive errors can be quite high.

These costs do not imply, however, that micro-economies should never adopt a merger regulation. Rather, they imply that the regulation should be carefully structured so as to take into account the special characteristics of the economy in order to ensure that regulatory interference in the market is, indeed, cost-effective and

efficient. Accordingly, the following discussion suggests some tools to structure merger policy in a cost-effective manner.

2. Potential (Partial) Institutional Solutions

We begin the analysis with potential institutional solutions, rather than with substantive rules. This is because if a way cannot be found to make merger regulation cost effective, then even the best substantive rules for balancing allocative, productive and dynamic efficiency considerations would be futile and harmful. Accordingly, this section briefly reviews three potential (yet partial) and potentially cumulative institutional solutions, to be considered by micro-economies.

The first partial solution is to **join forces with neighboring jurisdictions** which might be affected by similar institutional limitations or by the same mergers. Indeed, it is not surprising that many micro-economies have entered into regional competition law enforcement agreements (RJCAs) with neighboring jurisdictions.[93] As elaborated elsewhere, RJCAs enable jurisdictions to pool together scarce resources to reach economies of scale in enforcement activities (investigations, enforcement), as well as in competition advocacy and training.[94] In some situations RJCAs may provide the only viable solution for enforcement, given severe resource constraints. The Organization of Eastern Caribbean States (OECS) provides such an example: it is comprised of Caribbean developing micro-economies, such as Montserrat with a population of about 5,000 and St Kitts with a population of about 50,000. Each alone cannot justify an investment

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[93] See Table A in the appendix.

[94] Michal S. Gal, "Regional Agreements: An Important Step in International Antitrust" 60 *U. of Toronto L. J.* 239-61 (2010); Michal S. Gal and Inbal Wassmer- Faibish, "Regional Competition Law Agreements: Has the Potential been Realized?" in *Regional Competition Law Agreements* (Bakhum et al. eds., Edgar Elgar, 2012).

in a competition law. Yet by pooling their resources they are able to create a joint competition authority that deals with competition law issues that affect them.[95] RJCAs also serve to solve enforcement capability constraints, especially with regard to multinational issues (e.g., evidence gathering, creating a credible threat to prohibit the merger of a foreign firm, and overcoming deep-rooted limitations of existing authorities, including corruption, inefficiency and bureaucratic obstacles). It should be noted, however, that despite their great potential, empirical studies indicate that most RJCAs do not as of yet work efficiently.[96] Yet one example of an RJCA that does work can be found in the joint enforcement agreement between the two micro-economies Guernsey and Jersey, which have reached the conclusion that given the large similarity of their markets and their close geographic proximity, as well as their limited enforcement resources, a joint merger regulation is justified in order to limit duplicative enforcement resources and increase their ability to deal with anti-competitive conduct.[97] An additional example involves

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[95] Yet the OECS, as well as the CARICOM agreement which applies in the region, do not, as of yet, provide for a supranational merger regulation. Revised Treaty Of Chaguaramas Establishing The Caribbean Community Including The CARICOM Single Market And Economy, article 169 (2001), http://www.caricom.org/jsp/community/revised_treaty-text.pdf (last visited Oct. 23, 2012). Similarly, the Pacific Islands Forum, which is comprised, inter alia, of quite a few micro-economies, is considering a model competition law, including merger control, for countries in the region. Yet the cost of administration and enforcement is at issue.

[96] GAL, SMALL ECONOMIES, *supra* note 4.

[97] The Channel Islands Competition and Regulatory Authorities (CICRA), http://www.cicra.gg/ (last visited Oct. 23, 2012). Approval from CICRA must be obtained before certain mergers or acquisitions are executed.

Liechtenstein,[98] which does not have its own competition law but competition law applies in it through its membership in the European Economic Area. Investigations of violations that affect EU member states are conducted by the European Free Trade Area Surveillance Authority.[99]

The second partial solution is to **combine regulatory functions.** Competition law and direct regulation are the immediate candidates, since they share some commonalities. Generally speaking, they both attempt to regulate market conditions in order to increase social welfare. The basic idea is that, in some markets serious obstacles to the well-functioning of the market's invisible hand exist (natural in the case of direct regulation or artificial in the case of competition law), which should be mitigated by some level of intervention. Some of the methods they use to determine whether regulation is required are also similar: both require analysis of market failure and competitive conditions as well as how a remedy would affect conditions in the market. Yet they are generally based on different assumptions and involve different tools. Direct regulation is based on the assumption that the market suffers from an inherent natural market failure. The regulator is thus often empowered to intervene directly in the market and set market conditions ex ante in such a way that would micro-manage the economic environment and reduce the effects of the market failure. Competition law is based on a somewhat opposite assumption: that the market's invisible hand will generally work well, if firms are prohibited from erecting artificial barriers to competition and thus intervention is minimal and geared towards preventing such obstacles.

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[98] Note that Lichtenstein does not meet our definition of a micro-economy because it is integrated into a larger market.

[99] EFTA Surveillance Authority, www.eftasurv.int/fieldsofwork/fieldcompetition/

In light of the above, in most jurisdictions the sector-specific regulator and the competition authority are separate bodies.[100] Yet in micro-economies it may make sense to integrate both functions. Beyond the serious regulatory resource limitations issues, the economic analysis of market conditions might in many cases be relatively similar given highly concentrated market structures. Furthermore, in a micro-economy remedies might need to be more interventionary than in large economies. Accordingly, Guernsey, for example, has adopted a model in which the competition and regulatory functions are integrated into the same body. Yet, to the degree possible, there is merit in ensuring some degree of structural separation between the two functions.

The third partial solution is to **make use of technical assistance** in important merger cases. Today some competition authorities and international institutions offer technical assistance in applying one's competition law, to assist in overcoming severe enforcement limitations.[101] Of course, technical assistance cannot be used in all mergers, but it can be used for analyzing those unique and complex mergers that have significant effects on the economy.

3. Cost-Effective Substantive and Procedural Rules

Whether all, either, or neither above institutional solutions are adopted, the traits of a micro economy mandate that it adopt a **very limited merger regulation**, which aims to target only those mergers

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[100] For an exception see the ACCC, http://www.accc.gov.au/ (last visited Oct. 23, 2012).

[101] See, e.g., ICN, Assessing Technical Assistance: Preliminary Results (2005); Daniel D. Sokol and Kyle Stiegert, "An Empirical Evaluation of Long Term Advisors and Short Term. Interventions in Technical Assistance and Capacity Building" (2008), available at: http://www.coleurope.eu/content/gclc/documents/GCLC%20WP%2002-08.pdf.

that can both create significant harm to the micro-economy and that can practically be challenged in a cost-effective manner. As elaborated below, this does not mean a simple bare-bone regulation, but rather a careful design of regulatory tools to fit the economy's needs in accordance with decision theory principles. This sub-chapter includes some suggestions.

A. What does not Change?

Let me start with the observation that even micro-size does not affect some parts of merger regulation. For example, **defining what type of transaction constitutes a merger.** There is no reason that requires a micro-economy to take its own path rather than follow the definitions adopted by other jurisdictions, as long as such definitions are efficiently structured. Such a definition should include acquisitions that enable one entity to exercise de facto "decisive influence" over another, as well as major asset transactions.

Another example involves the **illegality test** which sets the standard against which the anti-competitive effects of the merger will be evaluated. The "Substantial Lessening of Competition" (SLC) test, which is used by most jurisdictions around the world, is also fit for a micro-economy. Most importantly, it is sufficiently wide to capture both unilateral and cooperative anti-competitive effects which might be created by mergers. This point is exemplified by the Swiss experience, in which a dominance tests, which was interpreted as a super-dominance standard, has led to a too-lenient merger policy, not capable of prohibiting many mergers that significantly affect competition in their markets.[102] Unfortunately some micro economies, such as the Faroe Islands, also apply a dominance test.[103]

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[102] See Samuel Rutz, *Applying the Theory of Small Economies and Competition Policy: The Case of Switzerland*, Secretariat of the Swiss Competition Commission, chapter 4 (2010).

[103] Faroe Competition Act No. 35, section 15(1) (May 3, 2007).

One point should nonetheless be emphasized with regard to Micro-economies: The central core of the illegality test is a comparison of the prospects for competition with and without the merger (the counterfactual). In many cases the counterfactual might indicate a low degree of competition in the market, even if the merger was not prohibited, due to the interdependence among market players. This limited competition should be taken as a given and serve as the benchmark, unless a foreseeable change in market conditions would change its competitiveness.

B. Limiting Application to Domestic Firms

Regulation should be limited to those mergers that create a strong presumption of significant anti-competitive effects, in both relative and absolute terms.

One bold suggestion is to **create a short list of markets or firms** to which the merger regulation will apply. Mergers in all other areas of the economy will not be regulated. Such a list should be based on a pure economic criterion: the potential significant effects of further concentration in the specific industry on social welfare. Most importantly, mergers in the main production or consumption markets of the economy and those in strategic markets that have a significant domino effect on other markets should be included in the list. Those include, *inter alia*, transportation services and storage facilities for goods imported. This is because such markets create bottlenecks in the flow of traded goods in and out of the economy and thus determine, to a large extent, the degree of competition. The competitiveness of passenger transportation is also important, since the fact that passengers can self-import products into the island also creates competitive pressures. It is noteworthy that even if at the time that the merger regulation is adopted no competition exists in these markets, it may still be justified to include them on the list, since market structures can change over time. Firms in listed markets

should be required to notify the authority and receive its approval before they merge.

In adopting such a method, however, two factors should be considered. First, as market conditions change over time, the maintenance of the list might require updated studies of market conditions in relevant sectors. The second involves political economy considerations. Once firms can potentially be exempted from regulation, it is expected that some firms --especially those with economic power which might translate into political power-- will attempt to influence the regulator to grant them an exemption (political capture). This might be a real problem in a micro economy in which political and business elites are often intertwined. A partial solution involves requiring the regulator to clearly state the economic grounds for the exemption and the date it will be reviewed again, or subjecting his decision to an impartial judicial body.

Should the list option not be adopted, merger regulation can also be limited by using thresholds. Here I suggest a combination of the **following three methods**. First, thresholds should be set narrowly. Second, the threshold requirements should change in accordance with the type of the merger (horizontal, vertical or conglomerate). Third, thresholds for some special industries should be set at lower levels. These suggestions are elaborated below.

Thresholds should serve as a *de minimis* rule, which attempts to shun out those mergers with minimal effects on the micro-economy economy. I suggest that the threshold be set at a level which is based on the assumption that even if profits are increased by 20% or so, then the absolute effect of the merger will still be negligible and would not merit review, as the example of the merger of the two radio distributors above indicated.

Turnovers should generally relate to turnovers in *the micro economy* rather than to worldwide turnovers. This is because the latter do not have an immediate effect on competitive conditions in the micro economy. The newly revised Guidelines on Merger

Procedures of Singapore[104] help explain this point. The Guidelines state that the Competition Commission of Singapore is unlikely to investigate a merger if the "turnover in Singapore in the financial year preceding the transaction of each of the parties [is] below S$5 million, and a combined worldwide turnover in the financial year preceding the transaction of all of the parties [is] below S$50 million." In Singapore, where notification of all mergers is voluntary, and the authority has more power than a micro economy to impose merger conditions, these guidelines serve as a crude safe-harbour self-assessment tool. Yet in a micro-economy and especially one in which notification is mandatory, such thresholds might be problematic. A local turnover requirement is self-evident. But a worldwide turnover is not. Assume that the merging parties' domestic trade in is negligible, but they are major players in foreign markets- why would it harm the micro economy? Indeed, the opposite can be argued: given the current situation, in which each jurisdiction takes into account the effects of a conduct on its own welfare and disregards the externalities that regulating such conduct create on the rest of the world, a merger between domestic firms can limit competition among them in foreign markets, thereby increasing their revenues and potentially benefitting the local economy.[105] If at all, a large worldwide turnover should serve to exempt the merger of foreign firms, at least from notification, as elaborated below.

It might also make sense to require different turnover thresholds for different types of mergers, as many economies do.[106] Horizontal mergers raise the strongest concerns for merger policy. Thresholds

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[104] CCS Guidelines on Merger Procedures (July 1, 2012), http://malaysianlaw.my/attachments/CCS%20Guidelines%20on%20Merger%20Procedures%202012_72436.pdf (last visited Oct. 23, 2012).

[105] For a decision along those lines see, *e.g.*, Director of the Israeli Competition Authority, Waiver from Approval of Restrictive Agreement, Elisra and Elta (unpublished decision).

[106] See the Competition (Mergers and Acquisitions) (Jersey) Order (2010).

for such mergers should thus be set at a lower level than those for vertical mergers. Conglomerate mergers should be required to meet the most lenient threshold, unless aggregate concentration is high and the merger involves at least one of the large business entities, as elaborated above. Of course, a merger that comes under two or more categories must meet all relevant thresholds.

Some jurisdictions use also market share threshold. There is no simple answer as to how high (or low) concentration measures need to be to prompt (or dismiss) concerns about the impact of a merger on competition. Setting the market share threshold is a difficult task, since it should capture both unilateral and cooperative effects on competition. The threshold should not be set too low. Especially in a micro economy, a low threshold implies that almost all mergers would be captured by the regulation, as firms generally must provide large market shares in order to operate at minimum efficient scales. Jersey, for example, has adopted a market share of 20-25% as a benchmark.[107] This threshold is much too low. It implies that a merger that allows five or four equal firms to operate in the market should be caught under the regulation because its likely anti-competitive effects will outweigh its pro-competitive ones. This is a problematic assumption to make in a micro-economy. The market share should be set at a much higher level, which assumes that most mergers among competitors in small markets will be justified by the need to operate at efficient levels of production. Seychelles, for example, has set the threshold at 40% market share.[108]

It is also suggested that thresholds in some strategic or main industries be set at lower or higher levels, depending on the

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[107] Competition (Mergers and Acquisitions) (Jersey) Order (2005).

[108] Seychelles Fair Competition Act, Section 21 (2009), http://www.ftc.sc/index.php?option=com_content&view=article&id=49&Itemid=57 (last visited Oct. 23, 2012). For a similar threshold see Singapore, CCS Guidelines on Merger Procedures, *supra* note 104, para. 3.6.

industry.[109] This suggestion is based on the same logic as the list suggestion above.

C. Extra-Territorial Reach of the Law

Extra-territorial mergers may affect a micro-economy significantly. It might be the case that two or more foreign firms which actually or potentially compete in a micro-economy's market, decide to merge. For example, assume that the only two tire manufacturers whose tires are sold in a micro-economy wish to merge. Both are foreign companies which sell their products through local distributors. This raises the question of whether such mergers ought to be regulated by the micro-economy and if so, under which legal doctrines. The question is important, inter alia, because of increased cross-border merger activity, which has increased nine-fold in real value terms as well as in terms of numbers over the period of 1987–2007, and the fact that in value terms most of such mergers (88%) were between firms located in developed jurisdictions.[110]

On a normative level, it is relatively easy to devise legal tools in order to capture such mergers under the regulation. The "effects doctrine" or the "implementation test" might apply in a micro-

[109] For Example, , In Guernsey, where an acquiring business in a prospective merger or acquisition that meets the thresholds is a credit or financial institution, it should, in the first instance, submit a Shortened Merger Application Form to allow us to undertake a preliminary review of the transaction. The Competition (Prescribed Mergers and Acquisitions) (Guernsey) Regulations (2012). This is because the low threshold that applies to most markets is not relevant to the financial industry, which is the main industry on the island.

[110] United Nations Conference on Trade and Development, http://stats.unctad.org/FDI (last visited Oct. 23, 2012).

economy through customary public international law.[111] But even if it does not, the Merger Regulation can clearly state that it has an extra-territorial reach, like many other jurisdictions do.

Yet such regulation raises serious practical problems. First, international firms may not have any assets in a micro-economy. Their products might be traded through local distributors. It might thus be difficult to impose a remedy in such a setting. Second, and more importantly, generally sales in a micro-economy comprise a small fraction of the international firms' total revenues. Accordingly, a micro-economy's merger authority would most likely not be able to prevent a merger from occurring. This is a problem in all small and micro economies. Were the jurisdiction to place significant regulatory burdens on the merger, the foreign firm would, most likely, choose to exit the economy and not trade in it.[112] The negative welfare effects of the exit of the foreign firm from the micro economy, however, may well be greater than the welfare effects from the continued operation of the merged entity within its borders. Accordingly, a micro economy cannot create a "credible threat" to block the merger. The foreign firm, acknowledging this effect, will not take into account, in its merger decision, the effect of its decision on the micro economy.[113] Indeed, studies have empirically shown that small and micro economies generally do not challenge the

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[111] For extraterritoriality see, for example, Maher M. Dabbah, International and Comparative Competition Law (Cambridge, 2010), chapter 8.

[112] It is important to emphasize that while international firms are quite likely for reputational reasons to comply with legal requirement imposed in a merger decision, even one imposed by a micro economy, this does not imply that they will necessarily then choose to remain in the micro economy or even to enter it in the first place given such requirements. For the first proposition see, e.g., Katri Paas, *Implications of the Smallness of an Economy for Merger Remedies*, XV JURIDICA INT'L L. REV. 94 (2009).

[113] GAL, SMALL ECONOMIES, *Supra* note 4, at Chapter 6.

mergers of large international firms.[114] Accordingly the micro-economy should take these mergers as given. This implies that it will generally not be cost-effective to regulate such mergers. Otherwise, the Authority might find itself spending a large part of its resources on reviewing mergers with no effective remedies at hand.

At the same time, however, given the significant effects some of these mergers impose on the micro economies, regulation is justified when imposing remedies to limit the negative effects of the merger is practical and economically justified. Such remedies are based on the assumption that mergers between foreign firms will take place regardless of the effects of the merger on the micro-economy and instead attempt to regulate the merged entities with regard to their actions in the micro-economy.[115] For example, if the two only airlines that compete on flying to the micro-economy merge, the merger might be conditioned on a commitment not to reduce the number of flights.

Accordingly, the preferred set of legal rules should be as follows. In principle, mergers between international firms should not come

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[114] Gal, *Unique challenges*, supra note 26.

[115] To give an example, when Unilever acquired control over Ben & Jerry's and the merger raised concerns regarding competition in the Israeli ice cream market, the Israeli Competition Authority conditioned its approval on the distribution of Ben & Jerry's ice cream in Israel through an independent distributor who will be free to determine prices charged for the products. The Authority also required that the quality or quantity of the products be at least as high as those in the pre-merger situation, and that any new product would be made available to the distributor. These are limited remedies since they cannot totally erase the fact that both firms are controlled by the same entity that determines their strategic decisions. At the same time, the small economy can often rely on the fact that the international firm will not change its strategic decisions (such as Ben & Jerry's introduction of a new product into world markets) only to reduce competition in the small economy. In fact, it "free rides" on competition in larger economies.

under the Merger Regulation. However, the Authority should be empowered to list those international firms that should notify the Authority and be subject to clearance if they merge. This method will enable the Authority to identify ex ante those cases in which it can apply a practical remedy to limit possible significant anti-competitive effects and to limit the uncertainty for foreign firms.

Alternatively, a micro-economy's Merger Regulation should be broad enough to include extra-territorial mergers that affect its markets. The Authority should be empowered to impose structural or conduct remedies upon the merger, and accept undertakings and commitments from the merging parties, if the merger has significant adverse effects on its markets. Yet, in order to limit regulation that leads nowhere, foreign firms operating in a micro-economy should not be required to notify their merger decisions and be subject to clearance. Rather, the burden of spotting those extremely rare international mergers that significantly affect a micro-economy and for which practical remedies exist would be placed upon the Authority. Indeed, such a potentially post-merger remedy creates uncertainty for the merging firms, but this concern is minimal, as the effect of such a remedy will probably be insignificant for the international firms. It can also be addressed by enabling the firms to request the Authority to provide a pre-merger decision.

These suggestions system create a double benefit: on the one hand they reduce the burden on the Authority and on the merging parties in cases in which there is very limited chance that the merger will be prohibited, for normative or practical reasons. On the other hand, they still leave the door open for the Authority to impose a remedy in those rare cases in which the merger significantly lessens competition in a micro-economy and there is a practical solution to remedy some or all such effects. To create certainty, the Authority should be empowered to impose conduct requirements only within a pre-specified period of the date the merger was publicly announced. Note, that if it is assumed that the merger cannot be stopped, then

the urgency in a decision is significantly limited, since applying remedies that deal with local issues can be done at a later stage.

One of the practical effects of this recommendation is the creation of a "**corridor**" **for regulation**: mergers should only be regulated if they are above a minimum threshold based on domestic turnovers and generally below a maximum threshold based on world-wide turnovers.

Unfortunately, this is not the case in some micro economies. Going through the list of merger decisions in Jersey, for example, reveals that most mergers examined are international and unsurprisingly none were prohibited. The same is true of other micro-economies.[116]

D. The Balancing Test

A micro-economy cannot simply evaluate the anti-competitive effects of a proposed merger. Rather, it is essential that the regulatory body be empowered to balance the anti-competitive effects of the merger with any pro-competitive or wider public policy effects that may result from it. Such a policy recognizes that a merger should be permitted if the improvements in efficiency or on other public policy grounds resulting from a merger are greater than and offset its anti-competitive effects.

A balancing provision is included in many Merger Regulations. Yet such tools vary with regard to the standard to be applied, the party which carries the burden of proof, and the institution which is empowered to perform the balance. Many jurisdictions adopt a limited balancing test. For example, Jersey's merger guidelines provide that "the focus is on whether the efficiencies will enhance

[116] See, e.g., Seychelles Fair Competition Act, *supra* note 108, at Section 22.

rivalry between the remaining businesses in the market."[117] This focus is ill-suited for a micro-economy. It is too narrow- it will only let through those mergers in which the merger will allow less efficient firms to increase their efficiency and as a result will increase competition. While such mergers should, indeed, be approved, so should mergers which increase efficiency substantially although they also substantially reduce competition. Indeed, most if not all mergers in a micro economy that allow the parties to realize scale economies would generally not increase rivalry. A better test for micro-economies is the one applied in the Seychelles, which allows the merger if it is "likely to bring about gains in real as distinct from pecuniary efficiencies that are greater than or more than offset the effects from limitations on competition. "Yet in order to reduce error costs, clear guidelines on the balancing exercise should be created and published.

E. Conditional Remedies

The object of conditional remedies is to prevent some or all of the competitive harm that the merger would otherwise cause. There are instances in which only an outright prohibition can address the competitive concerns. However, in some instances other solutions can be found, and conditions imposed, to remedy most if not all of the anti-competitive harms. Such remedies can take two basic forms: (a) a structural remedy, which involves a change in the market structure (such as a commitment to divest assets), and (b) a behavioral remedy, which involves constraints on the conduct of the merged entity

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[117] Competition (Jersey) Law 2005 Guidelines- Mergers and Acquisitions, p. 12, www.jcra.je/pdf/050810%20Competition%20guideline.%20Mergers%20and%20Acquisitions.pdf (last visited Oct. 23, 2012).

The power to impose such remedies may serve as an important tool for a micro-economy, which should be more willing to apply them.[118] This is because such remedies enable the merger to go through while ensuring that it does not create harmful externalities, or at least that such externalities have been minimized. Thus, a merger that allows its parties to increase productive and dynamic efficiencies might be approved even if it significantly increases the market power of the firm, so long as the concession of the parties ensure that welfare is not significantly harmed.[119]

Structural remedies are easier to administer than behavioral remedies because they do not require medium or long-term monitoring to ensure compliance. The case of the *Ferryspeed/CHannelExpress*, noted above, serves as an example.[120] There the parties sold a warehouse that belonged to one of the merging parties to a third party freight operator in order to solve a bottleneck problem.

However, merger remedies in a micro economy may often be behavioral rather than structural. This is because a more concentrated market structure is often justified by productive efficiency requirements. Behavioral remedies do not prevent more efficient market structures from being erected, but limit their harmful consequences. The Jersey merger of *SPAR/several stores of Newsagents* serves as an example.[121] The proposed merger involved the acquisition of 13 stores owned by one distribution chain by another distribution chain. The JCRA concluded that the merger, as proposed, will have significant anti-competitive effects on

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[118] For a similar conclusion in the context of small economies see Paas, *supra* note 112.

[119] *Id*, writing about small economies.

[120] JCRA, Decision M005/05, *supra* note 92.

[121] JCRA Decision M114/07 proposed acquisition by SPAR (C.I.) Ltd. Of several stores from C.I. Newsagents Ltd. Similar decisions were taken in other economies.

competition in the market of retail services. These result from concentration of retail outlets in one part of the island and from a potentially wide non-compete clause. The JCRA thus conditioned its approval of the merger on the following conditions. First, the merged firm would commit to its current island-wide pricing policy for three years. This condition ensured that the merged entity would not take advantage of its market power in some parts on the island where limited competition exists. Second, the parties limited their non-compete clause to the duration of one year. This commitment ensured that potential competition was not restrained by the merger agreement. One of the downsides of behavioral remedies is the need to monitor them. As some cases around the world indicate, firms do not always comply with such commitments.[122]

Limiting price increases that result from a merger might also be considered. Although competition agencies are justifiably reluctant to regulate prices directly.[123] In mergers that increase market power there is a relatively easy benchmark: the pre-merger market price. Yet such a remedy is far from perfect. To name a few limitations, it requires on-going monitoring of prices, as well as other elements of the sale, such as quality and service levels; it requires the assessment of changes in market conditions on prices (e.g. increase in input prices) on an on-going basis; and the pre-merger price might not be the relevant benchmark in a changing world.

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[122] See, e.g., the Austrian case of *Wrigley/Joyco*, as reported in the OECD, *Annual Report on Competition Law Developments in Austria*, 14 (2003-2004).

[123] See, e.g., *The Pros and Cons of High Prices*, Swedish Competition Authority (2007), http://www.konkurrensverket.se/upload/Filer/Trycksaker/Rapporter/Pros&Cons/rap_pros_and_cons_high_prices.pdf (last visited Oct. 23, 2012); Michal S. Gal, *Exploitative abuses in* EU COMPETITION LAW, chapter 9 (Ioannis Lianos & Damien Geradin eds, 2013).

3.6 Conclusion

Small and micro economies create policy dilemmas with regard to merger regulation. On the one hand, merger regulation can prevent anti-competitive mergers that create long-term effects on the economy that the market's invisible hand cannot correct. Yet the price of erroneous decisions that prevent pro-competitive mergers is high, as are the administrative burdens such a regulatory imposes. Accordingly, adopting a merger regulation, especially in micro-economies, is not trivial and requires a careful balancing of potential costs and benefits of the Regulation. This paper attempted to shed light on some of the considerations that should be taken into account when addressing this policy dilemma, as well as suggest tools for solving it.

Table A Micro Economies (including miniscule ones)

Jurisdiction	Population	GDP (US$)* [124] (2011 unless otherwise indicated)	Island	Competi-tion Law	Merger Law	Part of Regional Agreement with merger law
American Samoa	54,947	$575.3 million (2007)	yes	no	no	no
Antigua and Barbuda	89,018	$1.595 billion	yes	no	no	in the process of developing a merger law
Anguilla	15,423	$175.4 million (2009)	yes	no	no	in the process of developing a merger law
Aruba	107,635	$2.258 billion (2005)	yes	no	no	no
British Virgin Islands	31,148	$853.4 million (2004)	yes	no	no	in the process of developing a merger law
Cook Island	10,777	$183.2 million (2005)	yes	no	no	no

[124] Population and GDP estimates based on the CIA World Factbook. Estimates relate to 2012 unless otherwise indicated.

Jurisdiction	Population	GDP (US$)* [124] (2011 unless otherwise indicated)	Island	Competi-tion Law	Merger Law	Part of Regional Agreement with merger law
Curacao	145,834 (2 010 est.)	$2.838 billion (2008)	yes	no	no	no
Faroe Island	49,483	$1.471 billion (2010)	yes	yes	yes	no
Dominica	73,126	$989.5 million	yes	no	no	in the process of developing a merger law
Guam	159,914	$2.5 billion (2005)	yes	yes	no	yes
Grenada	109,011	$1.468 billion	yes	no	no	in the process of developing a merger law
Greenland	57,695	$2.133 billion	yes	yes	no	yes
Guernsey	65,345	$2.742 billion (2005)	yes	yes	yes	no
Jersey	94,949	$5.1 billion (2005)	yes	yes	yes	no
Kiribati	101,998	$606.7 million	yes	no	no	no
Marshall Islands	68,480	$133.5 million (2008)	yes	no	no	no
Micronesia	106,487	$238.1 million (2008)	yes	yes	no	no
Montserrat	5, 164	$46.78 million (2006)	yes	no	no	in the process of developing a merger law
Nauru	9,378	$60 million (2005)	yes	no	no	no
Niue	1,269	$10.01 million (2003)	yes	no	no	no
Northern Mariana	51,395	$900 million (2000)	yes	yes [125]	no	yes

[125] The commonwealth's consumer protection law prohibits certain forms of price fixing, price discrimination, and exploitative pricing.

Jurisdiction	Population	GDP (US$)*[124] (2011 unless otherwise indicated)	Island	Competi-tion Law	Merger Law	Part of Regional Agreement with merger law
Palau	21,032	$164 million (2008)	yes	yes[126]	no	no
Samoa	194,320	$1.104 billion	yes	yes	no	no
Sao Tome and Principe	183,176	$383.9 million	yes	no	no	no
Seychelles	90,024	$2.274 billion	yes	yes	yes	no
St. Kitts and Nevis	50,726	$886.2 million	yes	no	no	in the process of developing a merger law
St. Lucia	162,178	$2.128 billion	yes	no	no	in the process of developing a merger law
St. Vincent and the Grenadines	103,537	$1.275 billion	yes	no	no	in the process of developing a merger law
Tonga	106,146	$772.8 million	yes	yes	no	no
Tuvalu	10,619	$37.47 million	yes	no	no	no
US Virgin Islands	105,275	$1.577 billion (2004)	yes	yes	no	yes

Micro economies that are economically immersed into larger ones

Jurisdiction	Population	GDP (US$)*[124] (2011 unless otherwise indicated)	Island	Competi-tion Law	Merger Law	Part of Regional Agreement with merger law
Andorra	85,082	$3.169 billion	no	no	no	no
Liechtenstein	36,713	$5.003 billion (2009)	no	yes	no	yes
San Marino	32,140	$1.136 billion	no	No	no	no

[126] Prohibitions are part of general business regulation law, http://www.doingbusiness.org/~/media/FPDKM/Doing%20Business/Documents/Law-Library/Palau-Law-on-Business-and-Business-Regulation.pdf (last visited Oct. 23, 2012).

4 A Decade of Ex-post Merger Policy Evaluations: A Progress Report*

*By Tomaso Duso***

4.1 Introduction

Ten years ago, Damien Neven and Lars-Hendrik Röller presented the initial ideas and results of a common project on the evaluation of European (EU) merger control decisions at the first conference "The pros and cons of Merger Control."[1] Starting from these seeds, in the following decade, partially together with them and partially with several other coauthors, we developed a research agenda made up of different ideas, empirical methods, and data, focusing on the evaluation of merger policy. It is therefore a great pleasure for me to have the opportunity to report on the advancements of this broad long-term project, illustrating what I believe to be the strengths and

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* This paper is based on the ongoing research on the ex-post evaluation of merger policy that I have carried out over the past decade together with several coauthors: Luca Aguzzoni, Elena Argentesi, Paolo Buccirossi, Lorenzo Ciari, Joseph Clougherty, Sven-Olof Fridolfsson, Klaus Gugler, Damien Neven, Lars-Hendrik Röller, Jo Seldeslachts, Giancarlo Spagnolo, Florian Szücs, Massimo Tognoni, Cristiana Vitale, and Burcin Yurtoglu. I want to express my extreme gratitude to all of them, as my way of thinking about merger policy has been shaped by our joint efforts to understand how this policy works and how it is possible to retrospectively measure its effectiveness. I also thank John Davies and Danny Sokol for their interesting and useful comments on this paper.

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[1] These first results were published in Neven and Röller (2002).

the weaknesses of ex-post evaluation methods in merger control, highlighting which approaches I believe can be used in what circumstances, and finishing by drawing attention to some promising avenues for future research.

Merger control plays a central role in modern competition policy because of its peculiarities and its implications for the functioning of markets.[2] It is a quite fundamentally different tool if compared to other antitrust policy instruments, such as cartel policy or abuse of dominance investigations, in that it mostly works ex-ante rather than ex-post.[3] Thus, due to its very nature, merger review is a speculative exercise as competition authorities are asked to predict the possible impact of mergers *before* they take place and speculate on the possible implications they might have on the development of the industry and consumer welfare. To understand whether this speculative exercise is in general successful, whether competition authorities learn to apply the rules efficiently and appropriately, and, ultimately, whether merger policy is correctly and effectively enforced is therefore particularly important. This is even more so

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[2] The focus on merger control as one preferred area for ex-post competition policy evaluation is also motivated by the data availability. As Carlton (2009) notices: "*I will concentrate my discussion about measures of antitrust policy effectiveness on merger policy because there are numerous merger investigations each year, and therefore a quantitative study of merger policy is possible, while that is not true of non-merger policy where at most a handful of cases are brought by government antitrust authorities each year*." Moreover, merger control is the area in antitrust where the highest consensus seems to reign among economists: since we know quite a lot about this phenomenon it is perhaps easier to think about it.

[3] See Ottaviani and Wickelgren (2011) for an interesting discussion on ex-ante vs. ex-post regulatory intervention. Their motivating example is merger control in the US where, even after the introduction of the Hart Scott Rodino (HSR) Act in 1976, ex-post intervention against consummated anti-competitive mergers is still possible. This is much less the case in the European context, which is the focus of my work and this paper.

since merger control has large implications for all other areas of antitrust. As observed by William Kovacic (2009): "*[i]f merger control misses the dominance issue, mergers can create durable market power with consequent adverse effects on prices, quality, and innovation. If merger control overlooks a transaction's contribution to oligopolistic interdependence, a merger can contribute to a market configuration in which the surviving firms either find it easier to establish effective cartels by a direct exchange of assurances or to use indirect means to realize the results that express agreements yield. Because competition law has not addressed dominance or tacit collusion with great success, it matters that merger policy make proper choices about when to intervene.*"

The assessment of merger policy has been quite the focus of discussion both in the academic discourse and in the policy arena during the last decade.[4] Recently, competition authorities around the world have begun to put an increasing emphasis on the importance of ex-post or retrospective evaluation exercises as a way of informing

[4] A quite controversial discussion has been developed around the contributions which appeared in the Journal of Economic Perspective by Crandall and Winston (2003) and Baker (2003) who assess the merits and demerits of antitrust enforcement in general, and merger control in particular, by using ex-post assessments to motivate their positions. Bergman (2008), Buccirossi et al. (2008), Neven and Zenger (2008), Carlton (2009), Farrell et al. (2009), and Davies and Ormosi (2012) are some other good examples of works that discuss the pros and cons of various ex-post merger evaluation methods and point to several issues on how and who should do these exercises, and their implications for the working of competition authorities. The literature on this topic is, however, much more vast and diverse. Just as an example, in a recent presentation at the FTC, Lanier Benkard and Cecillia Xie report that they "*found 73 'merger retrospective' papers from 1985-2010.*" Several of them were published in "*prestigious journals*" (http://www.ftc.gov/be/workshops/microeconomics/2010/docs/ benkard_slide.pdf). I will mention and discuss several of these studies. Yet, it is not my aim to present an exhaustive discussion of all these and other relevant contributions.

and improving future policy enforcement through a learning process as well as its being a tool to reach transparency and accountability (Kovacic, 2009). Most of the major antitrust jurisdictions have attempted to conduct in-house studies (e.g., FTC, 1999; DG Comp, 2005; OFT, 2005, UK Competition Commission, 2011) or have commissioned such studies to external consultants and academic advisors (e.g., Davies and Lyons, 2005; Pricewaterhouse Coopers, 2005; Buccirossi et al., 2007; Deloitte, 2009).[5] At the same time several academic contributions have appeared, which have tried to approach the problem of merger policy evaluation from different angles: from a case-by-case specific analysis (e.g., Focarelli and Panetta, 2003; Ashenfelter and Hosken, 2011; Ashenfelter, Hosken and Weinberg, 2011; Friberg and Romahn, 2012; Aguzzoni et al. 2012; Björnerstedt and Verboven, 2012), to a broader analysis of merger control enforcement in a jurisdiction over a long time period (e.g., Bergman et al., 2003; Aktas et al. 2007; Duso, Neven, and Röller, 2007; Duso, Gugler, and Yurtoglu, 2011; Duso, Gugler, and Szücs 2012; Davies, Olczak, and Coles, 2011), to the long-term effects of the policy in terms of the deterrence of particular merger behaviors (Seldeslachts et al., 2009; Clougherty and Seldeslachts, 2012; Duso Gugler, and Szücs 2012). Methodologically, several empirical approaches and econometric techniques have been employed for the ex-post evaluation of merger policy, such as the estimation of structural econometric models coupled with simulations, program-evaluation

[5] These are just some prominent examples. Similar studies have been also conducted by smaller authorities (e.g., Canada, Netherlands, Sweden, Switzerland) and several other more specific studies have been conducted by the FTC, UK OFT, UK CC, and the EU.

methods (in particular difference-in-differences analysis), event studies, and surveys.[6]

In this paper, I will mostly draw from my past research on this area and focus mainly on event studies and program evaluation methods, but I will also touch upon other kinds of approaches and will present a selected discussion of some of the many other contributions that have appeared in the last decade. I will position all these recent retrospective studies within the framework developed by Duso, Gugler, and Szücs (2012). In that paper, we propose a general and comprehensive framework to consider the empirical evaluation of merger control decisions. In this process, I will try to highlight specific circumstances and to answer particular questions the different approaches might be best suited to. I will then conclude by suggesting some of the open questions and research areas which seem to be more interesting or promising

4.2 A Framework for Evaluating Merger Policy

Duso, Gugler, and Szücs (2012) is the contribution that concludes the series of papers which were initiated from the basic ideas discussed by Neven and Röller (2002) and constitute the core structure of this article. It took almost 10 years to wrap up, put pieces together, and gain a more complete overview of how merger policy can be evaluated. In Duso, Gugler, and Szücs (2012) we still mostly build on the theoretical assumptions, empirical methods, and data on European merger policy which we used in all the papers of that series. Yet, the most important contribution, I believe, is that we identify three dimensions of merger policy effectiveness which are

[6] In a report prepared for DG Competition (Buccirossi et al., 2007), we provide a general conceptual framework to consider the evaluation of merger decisions and we discuss in length the empirical methodologies which can be used to perform this assessment exercise.

worth being analyzed: predictability, correctness of a decision, and deterrence. These elements are meant to provide a complete evaluation of the entire process of merger control from an ex-ante perspective, passing through the effects of particular decisions, to an ex-post viewpoint that focuses on deterrence, probably one of the key concepts in competition law (e.g., Buccirossi et al., 2008 and 2009). I will then try to build on this schematic and show how the different studies that have appeared during the last decade can be placed within this framework as alternative evaluation tools.

Most of the ex-post analysis in merger control is concerned with the second dimension of effectiveness: the correctness of a particular merger decision. The focus is to understand whether a particular decision achieved the goals set up by the existing legal framework which, in most jurisdictions, is the protection of consumer surplus.[7] As we point out in Buccirossi et al. (2007) where we discussed ex-post merger evaluation in the EU context: *"[t]he aims of an ex-post assessment of a merger decision [..] are 1) to establish whether the market structure arising from the decision is apt to pursue the economic goal of the EU merger control regulation better than the market structures that could have arisen from alternative decisions available to the Commission within its legal powers; and 2) to assess whether the analysis adopted to reach the decision is correct and complete. The first aim is obvious because it is essential to verify if a decision has reached the goal that justifies the*

[7] I will not even attempt here to discuss the important issue of whether consumer welfare is the right standard and goal of merger policy. In Buccirossi et al. (2007) we extensively deal with this issue. Röller (2011) also comes back to it when discussing the objectives that guide the *"when and how decisions are taken"*. He points out that one of the fundamental open questions in this debate is the role of efficiencies (on this issue see also Neven and Zenger, 2008). While I agree that this is one of the key open questions in merger control and, hence, in the ex-post assessment of merger policy, I will not cover this topic in this paper. Yet, the discussion of this issue and the descriptive empirical evidence proposed by Röller (2011) is surely an excellent starting point.

existence of the merger control policy. However, we believe that this is not sufficient because to improve the Commission's decision-making process and to minimize the number of inappropriate decisions it is also necessary to understand why a decision was appropriate or not". The vast majority of the literature I will review in this paper focuses on the first issue, while the second one still seems to be largely under-discussed and is an area where some important contributions can potentially still be done.

4.2.1 Counterfactuals and the Level of Data Aggregation

The evaluation of merger control decisions is essentially an empirical exercise. Hence, before starting to set up the details of any evaluation framework, it is worth discussing two of the fundamental and general issues one encounters when doing policy evaluation: i) the role of counterfactuals; and ii) the level of aggregation of the analysis.

Any policy evaluation exercise is based on a counterfactual analysis which allows a causal interpretation of the policy impact: what would have happened had the policy not been implemented exactly the way it was enforced? The various empirical evaluation methodologies differ in the choice of these alternative counterfactuals. From a methodological perspective, Buccirossi et al. (2007) make an effort to identify what the 'right' counterfactual should be for an ex-post evaluation of merger control decisions. In so doing, we essentially rely on the legal and institutional environment that constitutes the focus of the analysis: the European merger control regulation (EMCR). We point out that *"[r]esponding to this question [e.g., what is the 'right' counterfactual] requires to identify the possible alternative decisions that the Commission could have reached, i.e., the counterfactuals. In principle this may seem a difficult exercise because, if we consider all the possible remedies it could have imposed, there are many*

alternative decisions the Commission could have taken. However, the set of options open to the Commission is much less wide than one could think because the legal framework within which it operates imposes some restrictions. According to the EMCR, the Commission can only impose on the merging firms conditions and obligations that the parties themselves proposed. Therefore, the Commission does not have the power to clear a merger subject to remedies other than those put forward by the parties. Given this legal framework, the set of the possible decisions that the Commission can adopt is strongly determined by the behaviour of the parties during the proceeding. If the parties do not propose any set of remedies, the Commission can only 1) authorize or 2) prohibit the merger; whereas if the parties propose a set of undertakings the Commission can: 1) authorize the merger without imposing any remedy, 2) authorize it imposing the remedies proposed by the parties, or 3) prohibit the merger. Hence, if the parties propose a set of remedies, there are always two counterfactuals, but if the parties do not offer any remedy, there is one, and only one, possible counterfactual, because a conditional clearance would not be legally possible."

While this institutionally-driven theoretical identification seems to be the most appropriate, empirical analysis is very rarely able to create such precise counterfactuals. Even the most flexible and technically advanced empirical methodology—merger simulations based on structural econometrics models—might be unable to cleanly incorporate the subtleties of complex conditions and obligations (for instance, behavioral remedies or some very specific structural remedies). Potentially, however, this empirical methodology gives the researcher the most flexible tool to create different counterfactual scenarios to analyze the effects of one particular merger decision. Indeed, the estimation of the fundamental parameters of specific economic models allows the researcher to use these estimates and simulate alternative situations, which are well-identified within the theoretical model used for the estimation. Thus, for instance, such models have been used to estimate demand elasticities and marginal cost parameters using pre-

merger data. In a second step, these values are used to simulate alternative scenarios such as the change in the ownership structure brought about by the merger (e.g., Hausman, Leonard and Zona, 1994; Nevo, 2000; Ivaldi and Verboven, 2005).

Quite differently, the two main other methodologies used in ex-post evaluations—event studies and program evaluation methods based on difference-in-differences analysis—do not create counterfactuals based on a 'theoretical structure' but rather look for potential and appropriate empirical counterfactuals. The former makes use of stock market data coupled with finance models to determine a theoretically appropriate, estimated rate of return of an asset and, hence, create counterfactual indicators to assess the effects of mergers and merger decisions on market outcomes. The latter looks instead at markets that are similar to those affected by the merger but which have themselves not been affected by the concentration to infer what would have happened had the merger not occurred. Finally, surveys generally use the opinion of market participants to elicit possible counterfactual scenarios. Being based on expectations rather than on 'hard data', this methodology is to a large extent less 'objective' than other methods based on statistical end econometrics analyses (e.g., Farrell et al., 2009). In this paper I will therefore not cover this methodology.[8]

Clearly, the results obtained with each evaluation method crucially depend on the chosen counterfactual. Also undoubtedly, none of these counterfactuals are perfect. Merger simulations make strong structural assumptions on the underlying theoretical model of

[8] Clearly also surveys of the opinions of market participants can be useful to collect additional information and, eventually, support or validate the results of other analyses based on more 'objective' methods (e.g. Buccirossi et al., 2007 and 2008). This is particularly true when one wants to evaluate single decisions for which a good understanding of the industry environment, the involved markets and their development after the merger can be of great help.

oligopolistic competition and consumer preferences. Event studies rely on the assumption of the semi-strong efficiency of financial markets, i.e., the assumption that prices reflect all publicly available information about the involved firms. Finally, program evaluation methods require the identification of a suitable control group, that is, a set of firms or markets which are similar enough to the firms/markets that have been affected by the merger but have not been affected themselves and can be therefore used as a comparison. My take is that each of these methods and their specific counterfactuals might provide insightful information, if carefully applied. On the other hand, if they are not carefully applied they can lead to possibly misleading conclusions which might even be deleterious (e.g., Neven and Zenger, 2008). Hence, the focus of a good empirical ex-post evaluation should be on the carefulness, precision, transparency, and robustness of all aspects of the chosen methodology.

The second general point concerns the level of aggregation of the analysis. Broadly speaking, ex-post evaluations can be conducted at three different levels of aggregation: from a micro, single-merger view, to cross-mergers, cross-industry analysis, to a more macro approach that looks at the general policy impact on various dimensions of economic activity.[9] Personally, I have been involved in studies that have used all three levels of analysis and I do think that all of them have their legitimacy, advantages, and disadvantages. To

[9] I will not talk much about studies based at this last level of aggregation, though I think that they might also provide very useful findings. Buccirossi et al. (2012) is an example of how one can use this quite aggregate information to evaluate competition policy in general. In that paper, we apply newly constructed measures of competition policy quality and intensity (see Buccirossi et al., 2011), and show that a better policy significantly increases industry-wide total factor productivity. While we focus on all areas of competition policy, we show that this positive relation also holds when looking at the quality of the merger policy alone, though antitrust seems to have a stronger and more significant impact.

connect to the previously discussed general framework, its first and third parts – the analysis of predictability and deterrence – are clearly placed in the mid-level or higher-level of aggregation, as these concepts are best measurable when looking at a large cross-section of cases rather than focusing on a single merger. The analysis of the central part of the framework – the correctness of a particular decision – can instead be conducted at all aggregation levels, depending on the data availability, the chosen methodology, and the precise question one wants to answer.

To summarize, as I often explain when I talk about empirical work and, especially, policy evaluation, I do think that this kind of work is like piecing together a big puzzle. There are different methods, different kinds of data, different specific research questions. Each single empirical study, with its method, data, and questions can be seen as a piece of this larger puzzle. All together, these pieces give a more realistic and credible view on how the policy works. Only the convergence and correspondence of empirical results obtained with different methodologies and data, and carefully and cleanly applied, can give confidence of their robustness. In the course of the paper I will try to explain when and how each of these approaches might be more or less useful.

4.3 Are Competition Authorities Making the 'Right' Merger Control Decisions?

Whether competition authorities make the 'right' decision in merger cases is surely one key question in the evaluation of merger policy and is undoubtedly the focus of most of the relevant existing literature. In the general framework I mentioned above, this is the central piece: what we call the 'in fieri' analysis. In this section, I will discuss how three main different methodologies—event studies, program evaluation methods, and simulations coupled with structural estimation methods—can be nested into this evaluation

phase. I will focus more extensively on event studies, since I was mostly involved in projects which used this methodology, but I will also deal with other evaluation techniques.

4.3.1 Event Studies

In an unfortunately reductive way, the quintessence of the discussion on the usefulness of this approach probably goes back to the quote that Neven and Röller (2002) chose: "*it boils down to whether you trust the agencies or the stock market. I'll take the stock market any day.*"[10] I think that this quote is, at least, reductive. It is not a question on whether the stock market is a perfect and omniscient predictor of economic activities which could substitute the accurate analysis of an antitrust agency, but much more a question of what we as researchers are able to filter from those highly informative statistics that the stock prices are.[11] Indeed, in recent years we have become

[10] Bruce Kobayashi, former economist at the US Federal Trade Commission (FTC) and Department of Justice (Antitrust Division) quoted in Fortune Magazine, April 14, 1997.

[11] Event studies have been and still are widely used in all branches of economics to analyze a very wide range of events and policies. As reported by Kothari and Warner (2005), by the end of 2006, there were more than 500 published papers utilizing the event study methodology in different areas of economics. Event studies have also been intensively used to evaluate merger policy both in the US (e.g., Eckbo, 1983, 1992; Eckbo and Wier 1985; Stillman, 1983) and in the EU (e.g., Brady and Feinberg, 2000; Aktas et al., 2007, and my own work). At the same time, they have also been harshly criticized. Some of these critiques are important and well-motivated (e.g., McAfee, 1988; Fridolfsson and Stennek, 2010). Indeed, these motivated critiques are actually very welcome since they have forced scholars to improve and make an even more careful use of this instrument and perform several robustness checks to test whether the main results are affected by

increasingly cautious and additionally careful on the usability of event studies for merger control evaluation. In particular, we have tried to become even clearer on the exact theoretical and empirical assumptions one needs to perform such analyses (e.g., Duso, Gugler, and Yurtoglu, 2011). Moreover, we have increasingly stressed that event studies can best be put to use for a large cross-section of mergers for at least two reasons. First, sometimes we are not only interested in analyzing whether one of the thousands of decisions was correctly made and then, from these single observations, trying to make inference on the policy effectiveness, but rather we are interested in whether the policy as a whole, in all its complexity, was effective. Apart from surveys, which I deliberately left out of this presentation, there is no other approach that allows us to convincingly do that.[12] Second and even more importantly, the main reason to examine a cross-section of event studies is that it might allow researchers to consistently identify relevant tendencies. Indeed, even though dependent variables which are mainly based on the firms' cumulative average abnormal returns (CAARs) might be

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the failing of the crucial assumptions (e.g., Duso, Gugler, and Yurtoglu, 2011).

[12] As noted by Kovacic (2005): *"An agency may learn more about its selection of cases or other inventions if it studies several related matters rather than focusing on a single intervention. For example, the FTC's study of vertical restraints cases in the late 1970s and early 1980s examined a range of matters within individual industries to develop a more general sense of the impact of its resale price maintenance and non-price vertical restraints enforcement program. It may not always be possible to study several matters of a specific type, and, as the FTC-sponsored study of the Xerox abuse of dominance settlement shows, the study of an individual case can be highly useful. Nonetheless, the design of a case-specific evaluation project should consider the possibility of studying two or more matters of a specific type."*

measured with some errors, one might still be able to consistently estimate how the characteristics of the merging parties, their rivals, the mergers, and the past policy enforcement are correlated with the stock market reactions and hence make inference and interpret how these observable characteristics affects the way markets evaluate mergers and merger decisions.

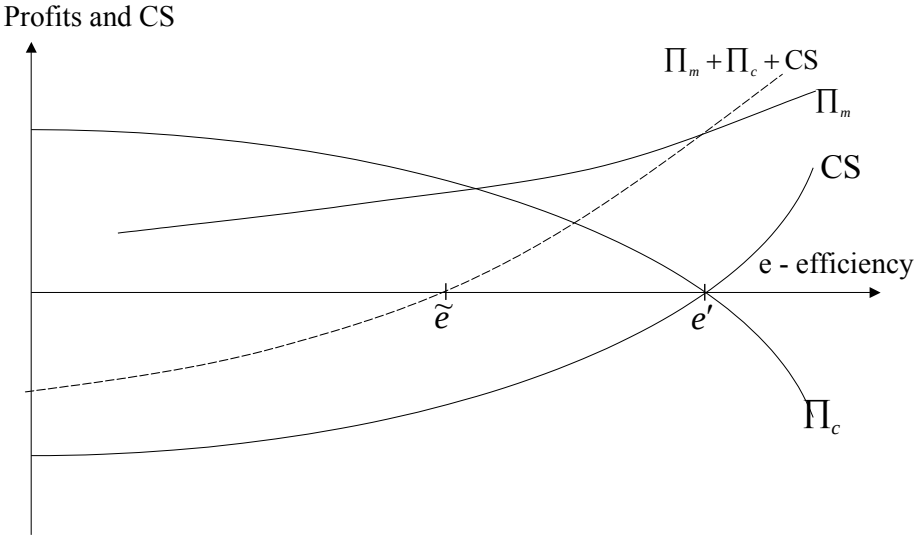
Hence, I still think that event studies might provide a very useful tool or, as I put it above, might prove to be an important piece of a larger puzzle. Clearly, as for any other empirical exercise, one has to be careful and transparent when setting up the estimation framework and discussing the results. Here, I will not talk in length and detail about the many qualifications one has to be aware of when using event studies, since it would take us too far. Yet, I think that they are carefully analyzed and discussed in all the papers in this line of research (Duso, Neven, and Röller, 2007; Duso, Gugler, and Yurtoglu, 2010 and 2011; and Duso, Gugler, and Szücs, 2012).

4.3.1.1 The Framework

The analyses we have used to assess merger policy are based on two key elements: a theoretical identification strategy for anti-competitive mergers and an empirical measurement issue. On top of these two main assumptions, we developed different empirical approaches tailored to answer specific questions and based on regression analysis. The theoretical identification comes from a quite general property of standard static oligopolistic models (e.g., Farrell and Shapiro, 1990). The two main effects of a merger are: i) the increase of the degree of market power of the merging firms *and* their rivals due to the increased concentration in the market; and, eventually, ii) the decrease of the merging parties' marginal costs through the achievement of merger-specific efficiencies. Neven and Röller (2002) explained the logic behind this mechanism 10 years ago in their presentation at this same conference. Logic, by the way, that

goes back at least to the fundamental contribution by George Stigler (1950).[13]

Figure 1 Efficiency, Profits and Welfare



Source: Duso, Neven, and Röller (2007).

Figure 1 gives a graphical characterization of this theoretical argument and represents the consequences of a merger for the profitability of the merging parties and their competitors as well as the consumer surplus. The marginal cost saving achieved by the merger (relative to the common pre-merger level) is represented on the horizontal axis and denominated e (for efficiency). The four curves represent respectively: the *change* in the profit of the merging parties (that is, the level of profit of the merged entity minus the sum of the

[13] This logic is based on a standard static Cournot merger model with homogeneous goods (e.g., Farrell and Shapiro, 1990) but it is easily extendable to other typical models of oligopolistic competition such as Bertrand-Nash competition and differentiated goods.

individual profits of the merging parties before the merger, denoted by Π_m); the *change* in the competitors' profits (i.e., all competing firms not involved in the merger, denoted by Π_c); the *change* in the consumer surplus (denoted by CS); and the *change* in total welfare (defined as the sum of profits and consumer surplus denoted by $\Pi_m + \Pi_c + CS$).

The main implications of this framework are that, if efficiencies are not large enough, rival firms benefit from being left outside a merger in terms of profits and market shares, while consumers are hurt. What is more interesting is that the critical level of efficiencies which makes the merger consumer welfare increasing (e') and, hence, pro-competitive is exactly the same level that makes it unprofitable for the rivals. This leads to our theoretical identification of consumer-welfare reducing mergers: a merger is prevalently anti-competitive if rivals' profits increase after the merger. We used this key identifying assumption in subsequent years and, over time, we have tried to increase the clarity of the generality of such an identification (e.g., Duso, Gugler, and Yurtoglu, 2011 and Duso, Röller, and Seldeslachts, 2010 in a slightly different context). Moreover, we also proposed different ways for empirically verifying whether our main findings are affected by the failure of this key assumption (e.g. Duso, Gugler, and Yurtoglu, 2011).

The second key assumption of our methodology is that event studies are able to measure the change in rivals' profit through the CAARs, which is fundamental for defining the competitive nature of the merger. Being so central to our methodology, we try to be particularly careful on this issue as well. First and foremost, the definition of the rivals in our sample is very accurate. These are the real competitors in the defined product market as they have been identified by the EC in their in-depth investigation. This is a huge advantage of our data in comparison to previous event studies in merger control and answers one of the main original critiques (e.g., McAffee, 1988) advanced against the pioneering work by Eckbo (1985) and Stillman (1985).

Second, and also crucially, we correct for the market expectations about the merger control decisions. On the one hand, efficient markets should be able to predict to a certain extent the way competition authorities work and make decisions. On the other hand, we also assume that there is some private information in the merger control process that can only be acquired through an in-depth antitrust investigation and cannot be ex-ante incorporated into the stock prices. Remember that here we are relying on the semi-strong form of the efficient market hypothesis: only public information is priced in the firms' stocks. The expectations-correction that we propose consists of estimating a probability of intervention equation in a first step as a function of observable merger-specific characteristics. The predicted values from this estimation are then used to correct the CAARs. To clarify, I use an illustrative example. Assume that the measured CAAR around the merger's announcement for the rival firms is 3%. Also, assume that the estimated probability of intervention based on the observable merger characteristics is quite low, say 10%. We then believe that the market, as the econometrician, can make this prediction and thus it does not seem very likely that this merger can be challenged. Then the corrected CAARs, which we defined to be equal to the CAARs divided by 1 minus the probability of intervention, would in this case be 3%/(100-10)%=3.3%.

Third, in a parallel study (Duso, Gugler, and Yurtoglu, 2010) we generate alternative indicators of the merger's profitability based on accounting data to support our measurability assumption (i.e., the CAARs can measure the profitability effect of the merger). We claim that the confidence on the correctness of measurability assumption by means of event studies increases when the two different measures of profitability converge. We then show how and when the accounting-based measures correlate with those based on event studies. In particular, we show that the correlation among the different measures is higher and more significant the larger the event window. This is particularly true for the rival firms. Hence, this

additional piece of evidence gives us greater confidence on the ability of an event study to capture the true effect of the merger as well as some indication of which particular operationalization of the event study to use. Motivated by this analysis, we use event windows which go back to 50 days before the event up to five days after the event for the merger announcement and the phase 2 decision, while we choose a somehow shorter window (-25, +5) for the phase 1 decisions.

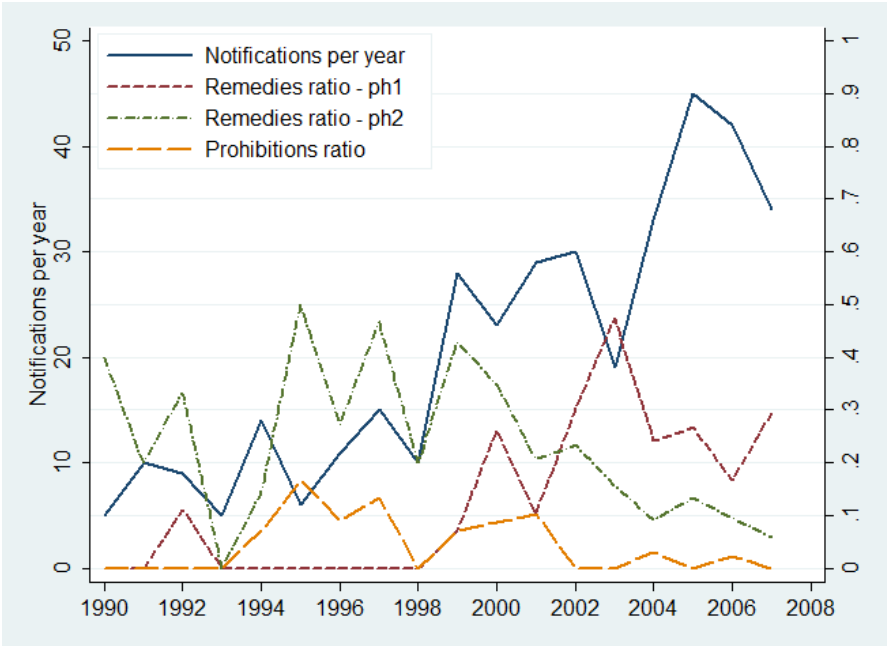
To summarize our setup, we theoretically define a merger to be anti-competitive if its impact on competitors' profits is (sufficiently) positive. We then assume that event studies allow us to measure this change in profit. Hence, a merger is assumed to be anti-competitive if the expectations-corrected rivals' CAARs are positive or, more generally, they exceed a certain threshold Π. Symmetrically, a merger is defined to be pro-competitive if the rivals' CAARs are negative or, more generally, smaller than -Π. In Duso, Gugler, and Szücs (2012), for instance, we consider different threshold levels (0, to 3%, 5%, and 10%). The more demanding these thresholds, the smaller the number of mergers is that can be defined to be clearly pro-competitive or anti-competitive. Thus, some mergers are in neither of the two categories and are labeled as being 'welfare-neutral.' To clarify this procedure I will provide another example. In Duso, Gugler, and Szücs (2012) we mostly use the threshold of 3%. Hence, all mergers for which the rivals' CAARs are lower than -3% are defined to be pro-competitive, all mergers for which the rivals' CAARs are higher than 3% are defined to be anti-competitive, and all mergers for which the rivals' CAARs are in the range (-3%;3%) are defined to be welfare neutral.

4.3.1.2 The Data

To empirically implement the above framework, we collected quite a large amount of data on European merger control decisions. In Duso, Neven, and Röller (2007) we generated the first sample of 168 EU merger decisions for the years 1990 to 2002. Duso, Gugler, and Szücs

(2012) extended this dataset to 2007. From the webpage of the European Commission (EC) we downloaded the public reports for all phase 2 decisions as well as a random sample of phase 1 decisions. From these public reports, we collected information on the merging firms, their rivals, merger characteristics, market definition, and some of the key elements of the decision (e.g., barriers to entry, dominant firm, vertical issues). We then used the Thompson Financial Datastream to collect information on the stock market prices of all involved firms (merging parties and their rivals) as well as market indexes. Finally, we used the Dow Jones Interactive to identify the merger announcement date as the date the first rumor about the specific merger appeared in the press. The final sample used in Duso, Gugler, and Szücs (2012) consists of 355 mergers, 193 of which have been cleared or remedied in phase 1.

Figure 2 **European merger policy 1990–2007: Number of notifications and different actions in terms of notified mergers (sample of 355 mergers)**



Source: Duso, Gugler, Szücs (2012).

Figure 2 gives a graphical representation of our sample which well-reflects the dynamics of the entire population (Duso, Gugler, and Szücs, 2012). The number of notifications steadily increases until 2005 and drops in the last two sample years. The use of remedies in phase 2 and, especially, the percentage of prohibitions decreased over time. Indeed, since 2002 only two mergers have been prohibited. The use of remedies in phase 1 has, instead, steadily increased over time.

4.3.1.3 Type I and Type II Errors

Table 1 reports the number of mergers differentiating among various types of decisions and between pro- and anti-competitive mergers defined by using the less restrictive threshold of 0, that is, a merger is anti-competitive if the rivals' CAARs are greater than zero and pro-competitive if they are smaller than zero. Concerning the decisions, unconditional clearances are associated with Article 6.1.b decisions in phase 1, and with Article 8.1 decisions in phase 2. Similarly, remedies in phase 1 are associated with Article 6.1.b decisions, remedies in phase 2 with Article 8.2 decisions, while prohibitions are associated with Article 8.3 decisions (only in phase 2).

In their first paper, Neven and Röller (2002) talked about *discrepancies* between the stock market expectations and the Commission's decisions. In the following papers, we used a stronger language and talked about type I and type II errors for cases where we find that the EU Commission's decision do not correspond to the stock market assessment. In particular, we define a type I error as occurring if the Commission takes an action in a merger that the market sees as pro-competitive, while we define a type II error as occurring if the Commission does not take any action in a merger that the market evaluates to be anti-competitive.

Table 1 Pro- and Anti-competitive Mergers: Sample Frequencies

	Phase 1		Phase 2			
	6.1.b	6.1.b remedies	8.1.	8.2. remedies	8.3.	Tot.
Anti-competitive (Rivals' CAARs>0)	85	33	17	35	9	179
Pro-competitive (Rivals' CAARs<0)	92	30	12	38	4	176
Total	177	63	29	73	13	355

Source: Duso, Gugler, Szücs (2012).

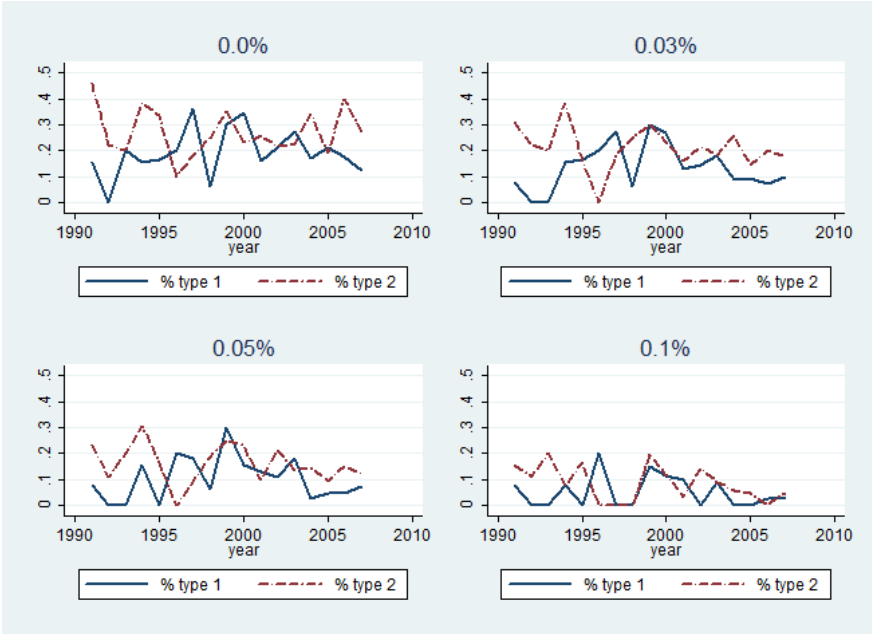
Our findings suggest that the stock market considered four out of the 13 mergers that were prohibited prior to 2007 to be pro-competitive. Following Duso, Neven, and Röller (2007), we define these cases as 'strong' type I errors. Furthermore, in 68 out of the 176 mergers that the market sees as pro-competitive, the Commission allowed the merger under conditions and obligations. We call these cases 'weak' type I errors.[14] Finally, in the 102 out of the 179 cases that the market classified as anti-competitive (85 clearances in phase 1 and 17 clearances in phase 2), the Commission did not take any action and unconditionally cleared the deal. We define these cases to be type II errors.

As we discussed above, however, our empirical identification of the rivals' profitability by means of the CAARs can be affected by measurement errors. In particular, using the less demanding threshold we would define a merger to be anti-(pro-)competitive also in cases when the rivals' CAARs are only slightly positive (negative).

[14] As we noted in Duso, Gugler, and Szücs (2012): *"The definition of type I errors [...] might be more cumbersome. Even if a merger is on average pro-competitive as captured by a negative value for the rivals CAARs, it might still be that it entails some anti-competitive concerns, which could effectively be tackled by means of appropriate remedies. It would then be correct for the EC to intervene and we would wrongly identify this case as a type I error. Yet, also in this, case the choice of a demanding threshold for the definition of pro-competitive mergers might help us to correctly identify true type I errors."*

We therefore experiment with more demanding thresholds. Figure 3 reports the evolution of type I and type II errors over time given the different thresholds.

Figure 3 Proportions of Type I and Type II errors – 1990–2007



Source: Duso, Gugler, Szücs (2012).

According to this graphical analysis, it seems that both type I and type II errors decreased in the latest year of merger control and peaked around 2000. Duso, Gugler, and Szücs (2012), which focuses on the effect of the introduction of the new merger regulation in 2004, show by means of a more precise statistical test that "*the propensity of committing type I errors (action in a pro-competitive merger) decreases by more than 10% with all four thresholds, and in most cases the difference is significant at the 10% level. This is not true for type II errors (unconditional clearance of an anti-competitive merger) whose propensity significantly increases only when we use the 0% threshold, while it does not*

significantly increase with the 3% and 5% definitions, and it even decreases when employing a 10% threshold."[15]

The next step consists of providing econometric evidence regarding the determinants of these discrepancies. Going back to the point I made above on the strengths of event studies, here it is particularly relevant to have a large cross-section of cases. One might in fact be cautious about whether the definition of type I and type II errors is exactly appropriate for each single merger, i.e., whether the dependent variable is measured with errors. For instance, one can think that the event study might be problematic for a specific case because it is particularly difficult to exclude other confounding events which might have created noise in the CAAR estimates. Also, the chosen threshold to define a merger as pro- or anti-competitive can be less appropriate for one particular case than for another. Yet what we want to do at this stage is to look at *tendencies* or correlations among the mergers' ex-ante observable characteristics and the likelihood of the two types of errors and then look at how robust these tendencies are to different specifications. Even if the dependent variable is measured with error, we can get consistent estimates of the effect of these characteristics.

In Duso, Neven, and Röller (2007) we claim that our results are not consistent with the Commission's decisions – being solely determined by the protection of consumer surplus – which would imply that none of the explanatory variables are significant and, hence, the errors are pure noise. We show that the institutional environment—such as the market definition and procedural

---

[15] It is interesting to note that the introduction of the new substantive test with the 2004 merger control reform was partially motivated by the need to "*close a gap in enforcement, which may have led to underenforcement in the past; and secondly, it may add to clarity by eliminating ambiguities regarding the interpretation of the old test, which possibly led to overenforcement in some cases.*" (Röller and De La Mano, 2006). Hence quite a lot of focus was on the reduction of type II errors even more than type I errors.

aspects—as well as country and industry effects systematically affect the likelihood of mistakes. In particular, we show that type I errors are much more likely in phase 1 and when the geographical market is narrowly defined, while type II errors are less likely in phase 2. On the other hand, we cannot support the hypothesis that firms effectively lobbied the Commission for a favorable decision.

Duso, Gugler, and Szücs (2012), extend the analysis to a much larger set of cases and mostly confirm these findings for a longer time period: procedural variables and country and industry effects are significantly related to the probability of committing type I and type II errors. Furthermore, we show that the so-called 'investigation variables' (i.e., variables which are derived from the EC's decision files such as barriers to entry, phase 2, and market definition) significantly increase the likelihood of a type I error. Hence, we claim that these key elements of the decision might be some of the reasons why the EC might have made a mistake.[16] For type II errors, we also observe significant differences before and after the introduction of the new merger regulation in 2004. Moreover, we observe some mild form of firm influence as the likelihood of a type II error is significantly higher the higher the merger's profitability for the merging parties. Finally, we also show that US firms tend to be treated more leniently as the likelihood of type I errors is lower and the likelihood of type II errors is higher when US firms are involved in the merger. This result contrasts with the findings by Aktas et al. (2007) who, by using similar data and an event study methodology, claim that EU merger policy is protectionist.

[16] This goes back to the point I made in the introduction on the aim of an ex-post evaluation. Not only is it important to understand whether the decision is correct or not but also "*whether the analysis adopted to reach the decision is correct and complete*" (Buccirossi et al., 2007).

4.3.1.4 Rent Reversion

The next step in the analysis of the correctness of the merger decisions is proposed by Duso, Gugler, and Yurtoglu (2011). The intuitive basic idea that we suggest is that potentially anti-competitive rents generated by the merger and measured around its announcement—should be dissipated by the antitrust authority decision, if this is effective. We therefore run an event study around the decision date to measure this second effect.[17] The implication is that one should expect a negative relation between the CAARs of merging and rival firms corrected for the market expectations about the merger control decision (Π^{D*}) and the corresponding (corrected) announcement CAARs (Π^{A*}). This is true under a set of assumptions that we discuss thoroughly in the paper. Controlling for several merger-specific characteristics (X_j), the expectations on the size and sign of the slope and intercept of the following relation for each merger *j*, differ among merging firms and rivals (*i*) and depending on the decision (*d=clear, remedies ph 1, remedies ph2, prohibition*):

$$\Pi_{ij}^{D^*} = a_{idj} + b_{idj}\Pi_{ij}^{A^*} + g_i X_j + \eta_{ij} \qquad (1)$$

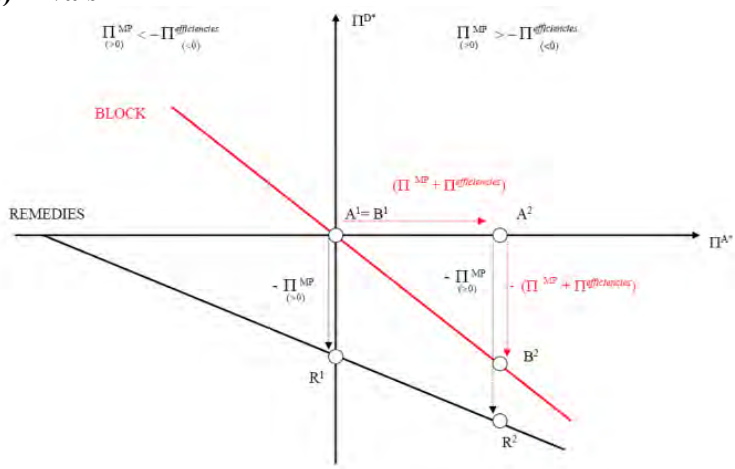
This framework is graphically represented in Figure 4. Neatly, the design of our test provides us with a kind of implicit test of our framework or, more generally, the ability of stock market reactions to capture the rents generated by the merger and by the Commission's decision. We would in fact expect that all kinds of rents (both pro- and anti-competitive) generated by a merger should be completely dissipated if the merger is blocked. We can verify this hypothesis by testing whether the coefficient estimate for the corrected

[17] Notice that event studies are the only methodology that easily allows the separation of the merger and the merger decision effects. Any other methodology which compares the pre-merger to the post-merger situation can at best measure the aggregate effect of the merger and the merger decision. This is another big advantage of event studies.

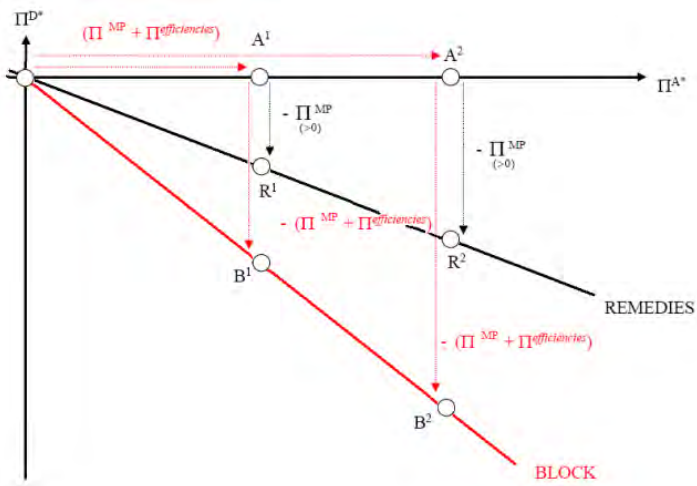
announcement CAARs (Π^{A*}) in the case of a prohibition is statistically significantly different from -1. Indeed, in all regressions and specifications in Duso, Gugler, and Yurtoglu (2011) —and Duso, Gugler, and Szücs (2012) with a larger dataset— we estimate a negative coefficient in the case of prohibitions. Moreover, this

Figure 4 The Duso, Gugler, and Yurtoglu (2011) Framework

a) Rivals



b) Merging firms



Source: Duso, Gugler, Yurtoglu, 2011.

Additionally, our findings suggest that, on average, remedies do not seem to achieve this full rent reversion. Given the heterogeneity of specific decisions that we subsume in the definition of remedies, this is not surprising. We can however exploit different dimensions of heterogeneity and try to single out when the rent reversion is more likely to occur. According to our results, remedies seem to be more effective when the anti-competitive concerns are not too severe, and when applied during the first rather than the second investigation phase. Interestingly, this result is in line with the qualitative observations reported in DG Competition's in-house study (2005), which is based on surveys. As I mentioned above, the concordance of results based on different methods and data is something that should reassure us of the quality of our evaluation and the correctness of our findings. The reason for this, perhaps at first glance unexpected result, is that remedies in phase I are in general easier and more clear cut, the cases being less complex and the bargaining power of the Commission higher given the potential threat it has to open an in-depth investigation, which is very costly for the involved firms. Finally, we also show that the EC appears to learn over time, since remedies seem to be more effective when applied in those industries where a number of remedies have been applied in the past. Most of these results, however, are based on the shorter sample. Duso, Gugler, and Szücs (2012) can only partially replicate them for the post-reform years, especially because almost no prohibition occurred after 2004.

As we concluded in Duso, Gugler, and Yurtoglu (2011): "*We run several robustness checks and show that our results are more in line with the predictions of our framework, when we focus on subsamples for which our maintained assumptions are more likely to hold. We also show that running our test on subsamples where some of our assumptions are less likely to hold, does not seem to have a significant impact on our main findings. We therefore believe we have provided quite robust results on the effectiveness of European merger control.*"

4.3.2 Program Evaluation Techniques: The Difference-in-differences Approach

An alternative methodology to assess the correctness of a merger decision is based on program evaluation techniques and, in particular, on difference-in-differences analyses. This methodology is probably the one which is commonly considered to be the most appropriate for ex-post evaluations among scholars. This is due to the fact that it seems very natural to compare the pre-merger to the post-merger situations to verify whether something has changed. Clearly, however, this is not enough to identify the causal effect of the merger and merger decisions. To make this causal inference the researcher has to control for confounding factors, i.e., other possible forces which might have affected the outcome of interest and are correlated with the merger decision. Hence, the use of more sophisticated identification strategies based on the methodologies developed in the so-called program evaluation literature (e.g., Angrist and Pinske, 2010 for an overview) where 'natural' or 'quasi-natural experiments' are used to estimate so-called 'treatment effects' have been applied in the field of merger evaluation as well.[18] The

[18] As Whinston and Nevo (2010) notice, however, this methodology is also not immune from critiques. They claim: *"The merger example is a good one, but it demonstrates not the 'disorganization' of industrial organization, but rather the limitations of Angrist and Pischke's approach. Angrist and Pischke contrast two possible approaches to merger analysis: one that they describe as the 'transparent analysis of past experience' (that is, quasi-experimental analysis of treatment effects) and the other as the 'complex, simulation-based estimates coming out of the new empirical industrial organization paradigm.' To them, it is hard to see why one might favor the latter over the former. [...] They propose to look at outcomes in past mergers [to address the tradeoff between market power and efficiency]. Of course, simply looking at the average effect of all previously consummated mergers is unlikely to provide a very useful prediction. Angrist and Pischke never provide details, but apparently what they have in mind when they suggest the use of 'direct'*

main idea is to compare how two very similar groups of firms/markets developed before and after the merger. Of these two groups, one has been treated by the merger, while the other is used as a control group. The difference in the outcome variable among the two different groups should identify the causal effect of the treatment (therefore difference-in-differences).

This methodology is surely very appealing and has been extensively used in the last decade to perform ex-post merger evaluations.[19] Yet, it is also not perfect and has its own problems. First and foremost, it might be very difficult to define a reasonable counterfactual (i.e., control groups) by which to causally identify the merger effect. Some recent contributions (e.g., Ashenfelter and Hosken, 2011) have simply used the competitors to the merging firms as a benchmark. While this might be motivated, it is eventually problematic, since the competitors are as much affected by the merger as the merging firms.[20] Some cleaner identifications strategies

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evidence is some sort of predictive model that averages over the outcomes in 'similar' past mergers to predict the effects of a current merger."

[19] As Ashenfelter, Hosken, and Weinberg (2011) mentioned "*[e]xamples include Borenstein (1990) and Kim and Singal (1993) studies of airline mergers, Focarelli and Panetta (2003), Sapienza (2002), and Prager and Hannan (1998) studies of banking mergers, and Hastings (2004) Taylor and Hosken (2007), and Simpson and Taylor (2008) studies of gasoline mergers. Chandra and Collard-Wexler (2009) estimate the price effects of Canadian newspaper mergers."* Hunter et al. (2008) also provide an overview of ex-post studies based on the difference-in-differences methodology.

[20] In Aguzzoni et al., (2011) we discuss this issue: *"[...], using the competitors as a control group has the disadvantage that these prices may be affected by the merger and, hence, represents an imperfect counterfactual. Indeed if the merger allowed the merging parties to raise their prices, their rivals may have reacted by increasing their own prices as well in the post-merger equilibrium (this effect is*

have also been recently proposed. For instance, researchers have used products in a market different from the one affected by the merger but which are similar in characteristics and life cycle (e.g., Ashenfelter, Hosken, and Weinberg, 2011). Other researchers made use of the existence of local markets, some of which have been affected by the merger and some others which have not (e.g., Hastings, 2004).

In a recent study we adopted a similar identification strategy (Aguzzoni et al., 2012).[21] We analyze the merger between two major book resellers in the UK—Waterstone's and Ottakar's—which was cleared by the UK Competition Commission (CC) in 2006. The book retailing product market is characterized by locally differentiated sub-markets or areas. Consumers tend to buy books at the local book store and do not perceive book stores in other cities to be substitute outlets: distance matter. In some of these areas, both merger parties were active before the merger —what the CC calls the *overlap areas*— while in some others only one of the two firms operated pre-merger (*non-overlap areas*). If competition indeed works at the local level, then one would expect the merger to affect prices in the overlap

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thoroughly discussed in Ashenfelter et al, 2011). This effect takes place under a variety of market conditions and, in particular, in the differentiated product Bertrand model commonly used to simulate mergers (introduced in Deneckere and Davidson, 1985). However, for a large class of demand systems Deneckere and Davidson (1985) show that the merging firms increase their prices by a greater amount than their rivals. Therefore, our analysis identifies a first-order effect of the merger, in terms of the change in the prices of the merging parties, and a second-order effect, in terms of the change in the prices of their rivals." Hence, in some cases it might be at least possible to identify whether the merger had anti-competitive effects by using the competitors as a control group.

[21] The paper is partially based on a research project that we undertook for the UK Competition Commission (Aguzzoni et al., 2011).

areas more than in the non-overlap ones. We chose 20 overlap areas which roughly correspond to towns and which have been identified by the CC in its original analysis. For each area we chose one or more stores. We then used propensity score matching based on observable area characteristics (e.g., population, population density, education level, internet penetration, income, number of supermarkets, number of specialist stores, etc.) to identify a suitable control group. This is constituted by those areas among a selection of non-overlapping areas which are similar enough to the overlapping ones in terms of those observable characteristics. While we believe that this is a reasonable way to identify a suitable control group, if consumers were to search for books stores beyond their home areas, the merger's effect might be under-estimated.[22] Our final sample is constituted by a total of 60 stores in 50 areas.[23]

Finally, we selected a random sample of 200 book titles sold in the different areas divided into different categories (best-sellers, deep-range, evergreen, top sellers) and with different individual characteristics, to cover the breadth of this heterogeneous product market. By comparing the development of the prices for these books before and after the merger in the two areas, we then identified the

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[22] This identification strategy is similar to that proposed by Hastings (2004), who uses the local market segmentation in the Californian gasoline retail market to assess the merger between ARCO and Thriftly. She uses gasoline stations further than one mile from a Thrifty station as a control group. For an alternative identification strategy based on co-location see also Dafny, 2009.

[23] To be more precise, quoting from Aguzzoni et al. (2012), "*for the overlap areas, we draw the 30 stores from 20 different areas (out of the 33 overlap areas identified by the CC). For 10 overlap areas we select one store for each chain. Then, to increase the coverage of overlap areas, we draw the other five Waterstone's stores from the other five areas and the last five Ottakar's stores from another different set of five areas. Hence, we cover a total of 20 different overlap areas. As for the control group, we select 30 non-overlap areas: 15 in which we observe only Waterstone's stores and 15 with only Ottakar's stores.*"

'merger treatment effect'. We do not find any significant difference in prices after the merger between non-overlap and overlap areas where the merger should have been reasonably expected to generate the strongest effect. We therefore conclude that the decision to allow the merger without remedies was correct.[24]

While we are quite confident with our identification strategy, it strongly relies on the specificities of the merger under study and, in particular, on the existence of geographically separated local product markets. As Nevo and Whinston (2010) put it: "*[f]inding such a control group is likely to be harder, however, in many other industries. For example, Angrist and Pischke offer Ashenfelter and Hosken (2008) as another example of direct evidence of mergers' effects. Ashenfelter and Hosken examine the price effects of five national branded consumer product mergers and use private-label products as a control group for the products of the merging firms. However, retail prices of private-label products can be affected by a merger of branded manufacturers if marginal costs are not constant, if private-label producers are not perfectly competitive, or if retailers adjust retail margins of private-label products in response to wholesale price changes.*"

The previous discussion leads to a second major issue of the program evaluation methodology: the fact that in most cases mergers cannot be considered as exogenous events. Put another way, the error term in the main equation (the price equation in the previous example) might be correlated with the decision to merge. This endogeneity might come from the presence of omitted or unobserved factors which correlate with the pricing and the merging decision simultaneously, or from reverse causality. Again, the identification

[24] In the paper we present further analyses at the local as well as the national level, since it is not completely clear whether price competition occurs at the local or at the national level. We propose some additional identification strategies when we look at the aggregated national data. For instance, we use the price of books in the most competitive segment as a possible counterfactual.

strategy based on geographically separated markets can be helpful in this case. Indeed, pricing decisions at the local level should respond to local shocks while the merging decision is more likely to have been taken at the national level, making the endogeneity concerns less severe. This is again an argument which is closely tailored to the specific example under consideration. Also in this case, Nevo and Whinston (2010) help to clarify: *"we are more troubled by Ashenfelter and Hosken's (2008) exogeneity assumption, which they adopt with little discussion or justification. For example, one of the acquisitions they study is the purchase of the Chex brand by General Mills. Ralston, which sold Chex to General Mills, produces many private-label products and according to reports in the press was selling Chex to focus on its private-label business. Therefore, it seems likely that this event could be related to unobserved changes in the demand for private-label products."*

The bottom line of this discussion is that the powerfulness of this methodology might also be undermined by the failure of some of its crucial assumptions and, in particular, the choice of the wrong control group. Yet, a careful study based on differences-in-differences methods can, I believe, provide the most precise and reliable information on the effects of a single merger. Indeed, once the correct control group has been identified, the researcher can reproduce the analysis by using different outcome variables and, hence, measure the merger effects along different dimensions.

The final point on this methodology concerns one of the general issues that I mentioned at the beginning: the unit of observation. As it may have become clear from the examples that I have made, this methodology is generally quite data intensive. Not only does the researcher need the price (or other outcome variable) of several goods and possibly several markets affected by the merger to enhance the number of observations to a level which allows a serious econometric analysis, but she might also need more information to control for the goods' characteristics as well as to define the suitable control groups. This implies that this method is surely highly adequate for analyzing a handful number of decisions, but it cannot

easily and especially cleanly and convincingly be applied to a large range of merger cases. Thus, it might not be the right instrument to evaluate an entire policy over a long period of time.

An interesting (partial) exception to this last point might be represented by meta-studies such as that of Kwoka and Greenfield (2012). They collect information on 48 'retrospective studies' on the price effect of US mergers consummated in the 1970–2000s period. Most of these mergers have been investigated by the Department of Justice (DOJ) or Federal Trade Commission (FTC). For these cases, they also collect information on prior industry conditions, which they then use in a final regression to explain the determinants of price changes after the merger. On the descriptive side, they find that the US antitrust authorities commit both type I and type II errors as we did for Europe with a different methodology.[25] Even more worryingly, they find a large, positive average price increase after the merger of ca. 6% in their sample of 58 price-effect estimates in the 48 analyzed transactions. They conclude that: "*the remedies imposed–divestiture and conduct or conditions remedies–are not generally adequate to the task of preserving competition. Price increases persist in the face of these remedies, and more so in cases where non-structural conduct or conditions remedies are employed. These results indicate that stronger policy measures–outright opposition or structural remedies instead of conduct/conditions approaches–may be warranted in more cases than they are at present applied.*"

These results seem to conform to those that we obtained with a different methodology and using European data, which has

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[25] They claim "*the evidence reveals substantial frequency of cases where the agencies take actions and impose either structural or conduct/conditions remedies, although that frequency has declined over time. Moreover, there is evidence that agencies are capable on average of correctly distinguishing cases that do not threaten competitive harm from those that do. Yet we find much variation and error in that process, so that while some benign transactions are challenged, more seem to be permitted despite competitive problems.*"

somehow strengthened the concluding message: merger policy is far from being perfect and there is large room for improvement. Ex post-evaluation studies of a different nature can be useful instruments to reach this goal. Yet, while the approach followed by Kwoka and Greenfield is certainly very useful, one of its major problems is the issue of the sample selection (e.g., Carlton, 2009). Indeed, the sample of merger retrospective studies used in their analysis is not representative of the population of mergers. Hence, general conclusions on merger policy might be more problematic than those based on a random sample of cases as in our work.

4.3.3 Merger Simulations and Structural Estimation Methods

The last method to evaluate the correctness of merger decisions might be based on structural econometric methods coupled with merger simulations. This methodology has proven to be a very useful and powerful ex-ante instrument to assess merger effects. Notwithstanding Angrist and Pischke's (2010) legitimate critiques, it possibly allows the most precise and state-of-the-art way to predict the effect of a merger, as it is well-motivated and discussed by Nevo and Whinston (2010) and Einav and Levin (2010).[26] Indeed, several

[26] While discussing Nevo's (2000) strucutral apporach to estimate the effect of mergers on the price of ready-to-eat breakfast cereals Angrist and Pischke (2010) note its limitations: "*The postulated demand system implicitly imposes restrictions on substitution patterns and other aspects of consumer behavior about which we have little reason to feel strongly. The validity of the instrumental variables used to identify demand equations—prices in other markets—turns on independence assumptions across markets that seem arbitrary. The simulation step typically focuses on a single channel by which mergers affect prices—the reduction in the number of competitors—when at least in theory a merger can lead to other effects like cost reductions that make competition tougher between remaining*

academic papers have adopted this approach in the last decades to assess mergers. What is even more relevant is that the use of simulations based on structural demand estimations have been increasingly used in actual merger control enforcement during recent years. Yet there are very few studies that use merger simulations alone to perform an ex-post assessment of a merger decision.[27]

This methodology builds on a full model of market competition. Generally, it is assumed that goods are differentiated and a structural demand estimation is performed to recover own- and cross-price elasticities based on pre-merger data. This step is fundamental, as the mark-ups chosen by firms for each of their brands—which can be seen as a direct measure of the extent of their market power—crucially depend on the substitution possibilities the consumer have. Hence, the effect of a merger can be best measured by understanding these substitution patterns. In most of the existing empirical studies, different versions of a random utility model such as the logit model (e.g., Werden and Froeb, 1994), the nested logit model (e.g., Ivaldi and Verboven, 2005), or the random coefficients model (e.g., Nevo, 2000) have been used to model consumer choices and estimate elasticities. Yet, other approaches have also been adopted, such as a model of multi-budgeting utility maximization coupled with an Almost Ideal Demand System (e.g., Hausman, Leonard, and Zona, 1998) or semi-parametric distance-metrics models (e.g., Pinkse and Slade, 2004).

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producers. In this framework, it's hard to see precisely which features of the data drive the ultimate results."

[27] One prominent exception is Pinkse and Slade (2004) who "*attempt to assess the effects of actual mergers and to predict how unsuccessful mergers would have affected the industry.*" Slade (1998) also uses simulations to estimate the impact of a divestiture in the UK beer market.

From the supply side, static models of oligopolistic competition have been generally assumed, where multiproduct firms compete à la Betrand-Nash in prices. Since the firms' conduct is assumed and price elasticities can be estimated with the aforementioned demand models using pre-merger data, it is then, in principle, possible to recover marginal costs from the equilibrium price-cost margins.[28]

At this point, the researcher has all the relevant parameters (a full matrix of price elasticities and the brand-specific marginal costs) to simulate different scenarios such as, for instance, the merger of different brands competing in the market. A fictitious ownership matrix that reflects the possible mergers can be assumed, the first-order condition for the new entities can be derived and, hence, the new equilibrium prices, profits, and consumer surplus can be calculated. Moreover, one can change other assumptions in the model to simulate other merger-related aspects. For instance, a change in the firm's conduct (i.e., the existence of coordinated effects) or the existence of merger-specific efficiencies expressed as a reduction of the marginal cost can be assumed and simulated. Thus, one can analyze how these possible changes might affect the post-merger equilibrium. Most notably, researchers have tried to calculate the level of necessary efficiencies to make a particular merger consumer-welfare increasing (e.g., Ivaldi and Verboven, 2005).

While this is a clear and nowadays quite standard procedure for simulating the potential effects of a merger, it is not really clear how exactly one could use this methodology in a retrospective ex-post assessment of merger control decisions. First, it is not clear which data should be used to estimate demand and supply parameters. Especially the latter, the marginal costs, could and actually should be affected by the merger. This would call for the use of ex-post data in the estimation of post-merger marginal costs. The researcher could

[28] The supply side can also be estimated to enhance the precision of the identification of the cost parameters (e.g., Berry, Levinsohn and Pakes, 1995). Indeed, this is done in most merger simulations.

then potentially compare the pre-merger costs to post-merger ones to verify whether the merger led to efficiency gains. Clearly, this simple before-and-after comparison might be criticized for the same reasons I discussed above: the change in marginal cost which is eventually observed might also be due to factors other than the merger. Hence, a causal interpretation of the comparison might be difficult.

As I anticipated in section 2.1, another possible use of merger simulations for an ex-post analysis could be the study of the impact of alternative decisions made by the antitrust authority such as possible alternative divestitures. One can, for instance, simulate that some brands (assets) acquired by the merging party could have been divested to rivals or potential entrants. Or, if a divestiture indeed took place, one could simulate alternative divestitures. Moreover, simulations might be a particularly useful instrument to analyze the effect of a prohibition. Yet, to be different from an ex-ante analysis, I think, this exercise should be conducted using ex-post data to capture the fact that the market conditions might have changed after the merger. As I mention above, it might be quite difficult to credibly identify which changes are due to the merger and which are due to other factors. Probably these kinds of difficulties are one of the main reasons why there is almost no single study that has followed this path.

Instead, what most researchers have focused on in the last couple of years has been to verify how accurately merger simulations can predict actual outcomes. This can also be seen as an ex-post assessment, especially if the merger simulations have been used to support decisive arguments to settle the case. Peters (2006) is one of the first papers to perform such an analysis and he has been followed by several other contributions such as Weinberg and Hosken (2008) and Weinberg (2011) with US data and Björnerstedt and Verboven (2012) and Friberg and Romahn, (2012) with European (specifically, Swedish!) data. All these studies encompass two main steps. First, the merger effect is estimated ex-ante by means of merger simulations using pre-merger data. Second, ex-post data on prices

are collected some years after the merger and a difference-in-differences analysis is used to estimate the 'true' effect of the merger on prices. Finally, the ex-ante predictions are compared to the ex-post assessments. The results of these studies cannot be easily generalized and are quite mixed. Sometimes merger simulations seem to underestimate the 'true' price effect of the merger, sometimes they seem to over-estimate it and yet sometimes they seem to appropriately measure it.

Notice, however, that in all these studies it is implicitly assumed that the retrospective assessment made through the difference-in-differences exercise provides a correct estimate of the 'true' merger impact on market prices. This is then the benchmark against which the performance of merger simulations is assessed. As correctly pointed out by Friberg and Romahn (2012), however, "*we find that our difference-in-difference estimation captures the observed price changes, but caution [is due] that the identified effects are sensitive to the choice of treatment and control groups as well as the definition of the pre- and post-merger periods.*" The point I want to stress here is similar to what I have highlighted above: if the counterfactual is not carefully chosen, it is not clear that the difference-in-differences estimation can provide the 'correct' effect of the merger and, hence, that it can be used to evaluate the correctness of the predictions made by means of merger simulations.

To conclude, I think that these recent developments in the literature, which try to put together and directly compare estimates obtained with different methods, are very welcome since they enhance our understanding of the implications of mergers and merger decisions and force researchers to be clear and transparent on the open issues which might affect their results. Moreover, in most of these papers, researchers have highlighted possible avenues to improve the ability of the two different methodologies to correctly capture the merger effects. Yet, these methodologies and approaches can be useful to understand in-depth some specific decisions but

certainly not to perform a more general assessment of the entire merger policy.

4.4 Ex-ante and Ex-post Effectiveness Analysis

As I mentioned in section 2, a complete assessment analysis should not only look at the correctness of a particular decision, but also at how this decision might affect the future market developments as well as the firm's incentive to propose different kinds of mergers. Hence, Duso, Gugler, and Szücs (2012) proposes looking at two related and more general concepts: i) the predictability of merger decisions, which might be related to the concept of legal certainty and ii) their long-term effects on market behavior in terms of deterrence.

4.4.1 Is Merger Control Predictable?

The predictability of merger policy is probably the concept that has mostly shaped the methodological quarrel between legal scholars and economists on the design of merger control institutions and policy enforcement. In a perhaps simplistic way, the notion of predictability was (and still is) used as a counter argument against the developments toward an application of theoretically founded, effect-based, economic (and econometric) techniques in merger evaluations. This debate was particularly enflamed in Europe at the beginning of the new millennium, when some fundamental institutional changes were brought about by and together with the introduction of the new merger regulation in 2004.[29] It is, however, not a new debate and it finds its roots in the US during the 1950s and

[29] See Lyons (2004 and 2009), Vickers (2004), and Duso, Gugler, and Szücs (2012) for in-depth discussions of this reform.

1960s (e.g., Smith, 1957 and Elman, 1965). Despite idiosyncratic and, I think, some useless discussions, there is actually quite a broad consensus among scholars from all disciplines, policy makers, judges, the business, and consumers that a transparent and predictable (yet not simplistic!) merger policy is beneficial.

Indeed, competition authorities see transparency and predictability as central issues. For instance, Carl Shapiro (2010) reports that the US Assistant Attorney General Varney *"explained [...] that a major goal of revising the [US merger] Guidelines [in 2010] was to provide greater transparency [...] and reduce the gaps between the Guidelines and actual agency practice -- gaps in the sense of both omissions of important factors that help predict the competitive effects of mergers and statements that are either misleading or inaccurate."* Moreover, in his Lewis Bernstein Memorial Lecture in 2008, Thomas O. Barnett, the Assistant Attorney General at DOJ Antitrust Division U.S. Department of Justice, notes *"[f]irst, the Division has made great strides in improving the transparency of its merger decisions. In addition to the Horizontal Merger Guidelines, the Division has taken the following steps: Issued 15 merger closing statements since FY2003; Filed 38 merger Competitive Impact Statements since FY 2003; Issued the merger data release in 2003; Released the Merger Remedies Guide in 2004; and Issued the Commentary on the Horizontal Merger Guidelines in 2006 (together with the FTC). Such transparency enhances the ability of businesses to predict our enforcement response on both liability and remedy, leading them to propose fewer problematic mergers or to more quickly propose remedies that we will find acceptable."*

Similarly, DG Competition is concerned with the transparency and predictability of its proceedings. For instance, a press release on January 6, 2010, reports: *"[d]etailed explanations concerning how European Commission antitrust procedures work in practice have just been published by the Commission's Directorate General for Competition (DG Competition) and the Hearing Officers on the Europa website in order to further enhance the transparency and the predictability of Commission antitrust proceedings. The explanations are outlined in three documents,*

namely Best Practices for antitrust proceedings, Best Practices for the submission of economic evidence (both in antitrust and merger proceedings) and Guidance on the role of the Hearing Officers in the context of antitrust proceedings. The documents will make it easier for companies under investigation to understand how the investigation will proceed, what they can expect from the Commission and what the Commission will expect from them."[30]

The role of ex-post studies might be central for the predictability of merger policy. Indeed, the categorization, organized collection, and evaluation of relevant data on enforcement decisions as well as the characteristics of the analyzed mergers can help companies, lawyers, judges, and researchers to make more precise inference and predictions on the likelihood of certain outcomes. The European Commission has been particularly transparent on this issue by extensively and publicly reporting on any single of the over 4,000 cases notified since the introduction of the first merger regulation in 1990. Other major jurisdictions have improved on this issue. As a general best practice having been personally involved in several evaluation exercises, I would strongly suggest that smaller competition authorities also keep a formal track of all their activities and increase their accountability and transparency by making most of this data easily available for researchers. I will come back to this point in the conclusion.

In Duso, Gugler, and Szücs (2012) we approach this issue in a quite 'statistical' manner. The main question one wants to answer is whether it is possible to predict the decision of a particular antitrust agency.[31] Then, one can just operate as econometricians do. One can define a set of observable characteristics which (should) play an

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[30] See: http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/2.

[31] This is in line with what Shapiro (2010) claims: "[...] the revised Guidelines, by increasing transparency and providing more up-to-date guidance, should allow the business community to assess more accurately how the Agencies are likely to evaluate proposed horizontal mergers."

important role for antitrust decisions, assume that there are unobservable characteristics which can be subsumed in a random error term with a certain distribution, choose some properties for this distribution, and estimate an outcome model accordingly. This exercise turns out to be quite useful. First, it is useful since it forces the ex-post evaluator to think about the economics of merger control and categorize the key economic concepts which should drive merger decisions and how they are measurable. Second, it is useful to think about the dynamics of merger control procedure: Who knows what, at which time, and how this information acquisition could be (strategically) used (e.g., Lagerlof and Heidhues, 2005).

Accordingly, in Duso, Gugler, and Szücs (2012) we differentiate between two kinds of models: first, the so-called 'ex-ante' model, which is solely based on variables which are observable and measurable prior to the decision being taken (e.g., size of the firms, their geographical provenience, industry under consideration, kind of proposed merger, etc.). And second, the 'investigation model' which instead also makes use of the information which is made available during the decision (e.g., market definition, procedural variables, existence of entry barrier, etc.). While being more problematic from the econometric point of view, as most of the explanatory variables in this second set of relevant factors might be potentially endogenous, this approach might well be motivated. First, if the scope is not to make causal inference but just predictions, then the potential endogeneity of these variables is less of an issue. Second, one might also think that all actors involved in the merger control process have more or less precise expectations about those central features determining a decision. The more predictable the process is, the closer the expectations are on the values that these potentially explanatory variables might take to the observed outcomes. Hence, these variables can be seen as a proxy for these expectations.

We apply both models to the data from EU merger control cases between 1990 and 2007 discussed above. Even the simplest ex-ante

model is able to correctly predict the intervention outcome with over 70% probability. As expected, adding the investigation variables increase this value to over 90%. In both models, we observe an increase in the predictability of merger decisions following the introduction of the new merger regulation in 2004. Among the most important determinants of intervention, we identify mergers involving firms from the US and cross-border mergers, which are significantly *less likely* to be challenged. It is more likely to observe an action (i.e., prohibition or remedies) for full mergers, conglomerate mergers, and mergers where the involved parties have high market values. Moreover, a high working load for the EC as measured by the number of lagged notifications decreases the number of intervention post-reform. As expected, the likelihood of intervention significantly increases with the existence of barriers to entry and the presence of a dominant firm as well as when the market is narrowly defined.

Similar analyses have been performed by several other authors with other datasets. Indeed, some the first evaluation exercises focused on finding factors that explain the decisions and, in particular, on the question of whether the criteria which are at the basis of the decision (i.e., market shares, barrier to entry, dominance etc.) are indeed in line with the final outcomes. These kinds of studies are therefore closer to our 'investigation model'. Khemani and Shapiro (1993), Bergman, Jakobsson, and Razo (2005), Coate (2005, 2009), Bougette and Turolla (2008), Bergman et al. (2010), Garrod and Lyons (2012), and Szücs (2012) are some examples along this line. Yet, the logic of some of these works was a bit different and the focus on those factors which can be subsumed from the decisions as main *determinants* of the intervention outcome more problematic as they might not be exogenous or predetermined to the decision outcome.

Clearly, this exercise could be extensively and routinely used even internally by competition authorities who are possibly best equipped for keeping track of their enforcement activities. This

would force them, for example, to keep a clean record of easily accessible data on the basic characteristics of the mergers that have undergone a scrutiny, the authority's decisions, the characteristics of the deals, and the involved firms. Indeed, Froeb et al. (2004) report on the recent effort of the US Federal Trade Commission (FTC) in collecting data and pursuing retrospective merger studies. They mention "*[...] since the early 1980s the FTC has devoted significant resources to the analysis of horizontal merger outcomes. Currently, Bureau staff are conducting retrospective analyses of both general merger policies and specific merger cases. These studies fall into two groups. The first set of studies are largely descriptive of previous government activity. The second set of studies estimates either the competitive effects or efficiencies of specific mergers.*" The kind of approach proposed in this section would be a way to make the first set of studies perhaps a bit less descriptive and a bit more useful. Furthermore, to make this information easily accessible to researchers would be an additional step toward increasing the transparency and accountability of the agency.

4.4.2 Does Merger Policy Deter?

Some recent theoretical contributions (e.g. Sørgard, 2010; Nocke and Whinston, 2010 and 2012), have started to look at optimal merger policy in a dynamic framework. They recognize that a policy decision today does affect the way firms and the agency might behave tomorrow. Thus, if researchers aim at evaluating the effectiveness of merger policy, they cannot avoid thinking about these indirect but in principle very important effects. Indeed, some decisions which might seem to be disproportionate and incorrect in the single case under scrutiny in the short run, might be the most effective way to enforce the policy in the long run, as they would eventually deter firms from proposing clearly anti-competitive mergers in the future. I do therefore think that an in-depth ex-post merger policy evaluation exercise should look at whether and how

merger control deters. Notice that this is not only peculiar to merger policy but is rather a fundamental aspect of any kind of legislation and competition policy in particular (e.g., Buccirossi et al., 2008, 2009, 2012).

Empirical analyses that look at the deterrence properties of competition policy in general and merger control in particular are still very scarce. Joe Clougherty and Jo Seldeslachts are among the very few scholars who tried to empirically analyze this issue. By means of two different databases and two related methodologies, they look at whether particular merger decisions (i.e., remedies and prohibitions) deter merger behavior. In a first study, Seldeslachts, Clougherty, and Barros (2009) use data from a panel of antitrust jurisdictions in OECD countries over the period 1992–2003 and look at how remedies and prohibitions intensities, expressed as the number of such decisions over the number of notifications in a given year, and jurisdiction affect the future number of merger notifications: what they call the *'frequency effect.'* They find that only the former and not the latter deters mergers. In a subsequent paper (Clougherty and Seldeslachts, 2012), they instead focus on US merger policy in the period 1986–1999. They apply the logic borrowed from the economics of crime literature and look at how the conditional probabilities for eliciting investigations, challenges, prohibitions, court wins, and court losses in one particular industry and year affects the subsequent composition between horizontal and vertical mergers in the following years: what they call the *'composition effect.'* They show that second-request investigations and, even more so, antitrust interventions (i.e., the challenge rate) negatively affect both the total number of mergers and the ratio between horizontal to total notified mergers. They conclude that a tougher merger policy reduces merger activities but in particular makes firms move away from potentially more problematic horizontal mergers toward vertical mergers that are more likely to be efficiency-increasing.

Duso, Gugler, and Szücs (2012) build on the logic developed by these two studies and move a step ahead. Instead of looking at the

numbers of mergers or the relative frequency between horizontal vs. vertical mergers, we use the information on the competitive nature of each single merger. Hence, we move from an aggregate unit of observation at the industry/jurisdiction level to the single merger. Based on the identification strategy discussed in section 3.1, we categorize each of the over 300 EU mergers in our dataset as being anti-competitive (rival CAARs above a certain threshold Π), pro-competitive (rival CAARs below a certain threshold - Π), or welfare neutral (rival CAARs within the range [-Π, Π]). We then use a multinomial logit regression framework to explain the competitive nature of the merger as a function of some merger observable characteristics and, in particular, the past decisions of the European Commission in terms of remedies, prohibitions, and merger withdrawals. These policy variables are constructed by using not just our sample but rather the entire history of over 4,000 mergers analyzed by the EC in the period 1990–2007. We show that the prohibition-to-notification ratio significantly deters anti-competitive but not pro-competitive mergers. Hence, the toughest of all possible policy instruments seem to work well in terms of optimal deterrence. We also observe similar results for both the phase 1 and phase 2 withdrawal ratios after the introduction of the new merger regulation in 2004 when withdrawals seem to have almost 'substituted out' prohibitions. The deterrence effect of remedies is, instead, limited. Only phase 1 remedies seem to deter anti-competitive mergers and only after 2004. Phase 2 remedies seem, on the contrary, to encourage such combinations. Also in this case as for our rent-reversion regression discussed in section 3.1.4, this is not completely unexpected given the heterogeneity among different kinds of remedies and, additionally, due to the fact that phase 2 remedies might signal a less tougher antitrust stance than prohibitions.

All in all, these studies provide some first and, I think, important empirical evidence of the deterrence properties of particular merger policy instruments. Yet this issue is still very unsettled and it is

unsatisfactorily researched. This is even more so since most of the actors involved in merger policy seem to agree on the central nature of this issue as supported by Seldeslachts, Clougherty, and Barros(2009) when they quote the 2001 submission of the US Department of Justice to the US Congress in 2001 "*we have not attempted to value the deterrent effects […] of our successful enforcement efforts. While we believe that these effects […] are very large, we are unable to approach measuring them*."

4.5 Conclusions

In this paper I have tried to give an overview of the ongoing research on ex-post merger evaluation which has been developed during the last decade. In doing this, I over-proportionally focused on my own research agenda, methods, and results not because I find them more convincing but simply because I am more acquainted with them. Following Duso, Gugler, and Szücs (2012) I structured the analysis on a framework which tries to encompass three fundamental phases of effectiveness evaluation: ex-ante predictability, correctness of the decision, and ex-post deterrence. I focused mostly on the second instance since most existing retrospective evaluation studies can be placed at this level of the analysis. I talked about different methodologies with a particular emphasis on event studies and program evaluation (difference-in-differences) exercises, but I also highlighted the important role of merger simulations coupled with structural econometric methods. I concluded by talking about additional ideas and methods mostly connected with the estimation of the predictability and deterrence effects of merger policy. Most importantly, I tried to point out that all these methods might be useful to improve ex-post merger assessments and should be used and developed in parallel, especially because they might allow us to answer different questions in different ways. The convergence of results from different analyses that use these various methodologies

and apply them to different datasets would greatly strengthen the powerfulness and usefulness of an ex-post evaluation exercise. To conclude this progress report, I will now try to make a small catalogue of what the various actors involved in merger policy might do in order to improve its quality and effectiveness, and which avenues of further research I see as most promising.

What the Authorities Can Do

Competition authorities can highly increase their transparency and accountability by regularly collecting and categorizing information about their policy enforcement. This is not a new or an original suggestion. I guess that any single commentator or researcher who has been involved in the evaluation of merger policy and has faced the scarcity and poor quality of available information have made the same comment. For instance, Lanier Benkahrd in his 2010 presentation for the FTC stressed that the agency should collect and maintain data to promote research in particular areas. He motivates his claim by stressing that existing studies have been particularly clustered in areas or markets where data is plentiful. If the FTC made data available, this would surely facilitate and spur new research. One example of this is hospital mergers. As I also pointed out in this paper, this would not necessarily have to be proprietary data and, in many cases, it could also simply be data that track the records of the agency activities and enforcement.

Even with the risk of sounding repetitive, this is a very important point recognized not only by researchers but even by those people who have been extensively involved in the enforcement of competition policy. The former general counsel and Chairman at the US Federal Trade Commission, William Kovacic (2006), for example, says: "[e]*ach competition agency should prepare and provide a full statistical profile of its enforcement activity. Good data bases are indispensable to the tracking and analysis of an agency's activities over time. Despite their importance to performance measurement, the*

maintenance and public disclosure of comprehensive, informative data bases on enforcement are relatively uncommon for competition policy agencies. Every authority should take the seemingly pedestrian but often neglected step of developing and making publicly available a data base that (a) reports each case initiated, (b) provides the subsequent procedural and decisional history of the case, and (c) assembles aggregate statistics each year by type of case. Each agency should develop and apply a classification scheme that permits its own staff and external observers to see how many matters of a given type the agency has initiated and to know the identity of specific matters included in category of enforcement activity." I can only strongly support this suggestion.

What Researchers Can Do

The role of academic research is to further develop new methods or refine existing ones. We are supposed to push forward the methodological frontier and provide robust tools to perform retrospective analyses. At the very same time, researchers should not live in an ivory tower but should throw themselves into the policy discussion and arena. Only by constantly talking with the officials who are in charge of enforcing the policy and understanding the particular difficulties that they face, only by being directly involved in cases and evaluation exercises, only by keeping an open debate with scholars from other disciplines (in particular legal scholars), might we economist be able to fully appreciate and understand what the hidden details are which make the policy work and the open issues which need to be urgently addressed. Indeed, most of the recent studies discussed in this paper have been performed or, at least, initiated by researchers involved in actual cases. This is, in my opinion, a very positive development which should be followed and reinforced.

Some best practices should also be constantly followed by researchers who analyze policy issues. The need to be clear, transparent, and explicative is even larger than when doing

academic research as many of the other actors involved in the discussion are not specialists who can easily see behind the hidden assumptions of complex models. This is particularly true for particularly technical economic and econometric methods. However, this does not mean that these complex models cannot or should not be used. In most cases, they are the best available instrument to solve an intricate economic issue. But they should be made as transparent as possible without losing their precision. My advice to competition policy practitioners and legal scholars, who sometimes seem to be less open to accept the introduction of this 'more economic approach,' is to be open and accept that economics and econometrics have rightly become an even more fundamental tool in competition policy. This should be welcomed as this policy is trying to control and shape how markets work, which is the 'daily bread' of (industrial) economists!

Finally, as I have already stressed several time in this paper, I will stick to the metaphor of empirical analysis which can be seen as a big puzzle. I think that everybody should welcome any kind of serious, clean, and carefully done attempt to provide empirical evidence on policy enforcement. I, as an empirical economist, simply refuse to accept the idea that one should avoid trying to measure things because it is difficult. No single method is perfect, this is clear. Each of them is based on more or less stringent and severe assumptions, which are per definition a simplification of a complex economic reality. Yet, the richness of methods applied to data collected from different sources and at different levels of aggregation might provide a powerful tool to improve retrospective policy evaluation. The convergence of results obtained with heterogeneous methodologies is a crucial aspect to making such results more credible and convincing.

Possible Avenues of Research

In the previous discussion, I mentioned several areas where research could improve our understanding of whether merger policy is correctly and effectively enforced. Now I want to wrap up some of these points. This possibly remains a very incomplete list. Yet, it is a starting point.

First, the relationship between different areas of competition policy is a very important issue. While we are used to dividing competition concerns in separate areas and they are mostly analyzed as disconnected problems, this is not how firms, markets, and consumers work. Particular merger decisions will affect how firms behave: the market power generated by a merger can make firms more prone to abuse their dominant position (e.g., Kovacic, 2009). A tougher merger policy might induce firms to look for other instruments to enhance their profit by, for instance, colluding (e.g., Genesove and Mullin, 1999). At the same time a lascivious policy toward the cooperation of firms, such as research joint venture, might induce firms to misuse these possibly efficiency-enhancing instruments to increase their coordination in the product market (e.g., Duso, Röller, and Seldeslachts, 2010). Hence, research should try to focus on the inter-linkages among these different policy areas (e.g., Buccirossi et al., 2008, 2012).

Second, merger policy is not only enforced by the agencies but also by the courts. The interplay of these different institutions is fundamental. In Buccirossi et al. (2012), for instance, we empirically show that there are sizable and significant complementarities between competition policy enforcement and the quality of legal institutions. In particular, the beneficial effect of the former is much larger in countries where the enforcement costs are low and the legal system more efficient. Yet, there is surprisingly little evidence on the relationship between the agency and court decisions in administrative antitrust system such as that in force in the EU. Some recent promising ongoing research looks at the determinants of

appeals rulings in EU antitrust enforcement (Carree, Günster, and Schinkel, 2010) but much more can be done.

Third, in a globalized world where multinational enterprises operate in several product and geographical markets and are under the scrutiny of various national and supranational antitrust authorities, the relationship and particularly the convergence of the decisions of these separate agencies is an increasingly important issue. Also in this case, very few studies have focused on this topic. For instance, two recent papers look at the convergence between EU and US merger policies (Bergman et al, 2010; Szücs, 2012). Both studies conclude that following the 2004 major reform of the EU merger regulation and other competition policy institutions, the convergence process among the decisions of these two major antitrust jurisdictions has sped up, leading to a more uniform process. Yet, these studies also show that differences in the theory of harm (unilateral vs. coordinated effects) or the use of remedies still appears. Another facet of this more general problem is analyzed by Barros, Clougherty, and Seldeslachts (2012) who focus on the leadership role of the EC inside the EU. They find that the policy shift toward a more intense use of remedies by the EC was followed up by an increase in use of remedies by the national competition authorities of the different EU Member States and conclude that the Commission has taken a leadership role in setting up the policy tenor. Along the lines set up by these studies, I think that much can still be done to understand how and whether best practices and effective policy tools spread from larger to smaller competition authorities around the world and thus shed new light on the workings of merger policy in a globalized world.

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5 Choosing the Appropriate Control Group in Merger Evaluation

By Aditi Mehta[*] and Nathan H. Miller[*]

5.1 Introduction

Since airline deregulation occurred in the 1970s there has been substantial policy and academic interest in the effects of competition in the industry. One avenue studied by researchers is the effect of past mergers. Evaluating previous mergers can inform whether past antitrust enforcement was applied correctly and also allow better informed prospective merger enforcement. Despite the large amount of data available in the airline industry and the frequency of merger and acquisition activity, determining the price effects of past mergers can be difficult. In this paper we provide one example. Using the Delta-Northwest merger of 2008 we show, using a standard differences-in-differences regression analysis, that how control routes are selected can affect substantially the implied inferences.

The merger between Delta and Northwest occurred in 2008. On April 14, 2008 Delta Air Lines Inc. and Northwest Airline Corporation announced plans to merge in a transaction that would create the largest airline in the world. After a six-month investigation, the Department of Justice determined that the proposed merger likely would produce substantial and credible efficiencies to the benefit of consumers and that it would not

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substantially lessen competition.[1] Throughout 2009 the merged firm undertook various steps to combine their operations including combining their ground operations, reservation systems, terminals and gates at various airports around the country, and reward programs.

Several research papers have examined the effects of airline mergers. These retrospectives typically have compared prices on "treated" routes where there was a loss of competition with prices on "control" routes where there was no loss of competition (i.e. routes where only one of the two merging firms operated or where neither firm operated). Sometimes the control routes used in the comparison group are selected such that the distance between endpoints is similar to that of the affected routes. In this paper we show that these modeling choices can affect inferences. In particular, we show that important differences can exist between the control and treated groups that are not captured fully by the covariates. Carefully limiting the control routes to be more similar to the routes affected by the merger can change the results substantially.

We first evaluate the price effect of the Delta-Northwest merger on connecting routes using a standard differences-in-differences approach and find that the price effect from the merger is positive and significant. This price effect is driven, in part, by the facts that (i) the control routes are on average much less traveled than the treated routes, and (ii) the prices on less traveled routes tend to decrease over the sample period relative to highly traveled routes. We show that accounting for this one factor alone can significantly change the results, calling into question the results based on the standard differences-in-differences approach. We then use a matching estimator that pairs each treated route with a single control route selected based on the number of passengers, and we find that the price effect is small, on the order of one percent for the largest routes.

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[1] Press release:
http://www.justice.gov/atr/public/press_releases/2008/238849.htm

Of course, route size is one of several characteristics for which it may be important to control. We finish by discussing how the promising methodology of Abadie and Gardeazabal (2003) and Abadie, Diamond and Hainmueller (2010) could be applied to optimally select among control routes.

5.2 The Challenge for Retrospectives

Despite the interest in merger retrospectives, in many industries implementation can be problematic. It can be difficult to get data appropriate for the analysis. Further, simply examining the prices for the firms directly involved in the merger before and after the merger occurred can be misleading if price changes due to demand and cost shocks occurring at this time are attributed to the merger. A common way to deal with this problem is to compare the changes in product prices of the merging firms with changes in the price of products of other firms or in other markets, a differences-and-differences approach. If the comparison group's prices evolve in the same way they would have if the merger had not occurred and similar to how the treated groups' prices would have evolved, this difference-in-difference approach can yield consistent estimates of the impact of the merger on prices. The crucial identifying assumption in this approach to obtain impact estimates is that the counterfactual trend is the same for treated and control observations.

Our work focuses specifically on this identifying assumption. In particular, we explore how the selection of the comparison group can affect the results of differences-in-differences analysis. We select the Delta-Northwest merger for two reasons: First, the airline industry features thousands of routes that were unaffected by the merger and that could be used to measure how prices likely would have evolved on affected routes but for the merger. The routes unaffected by the merger can control for changes such as changes in fuel costs, in labor costs, seasonal variations in demand, and overall inflation that

influence airfares. Second, that the merger was contemporaneous with the onset of a recession, and an overall drop in demand for travel, highlights the importance of having an appropriate comparison group in the differences-in-differences analysis.

Our work is relevant to a burgeoning literature that uses comparison groups and the differences-in-differences methodology to identify the effects of mergers. One prominent example is Ashenfelter and Hosken (2010), which studies five consummated mergers in consumer products industries: cereal, liquor, motor oil, feminine protection and breakfast syrup using scanner data. To evaluate the effects of these mergers, the authors compare the change in price of the products of the firms involved in the merger with the change in price of the private label products. The logic for using private label products is that they are likely to be distant substitutes and therefore not affected significantly by the merger but at the same time serve as a valid control for changes in the cost of production since many of the inputs are the same.[2] The authors find that 4 of the 5 mergers led to modest price increases.

Similar analysis has been conducted in the airline industry. For example, Severin Borenstein (1990) studied the effect of two mergers that took place in 1986: Northwest and Republic airlines and TWA and Ozark airlines. Borenstein found that the average fare on Northwest and Republic routes out of Minneapolis/St. Paul, which was a Northwest and Republic hub, increased relative to the industry average on routes of similar distance, suggesting that the merger led to significant price increases. He found little evidence of

[2] The authors note that there are some drawbacks to using this as a control group. Mainly there might be demand shocks for the products of interest that do not affect the private label products, such as income. The closest substitutes are likely affected by the same demand shocks, although comparing to this control group will lead to an underestimate of the price effect because these closest substitutes will also experience a price increase if the merger is anticompetitive.

price increases from the TWA and Ozark airlines merger. Kim and Singal (1993) examined 14 airline mergers from 1985 to 1998. They estimate the price effect of the mergers by comparing the change in fares on routes serviced by merging firms with the change in fares on routes of a similar distance in which none of the merging parties operated. They find that on average fares increased by 9.44%.

We build on this literature by more fully exploring how the selection of the comparison group can affect inferences. In particular when evaluating the merger of Delta and Northwest there are specific events that occurred at the time of the merger, which make the choice of a control group of particular importance. The merger was announced in early 2008 and approved in October 2008. In 2009 the airline industry faced declining demand and decreased revenues due the recession, high unemployment rates and decreases in corporate travel budgets. The recession hit different communities to differing degrees. For example, some states such as Florida and California were hit much harder by the recession relative to states such as Massachusetts. Also, companies in certain industries were better able to control their travel budget in response to changes in market conditions relative to other industries and since some industries are geographically focused this may lead to differing demand changes by route. While it is possible to partially control for these factors with variables such as local GDP figures and local unemployment rates, it is difficult to capture all aspects of these demand shocks that may affect travel.

Another big change in the airline industry in this time period was the introduction of baggage fees and the increase in ancillary fees (e.g. extra legroom seats) by many of the large U.S. carriers. Prior to 2008, airlines allowed passengers to check two bags free of charge. In February 2008, United Airlines announced that it would begin charging $25 for the second checked bag effective for travel beginning on May 5, 2008. Throughout the year other legacy carriers and AirTran followed by announcing a fee for a second checked

bag.[3] On May 21, 2008 American announced that it would begin charging a $15 fee for the first checked bag effective June 5, 2008 and by the end of 2008 all of the carriers had followed.[4] These changes, if unaccounted for, could lead to incorrect inferences. For example, on a route where a legacy carrier competed with a carrier who charged fewer ancillary fees, absent any market structure changes, the carrier may have to decrease its ticket prices more than it would in a market where it competed with another carrier charging similar fees. If the merger disproportionately affected routes of the first type then the merger may look like it had less of a price effect than it actually did.

5.3 Data

The data source used in this study is common to that used in much of the empirical literature in this field: Passenger Origin-Destination Survey of the U.S. Department of Transportation (DB1B), which consists of a 10% sample of all airline tickets available at a quarterly level. We use data from 2006-2011 for this study and exclude several quarters of data around the time of the merger (Quarter 2 of 2008 through Quarter 1 of 2009). We only include airport-pairs within the contiguous U.S. and fares that are above $25.[5] The data are aggregated to the market-level within each quarter using passenger

[3] The other legacy carriers followed by announcing a fee for a second checked bag on April 9, 2008. Unlike other low cost carriers, AirTran also announced a fee of $10 for a second checked bag on April 11, 2008. Shortly after this carriers began to charge fees for the first checked bag.

[4] By mid-September all the legacy carriers except for Delta had adopted this fee for the first checked bag. Delta followed in November of 2008.

[5] The inbound and outbound parts of a roundtrip are treated as separate one-way observations, each with a fare of one-half of the roundtrip price. In doing this we make each one-way trip as non-directional. We drop open-jaw tickets.

weights. We also merge on Official Airline Guide (OAG) schedule data which allows us to better identify non-stop flights (rather than direct flights) and the competitive structure on a route; this is preferable to using the DB1B data because it excludes carriers only offering code share service. Additionally, we include population and unemployment data for the endpoint locations of the route using yearly Census data. Using this data we are able to obtain domestic airfares, number of passengers by route, route distance, concentration measures by route and demographic data to capture some demand shocks. However, it is important to note that as discussed above, the data does not record any ancillary fees paid by passengers. This source of revenue for airlines is becoming more prevalent and significant.

This data are well-suited to this exercise for several reasons. They are available over a long time period, allowing us to include two years prior and after the merger. We are able to omit the period right around the merger which allows us to abstract from deciding when the merging firms started coordinating on price. The post-merger data also provides a long enough window after the merger to allow for the capture of any marginal cost efficiencies which take a while to be realized and passed through to consumers. The data also have information on a large number of routes, which allows for a large set of routes that can potentially be included in the control group

5.4 Connect Routes

The analysis in this paper focuses on one-stop connecting routes affected by the Delta/Northwest merger. The focus in the literature has generally been nonstop routes. Typically, connecting routes can easily be served though the hubs of most major airlines and therefore these markets tend to be less concentrated. However, in recent years there has been an increased consolidation of the airline industry, which has led to a decline in the number of independent carriers.

This means that there are fewer carriers that can operate in connect routes and discipline existing carriers, increasing the likelihood of anticompetitive effects. The Delta/Northwest merger provides an opportunity to consider whether a merger of two large carriers would lead to a price increase on these connecting routes. As described in Table 1 there were a large number of one-stop connect routes affected by the merger and a significant number of passengers who could be potentially harmed.

Table 1 Routes Affected by Delta-Northwest Merger

Type of Routes	Estimated Number Affected by Merger	Estimated Number of Passengers	Volume of Commerce
Nonstop	8	1.25 Million	$214 Million
Connecting Routes	4,222	36 Million	$8 Billion

In the full year before the merger, the second quarter of 2007 through the first quarter of 2008, Delta and Northwest competed on 4,222 one- stop connecting routes. There were over 35 million passengers on these routes and the total volume of commerce on these connect routes was over $8 billion. Even a small price effect would lead to large consumer harm.

On some routes with connecting traffic there is also nonstop service. The existence of this nonstop service may constrain a price increase by connecting carriers because when the gap between nonstop and connect fares becomes large enough some passengers will switch to carriers providing nonstop service. To abstract from the issue of competition between non-stop and connect routes we only include routes with no nonstop service.

There are 7,320 connect routes included in our sample. Over half of these routes were served by both Delta and Northwest prior to

their merger. We have 16 quarters of data for each route after excluding the year around the time of the merger. The sample includes data on about 17 million passengers, which is a 10% sample of the passengers that flew these routes in this time period. Table 2 provides some summary information about the sample.

Table 2 Summary Statistics on Routes included in the Sample

	All Routes	Affected by the Merger	Unaffected by the Merger
Average Fare	$257	$248	$270
Average Number of Miles	1,058	1,101	1,000
Average Number of Competitors	2.9	3.7	1.9
Average Number of LCCs	0.2	0.3	0.1
Average HHI	6,038	4,867	7,635
Average Endpoint Unemployment Rate	7.8%	7.9%	7.7%
Average Endpoint Population	1,637,874	1,657,204	1,611,531
Number of Routes	7,320	4,222	3,098
Number of Passengers	16,822,929	13,660,845	3,162,078

As can be seen in Table 2 and discussed more fully below, there are several striking differences between the routes with a pre-merger overlap and those routes where Delta and Northwest did not compete with each other prior to the merger. Routes where Delta and Northwest competed tended to be larger in terms of the number of passengers; the overlap routes have more than three times the number of passengers on average. In addition, the routes affected by the merger tend to be significantly more competitive, having more legacy and LCC competitors and a lower HHI. However, these two sets of routes do not differ appreciably in terms of distance between

the final endpoints and demographic characteristics at the endpoint cities.[6]

It should also be noted that the routes with no overlap prior to the merger did not see a significant change in the number of competitors and HHI between the pre-merger and post-merger periods. In contrast, on routes where Delta and Northwest competed prior to the merger the average number of competitors decreased from 4.1 in the pre-merger period to 3.2 in the post-merger period, suggesting that many of these routes did not experience entry by other carriers in response to the merger.

5.5 Standard Differences-in-Differences

We start with a conditional mean analysis. In particular, we compare the average price change on routes where there was a loss of competition to the average price change where Delta and Northwest did not compete with each other prior to the merger.

We compare the actual price change on affected routes two years prior to the merger to the two years after the merger with the average price change on the unaffected routes controlling for distance on the route.[7] We exclude Q2-Q4 of 2008 and Q1 2009 data

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[6] While the two sets of routes do not vary greatly in terms of the average population of the two endpoint airport, they do vary significantly based on the population of the smaller of the two endpoints. For routes where there was no overlap pre-merger, the average minimum population of the two endpoint cities was 305,825. The average minimum population of the two endpoint cities for routes where there was overlap pre-merger was 546,512. The results below do not change when we include the population of the smaller endpoint rather than the average population of the two endpoints.

[7] More specifically, using the set of routes that were unaffected by the merger we regress price on the crow-flies distance and year dummies. The average price change is route specific and is based on the number of miles.

from our analysis because this was the period when the merger was announced, antitrust review was taking place and the parties were still entering their initial phases of integration. Using the full sample, this method suggests that the price increase on the affected routes was about 2 percentage points.

While this analysis can account for changes that occurred across routes from the pre-merger to post-merger periods it does not take into account route specific changes over this period. For example, some endpoint destinations may have been hit harder by the recession than others. If Delta-Northwest hubs in particular were harder hit by the recession this simple analysis may underestimate the price effects of the merger, i.e. without the merger, the price would have decreased by even more relative to the control, which includes routes that were not as hard hit by the recession.

One step towards controlling for some of these factors is to move into a regression framework. This allows us to easily control for certain characteristics such as a number of local economic conditions, distance, and population; in other words, we can control for characteristics that differ by route and may affect the post-merger price relative to the pre-merger price.

To estimate the price effect of the merger on connecting routes we estimate two specifications. The first includes a dummy variable to indicate whether Delta and Northwest competed on the route prior to the merger interacted with a dummy variable to indicate whether the observation is in the post-merger period. The coefficient on interaction term represents the effect of the merger on connecting routes. The regression estimated is:

$$ln(Price)_{qm} = a + b*overlap\_pre_m*post_q + c*avg\_pop_{qm} + d*avg\_unemp_{qm} + r + t$$

The second specification incorporates that the effect of the merger could depend on the degree to which the merger affects concentration on the route. The regression estimated is:

$$ln(Price)_{qm} = a + b*simHHI_m*post_q + c*avg\_pop_{qm} + d*avg\_unemp_{qm} + r + t$$

where $ln(Price)_{qm}$ is the average price in market m in quarter q; $simHHI_m$ is the change in HHI from the Delta/Northwest merger; $post_q$ is a dummy variable that indicates whether the q is in the window after the merger was consummated; avg_pop_{qm} is the average population between the two endpoint cities; avg_unemp_{qm} is the average unemployment in market m in quarter q; r is a set of route fixed effects, and t is a set of quarter fixed effects.[8] The results are presented in Table 3.

Table 3 Differences-in-Differences Analysis on Average Route Price

Variables	Specification 1	Specification 2	Specification 3	Specification 4
Merger Effect	0.04* (0.004)		0.04* (0.005)	
Simulated HHI		0.20* (0.02)		0.19* (0.01)
Average Population			$-3.09*10^{-6}$* $(5.79*10^{-7})$	$-3.01*10^{-6}$* $(7.03*10^{-7})$
Average Unemployment			-5. 21* (1.29)	-5.82* (0.69)
Observations	111,792			

An observation is a route-quarter. This regression is limited to one-stop connecting routes where there was no nonstop service and routes where Delta and Northwest operated for the full window prior to the merger. There are 7,320 routes included in the analysis. The dependent variable is the natural log of the average carrier ticket price. Both specifications include route and time fixed effects. Standard errors are shown in parenthesis and account for heteroscedasticity. Statistical significance at the 5% level is denoted by *.

[8] We tried using other variables to control for local economic conditions such as local GDP; the results are similar. Additionally, we tried specifications with the minimum and maximum of these variables and again the results did not change significantly.

The results indicate that the merger had a significant positive effect on prices. In the first specification, where the variable that captures the effect of the merger is a dummy variable that indicates whether Delta and Northwest competed on the route pre-merger, the price effect of the merger is about 4% on connecting routes. In the second specification that takes into account the change in HHI on the affected routes due to the merger the results suggest that an increase in HHI of 1000 points led to a 2% price increase. The average change in HHI on routes that were affected by the Delta/Northwest merger was about 430. The average price increase is small but given the large volume of commerce on connecting routes that were affected by the merger these results may raise concerns that the merger led to a not inconsequential amount of consumer harm. In fact, applying these estimates to the estimated volume of commerce suggests that there was about $70 million of harm.

Given that merger retrospectives are often conducted to understand the effect of past mergers on different types of routes, we conduct one further analysis to separate the effects by type of route. This can be more informative than the average price effect we found above. In particular, we focus on the price effect on routes by the size of the route. Harm on large routes will lead to a greater amount of consumer harm and may therefore be of particular interest. For this analysis, we include four interaction terms in the regression instead of one variable to capture the price effect. Based on frequency in the data we create four dummy variables to indicate whether the route had less than 2,000 passengers annually, 2,001-4,000 passengers annually, 4,001-10,000 passengers annually, and more than 10,000 passengers annually. We then interact each of these dummy variables with a variable that indicates if this was a route affected by the merger and if the observation is in the post-merger period. The results are shown in Table 4. Each coefficient represents the price effect of the merger on routes in the corresponding category.

Table 4 Affect of Merger by Route Size

Merger Effect Variables for:	Coefficient
Routes with < 2,000 Passengers	0.03* (0.006)
Routes with 2,001-4,000 Passengers	0.03* (0.006)
Routes with 4,001-10,000 Passengers	0.04* (0.006)
Routes with more than 10,000 Passengers	0.06* (0.005)
Average Population	$-3.269*10^{-6}$* $(1.38*10^{-7})$
Average Unemployment	-6. 05* (1.31)
Observations	111,792

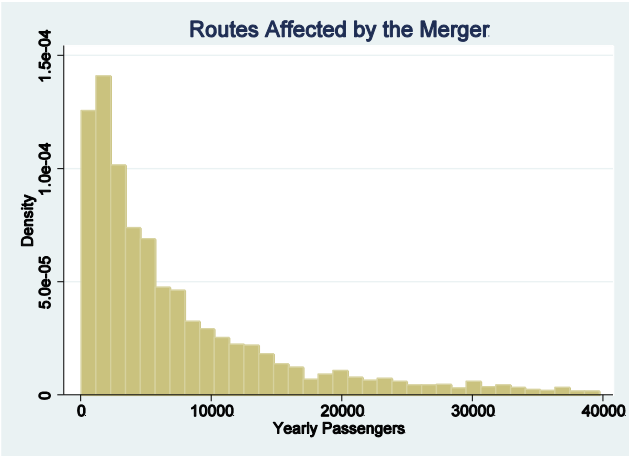
As can be seen in Table 4, the merger seemed to have the largest effect on routes with the largest number of passengers. On these routes, the average price effect is 6%, double the price effect on the smallest routes where the price affect was about 3%.

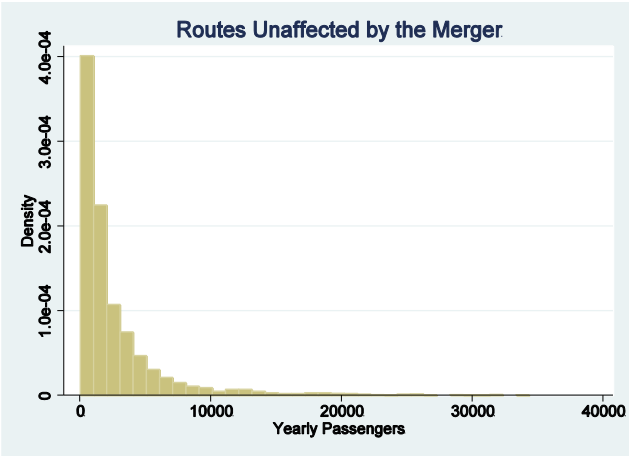
5.6 Importance of the Control Group

In determining whether the control group is appropriate, it is instructive to compare the control group and the treated group on observable characteristics pre-merger. One striking feature found when comparing the connecting routes where Delta and Northwest competed with those where they did not compete pre-merger is the difference in the level of passenger traffic. The average yearly number of passengers on routes affected by the merger is about 8,000 but is only about 2,800 on routes that are part of the control group.

The disparity in passenger volume between these two sets of routes is even starker when you look at the distribution as in Graph 1.

Graph 1 **Distribution of Passengers on Affected and Unaffected Routes**





Given this striking fact it is important to consider whether the results would change significantly if the control group was chosen to be a similar size to the treated group. Table 4 provides some initial

evidence that the size of the route had some effect on the change in price from the pre-merger period to the post-merger period. To further explore this, in Table 4 we present the raw price change from the two years after the Delta/Northwest merger to the two years prior to the merger.

Table 5 Median Price Change from before the Merger to after by Route Size

	Affected by the Merger		Unaffected by the Merger	
Size of Route (Yearly Passengers)	**% Change Price**	**# of Routes**	**% Change Price**	**# of Routes**
0-2,000	-1.0%	1,094	-4.8%	2,026
2,000-4,000	-1.0%	1,155	-2.3%	690
4,001-10,000	-0.5%	878	-0.0%	244
10,001+	+1.7%	1,095	+1.1%	138
All	**0.0%**	**4,222**	**-3.2%**	**3,098**

As can be seen in Table 5, the change in price from pre- to post-merger is dependent on the size of the route; for both routes affected by the merger and those unaffected by the merger the smaller routes tend to have experienced a larger price decrease over this time period. For unaffected routes the smaller routes experienced a fairly large price decrease, of about 5%. Routes with over 10,000 passengers experienced a small price increase of about 1%. There are various explanations for this. One possible explanation may be that routes with lower volume of traffic involve endpoints that were hit harder by the recession. Alternatively, there might be more discretionary traffic on smaller volume routes; if for example there is a higher portion of leisure travel on these smaller routes, at the time of the recession these travelers may become more price sensitive. Regardless of the reason, the pattern is clear. It is also possible to see

that estimating the effect of the merger using the full control group can affect the results. For example, the largest overlap routes affected by the merger (those with more than 10,000 passengers per year) experienced about a 2% price increase. This is not much larger than the price change experienced by the unaffected routes of the same size. However, if you compare this price change of 2% with the average of the unaffected routes (mainly compromised of small routes so average price change is -3.2%) it would seem that the large routes experienced a significantly large price increase, explaining the results in Table 4.

To see this more clearly we can look at a regression only using the routes affected by the merger with more than 10,000 passengers. We estimate the model described above with two different control groups: all the unaffected routes and unaffected routes of a similar size in terms of passenger traffic. The results are presented in Table 6.

Table 6 Regression Results with Different Set of Control Routes

	Route Size: More than 10,000 Passengers			
Variables	**Control Group: All**		**Control Group: in Same Size Group**	
Overlap	0.064* (0.003)		-0.002 (0.011)	
Simulated HHI		0.555* (0.045)		0.069 (0.080)
Observations	67,088		19,728	

An observation is a route-quarter. This regression is limited to one-stop connecting routes where there was no nonstop service and routes where Delta and Northwest operated for the full window prior to the merger. The dependent variable is the natural log of the average carrier ticket price. Both specifications include mean population and unemployment rates and route and time fixed effects. Standard errors are shown in parenthesis and account for heteroscedasticity. Statistical significance at the 5% level is denoted by *.

The results show that changing the control group can significantly change the results. For the affected routes with at least 10,000 passengers in the year before the merger, using all available control routes suggests that the Delta/Northwest merger led to a 6% price increase. Once we limit the control routes to those routes unaffected by the merger but with at least 10,000 passengers per year, the merger had a small and statistically insignificant effect. This difference can be important and could substantially change conclusions regarding whether the merger was pro-competitive or anti-competitive.

5.7 Alternative Methodology

However, it should be noted that this second set of results may be due to the small number of routes in the control routes. To better estimate the effect of the merger while choosing routes in the control group similar to the treated group we present results using a methodology where we design a control group of routes based on the number of passengers pre-merger. For each treated route, a route where Delta and Northwest competed with each other pre-merger, we find a route from those not affected by the merger that is most similar in terms of yearly passengers. One route can be the closest match for multiple treated routes; in these cases the route is given more weight in the regression. The results are presented in Table 7.

Table 7 Differences-in-Differences Analysis with Best Match Control Group

	Coefficient	
Overlap	0.01* (0.004)	
Simulated HHI		0.113* (0.009)
Observations	128,672	

An observation is a route-quarter. This regression is limited to one-stop connecting routes where there was no nonstop service and routes where Delta and Northwest operated for the full window prior to the merger. There are 8,042 routes included in the estimation. One route in the control route can be a best-match for multiple treated routes. The dependent variable is the natural log of the average carrier ticket price. Both specifications include mean population and unemployment rates and route and time fixed effects. Standard errors are shown in parenthesis and account for heteroscedasticity. Statistical significance at the 5% level is denoted by *.

As can be seen in Table 7 the affects of the merger substantially lessen. Using this methodology we find that instead of the 4% price effect we found using a simple differences-and-differences approach we find a 1% effect, small but statistically significant. The only change in this analysis relative to the previous results is that the sample used for estimation uses a control group that is more representative of the treated group of routes.

5.8 Discussion

Our objective has been to establish, using the Delta-Northwest merger of 2008 as an example, how the selection of the control group can affect inferences in merger retrospective analysis. To illustrate the point, we have compared regression results obtained by using *all* unaffected connect routes as controls to regression results obtained by using only a *single* unaffected connect route for each affected connect route, selected solely based on route size. We do not claim that either regression captures necessarily the average effect of the merger on the prices of connect routes. Indeed, we suspect that exercise would require more in-depth analysis. In this section, we discuss how one might construct the appropriate control groups for the analysis.

First, matching estimators such as the one we employ can incorporate control routes that are selected on the basis of multiple characteristics. Thus, one could identify control routes that resemble the affected routes not only in terms of size but also in terms of other characteristics that might matter for pricing, such as endpoint demographics and route distance. An advantage of matching estimators is that some of the characteristics can be endogenous outcomes (e.g., price or sales) provided that matching takes into consideration only data prior to the merger. This potentially allows one to effectively select as controls those routes that have similar *unobserved* exogenous characteristics.

Second, in some cases matching regressions can be sensitive to the number of controls that are selected for each affected group. In our work, we have selected one control route per affected route. This has the advantage of basing inference off the "most similar" unaffected route but is has the drawback that any idiosyncrasies that arise on these control routes can affect inferences. An alternative is to select two, three, five, or even more controls for each affected route, which reduces the influence of any single control route. In the limit, of course, this approach includes all available controls.

Given that inferences can vary based on this choice (as we show), how should one think about determining the appropriate number of control routes? The recent research of Abadie and Gardeazabal (2003) and Adabie, Diamond and Hainmueller (2010) provides one promising answer: one can incorporate all available control routes but weight each according to its similarity to the affected route. More specifically, the research proposes that "synthetic" routes could be constructed as weighted-averages of all the available control routes, where the weights are selection such that the synthetic route resembles to the greatest extent possible the affected routes. Regression analysis could then compare outcomes on the affected route to outcomes on the synthetic route, before and after the merger. We suspect this approach provides a robust path forward that could be useful for merger retrospectives in industries, such as airlines, where many possible controls are available and a challenge for inference is how to most appropriately utilize the information from those controls.

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6 Merger Screening in Markets with Differentiated Products

By Lars Sørgard[*]

6.1 Introduction

It is a challenge for competition authorities to decide which mergers out of all proposed mergers that should be investigated in detail. There is a large need for a procedure that can help them to clear early on those mergers with no anti-competitive effect, and at the end of the procedure block only those with an anti-competitive effect.

In most merger cases it has been a large focus on the number of firms in an industry and market shares of the merging parties. This is illustrated by the use of concentration indexes and the merging parties' market shares as threshold levels for clearing mergers early on. In the merger assessment in a later phase of the merger control we have also seen that such structural characteristics in an industry can be crucial for the decision to block a merger or not. One example is the merger assessment done by the Norwegian Competition Authority. We observe that their competitive assessment typically starts out with reporting the market shares of the merging parties and often the HHI index, and then they report the change in market shares and the HHI index following the merger.

Such an assessment can be problematic, especially when considering horizontal mergers in markets with differentiated products. In such cases market shares may not be a good proxy for the rivalry between the merging parties. In this article I will first

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explain why market shares and concentration may not capture the anticompetitive effects from a merger in such a market (see section 6.2). Then I explain an alternative approach (see section 6.3). The main point is that the analysis is focusing directly on the competitive constraints between the merging parties. We also relate this approach to (the modern version of) the SSNIP test. In section 6.4 I report how this approach can be applied in various cases, illustrated by a competition case in the ferry market in the North Sea, retail mergers in the UK, and a merger in the grocery sector in Norway and. Finally, I offer some concluding remarks (Section 6.5).

6.2 The Role of Market Shares

Market shares are in many jurisdictions still the most important factor for merger screening, as well as for the detailed scrutiny in the late phase of a merger investigation. Concerning merger screening, the important role of market shares follows directly from merger guidelines in, for example, the US and EU. [1]

If two firms both have large market shares, it would imply that a merger between them would eliminate a large part of the competitive pressure in an industry. In the extreme case with two firms with 50 % market share each, the merger would lead to a monopoly in that particular market.

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[1] In the US Merger Guidelines from August 2010, they apply Herfindahls-Hirschmann index (*i.e.,* the sum of the squares of the individual firms' market shares – HHI) to distinguish between industries with, low medium and high concentration (see p. 18/19). On the other hand, in another section of the guidelines they warn against putting too much weight on the HHI index (see below). See also EU horizontal merger guidelines, where they refer to both market shares and HHI index (see paragraphs 16-22). See also Baker (2007), who argues that market definition has been decisive for the outcome in merger cases in the US than any other substantive issue.

Despite the intuitive appeal of market shares, the market share approach can be problematic. This is particularly true in industries with differentiated products. To illustrate this, let us consider an acquisition in the UK grocery market in 2005.

In 2005 Somerfield acquired 115 Safeway grocery stores from Morrison. Office of Fair Trading (OFT) undertakes the first phase of the merger control in the UK, and they made a so called isochrones analysis. For each acquired store, they draw a circle around that store with 10/15 minutes travel time in city/rural areas for one-stop shopping and 5/10 minutes travel time for smaller stores in city/rural areas. Then they counted the number of independent rivals after the merger. If three or less independent rivals, then they recommended a further scrutiny of the acquisition of that particular store. By using such a method they found that the acquisition of one of the one-stop shopping stores and 22 of the smaller stores were problematic, and they referred the acquisition to Competition Commission for a phase II investigation. In Figure 1 we have shown an illustration, where you see that a Morrison store is replaced with a Somerfield store.

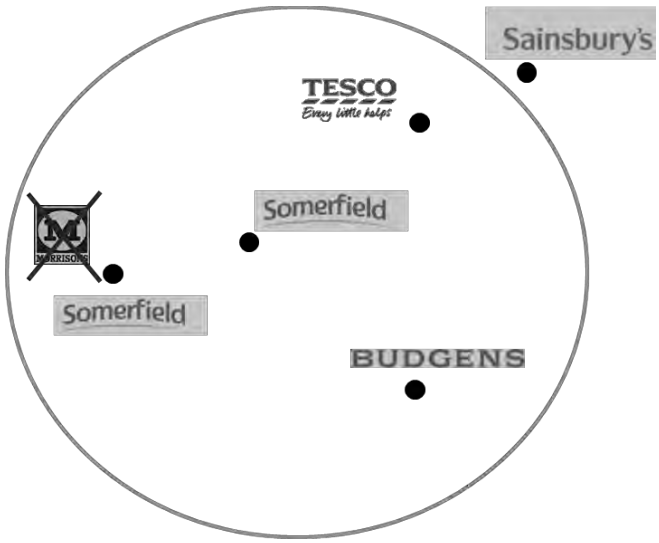
There are numerous problems with such an approach. Counting is a very rough measure of market shares. Then it is an implicit assumption that all firms inside the relevant market are of equal size. But even if we correct for that by using turnover for each store to calculate market shares, there are some serious problems that remains.

First, there is a very binary way to define the competitive pressure from another store. Either you are inside the circle and counts fully, or you are outside and do not count at all. In Figure 1 we see that one Sainsbury's store is just outside the circle, and a small change in the size of the circle would imply that this store would also be included. This is about the size of the geographic market, where it is defined in a rather restrictive way without any kind of scaling of the geographic differentiation.

Second, there is no distinction between various types of stores. This is about product differentiation as such. It might be that those consumers that visit Morrison would be more attracted by Budgens

stores than by Somerfield stores, for example because they find the product range more in line with their preferences in Budgens than in Somerfield stores. If so, the geographic distance is a misrepresentation of the actual 'distance' from a broader perspective, when we take into consideration both geographic and product differentiation.

Figure 1 An example of an isochrones analysis



The main lesson from this exercise is that a counting of the number of stores can be a very crude measure of the anti-competitive effects of a merger. We need more information about the overlap between the various stores. In particular, will many of the consumers at Morrison have the nearby Somerfield store as their best alternative? This is the main question that was asked by Competition Commission in the second phase investigation of this acquisition. In what follows we will explain the background for the method used by Competition Commission.

6.3 Markets with Differentiated Products

Let us consider a market with differentiated products.[2] We can think of for example grocery outlets, as in the previous example. Two firms merge, and we are concerned about the possible anti-competitive effect. As explained above, it seems quite obvious that we need to say something about market shares. However, recently we have seen the development of theory for merger assessment where there is no need for considering the market shares. This is the so called Upward Pricing Pressure (UPP) approach. We will explain this approach, and also explain how we can extend that approach to what is called Illustrative Price Rise (IPR). Finally, we return to the traditional approach by comparing these approaches to the well known SSNIP approach for market definition.

6.3.1 Upward Pricing Pressure (UPP)

Let us consider a market where firms set prices and sell differentiated products. We assume that there is no potential for collusion, and consider only possible non-coordinated (unilateral) effects of a merger. It implies that we consider Bertrand competition with differentiated products, and how a merger between two firms will change the price setting of the merging firms.[3]

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[2] For details, see Farrell and Shapiro (2010a). The approach with Upward Pricing Pressure, although not with such a name on it, was first introduced in Farrell and Shapiro (1990) for Cournot competition and identical products. Werden (1996) discussed the same issue in a market with Bertrand competition and differentiated products.

[3] In principle the theory can be extended to consider changes in other parameters following a merger. For example, Willig (2011) have extended the UPP framework to a change in quality rather than prices.

Let us assume that firm 1 and 2 merge. They produce one product each. Let c_i^k denote marginal cost for firm *i*, where *i* = 1, 2, and let *k* either be 0 (pre merger) or *M* (post merger). For the moment we are focusing on product 1, and assuming that there can be changes in prices and marginal costs following the merger only on product 1. Profits for the merged firm will be as follows:

$$\pi = \left(p_1 - c_1^M\right) \cdot q_1 + \left(p_2 - c_2^0\right) \cdot q_2 \qquad (1)$$

From the first order condition, we know that the price of product 1 will not change following the merger if:

$$q_1 + \left(p_1 - c_1^M\right)\frac{\partial q_1}{\partial p_1} + \left(p_2 - c_2^0\right)\frac{\partial q_2}{\partial p_1} = 0 \qquad (2)$$

We also know that prior to the merger firm 1 set its own price such that the following condition is met:

$$q_1 = -\left(p_1 - c_1^0\right)\frac{\partial q_1}{\partial p_1} \qquad (3)$$

If we replace q1 in (2) with the expression in (3), we find that the price of product 1 will not change after the merger if:

$$c_1^0 - c_1^M = \left(p_2 - c_2^0\right)\frac{\partial q_2 / \partial p_1}{\partial q_1 / \partial p_1} \qquad (4)$$

We see from (4) that there are three factors that will determine whether the price will increase after the merger:

- The size of the reduction in marginal cost (the left hand side)
- The price-cost margin on each unit of sales of product 2 (the first term on the right hand side)
- How large fraction of the reduction in sales of product 1 following a price increase that is picked up by product 2 (the second term on the right hand side)

A sufficient large reduction in marginal costs will give the merged firm incentives to set a lower price after the merger. Such cost savings leads, all else equal, to a downward pricing pressure.

On the other hand, the elimination of rivalry between the two firms after the merger leads to an upward pricing pressure. To understand the mechanism at work, let us define the third factor above as the diversion ratio between product 1 and 2, D_{12}:

$$D_{12} = - \frac{\partial q_2}{\partial p_1} / \frac{\partial q_1}{\partial p_1} \qquad (5)$$

It tells us how large fraction of the reduction in sales of product 1 that is diverted to the sales of product 2. For example, D_{12} = 40 % implies that for every 100 units sales reduction of product 1 the sales of product 2 increases with 40 units. In addition, we see that the price-cost margin is also of importance for the upward pricing pressure. If the profit margin is large on each unit, the merged firm will earn a large amount on each unit that is picked up by the other product.

The upward pricing pressure has a simple explanation. If an increase in the price of product 1 leads to (i) a large diversion of sales to product 2 and (ii) the profits for each unit that is picked up by product 2 is large, then the merged firm has strong incentives to increase the price of product 1.

Let us assume that E_i denotes marginal cost after the merger relative to the marginal cost before the merger and $L_i = (p_i - c_i^0)/p_i$. By rearranging (5) it is found that there will be an upward pricing pressure if:

$$D_{12} > E_1 \cdot \frac{(1 - L_2)}{L_2} \qquad (6)$$

Until now we have only made a partial analysis. The merged firm will consider changes in prices both on product 1 and 2, and reduction in marginal cost not only for product 1 but also for

product 2. It implies that there will be an analogous condition for upward pricing pressure on product 2 as we in (6) has shown for product 1. Let us assume symmetry by setting $c_1^M = c_2^M$, $E_1 = E_2 = E$, $p_1 = p_2$ and $D_{12} = D_{21} = D$. If we solve simultaneously for the first order conditions concerning price setting on product 1 and 2, we find that both prices will increase after a merger if:

$$\frac{D}{1-D} > E \cdot \frac{1-L}{L} \qquad (7)$$

We then see, as explained above, that it is more likely with an upward pricing pressure after the merger the (i) more limited the reduction in marginal cost (ii) the higher the price-cost margin and (iii) the larger the diversion ratios.

So far we have not said anything about market shares. In fact, market shares are not relevant for the question of upward pricing pressure after a merger. To understand this, note that the possible anticompetitive effect comes from the rivalry between the two firms being eliminated. So the driving force concerning upward pricing pressure is how intense they compete head to head prior to the merger and how much they gain after the merger from pricking up the lost sales of the other merging firm's product if they raise prices. This is clearly recognized in the US merger guidelines:

"Diagnosing unilateral price effects based on the value of diverted sales need not rely on market definition or the calculation of market shares and concentration. The Agencies rely much more on the value of diverted sales than on the level of the HHI for diagnosing unilateral price effects in markets with differentiated products. If the value of diverted sales is proportionately small, significant unilateral price effects are unlikely." (p. 21)

Note also that this method implicitly may capture how intense the rivalry will be from other non-merging firms. If there is a large diversion ratio between the merging firms' products, then there cannot be a large diversion from the merging firms to other non-

merging firms. If so, we can conclude that the rivalry with non-merging firms is limited.

One could argue that market shares as such can be a proxy for diversion of sales. If a consumer leaves a product, it is more likely that it diverts to a product with a large sale than a product with a limited sale. Following such a line of reasoning, we could argue that market shares can be a proxy for diversion ratios.[4] Let s_0 denote those consumers that leave product *i* and does not divert to any of the products in the relevant market, and let s_i be the market share of product *i*.

$$D_{ij} = s_0 \cdot \frac{s_j}{1 - s_i} \tag{8}$$

However, market shares can be the combined results of several attributes for the products in question. For example, in the retail sector both space (distance between stores) and product range (number of products in each store) can be of importance. In such a case market shares can be a bad predictor for diversion ratios between two products.[5]

The formulas we presented in equations (6) and (7) also shows that the larger the price-cost margin the larger the potential for an upward pricing pressure. The intuition is that such a high price-cost

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[4] This is often called the proportionality assumption, since reduction in one product's sales is assumed to divert to other products proportional to their relative sales in the relevant market. See, for example, Epstein and Rubinfeld (2001). They impose proportionality in their PCAIDS merger simulation model. The same is true with the logit model, a model often used for merger simulations (see Werden and Froeb, 2002). For a more detailed discussion of the proportionality assumption, see Werden and Froeb (2008).

[5] This is noted in, among others, Willig (1991). He argued that inferences of the nature of competition from market shares are problematic if the products are differentiated by characteristics salient to consumers. In such markets he suggested collecting information beyond market shares.

margin would indicate that those two merging firms do not have close substitutes to their product. If they had, they would not find it profitable to set such a high price-cost margin. When the firm after the merger set a higher price on product 1, it will then earn a large price-cost margin for each unit of sales that is diverted to product 2. Since it earns a lot by picking up the diversion of sales, it has strong incentives to increase the price after the merger. This is in line with what is stated in the merger guidelines in the UK:

"*If the variable profit margins of the products of the merged firms are high, unilateral effects are more likely because the value of sales recaptured by the merged firm will be greater, making the price rise less costly*." (p. 42)

Since $D < 1$, it is obvious that $D < D/(1 - D)$. By comparing equations (6) and (7) we can then conclude that it is more likely that we predict an upward pricing pressure if we allow both prices to rise rather than only one price. The intuition is straight forward. A higher price on product 1 will make it more profitable to raise the price of product 2, since the price-cost margin on the sales diverted to product 1 will then be higher. This implies that the one price test shown in equation (6) can produce false negatives – no upward pricing pressure – where a more accurate test as the one shown in equation (7) would predict an upward pricing pressure.

Farrell and Shapiro (2010a) recommended the use of the one product UPP test we reported in equation (6). This is also the test that is proposed in the US merger guidelines:

"Adverse unilateral price effects can arise when the merger gives the merged entity an incentive to raise the price of a product previously sold by one merging firm and thereby divert sales to products previously sold by the other merging firm, boosting the profits on the latter products. Taking as given other prices and product offerings, that boost to profits is equal to the value to the merged firm of the sales diverted to those products. The value of sales diverted to a product is equal to the number of units diverted to that product multiplied by the margin between price and incremental cost on that product." (p. 21)

Farrell and Shapiro (2010a) argue that this one product UPP test is intuitive and simple, and they denote it UPP_1. But if it typically produces false negatives, then such a screening could lead to clearing of mergers with an anticompetitive effect. If so, it is problematic.

However, we have assumed symmetric firms. If we relax that assumption, false positives may be the outcome from the one price test. For example, asymmetric diversion ratio – higher diversion ratios from product 1 to product 2 than in the opposite direction – may imply an upward pricing pressure from the one price test of the product with the largest diversion ratio. But when we allow for a change in both prices, the downward price pressure on the other product may lead to a downward price pressure on average. [6]

Often we do have asymmetries in diversion ratios, and then the risk of false negatives is less likely if we focus on the product with the largest diversion ration and do not clear a merger with an upward pricing pressure for the product with the largest diversion ratio. On the other hand, such a procedure can lead to false positives. But this is probably a limited problem, since such a merger would most likely be cleared later on during a more detailed investigation. Farrell and Shapiro (2010a) suggest further scrutinizing a merger when there is an upward pricing pressure on at least one of the products. It means that they regard the UPP framework as a screening device in an early phase of the merger investigation.

One very appealing aspect with the UPP framework is that you do not have to make some strong assumptions concerning the demand structure. In fact, you do not have to make any assumptions concerning the demand function. Since we test for whether a firm after a merger will deviate from the prices prior to the merger, we do not have to take into account how demand change when we move away from the initial price. This implies that there is no need to specify the curvature of the demand function, for example specify whether it is linear or iso-elastic (or it has another curvature).

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[6] This is shown in Mathiesen *et al.* (2012).

6.3.2 From UPP to IPR (Illustrative Price Rise)

One drawback with the UPP approach is that it is not predicting how large the price increase will be if there is an upward pricing pressure.[7] After all, the magnitude of the price increase after a merger is what we are concerned about. This is especially important when the final decision is made. This indicates that the UPP approach is best suited for early screening. For the final decision, we would ike to know more about the price increase. Given that we have information about diversion ratios and price-cost margins, it is possible to estimate the price increase following a merger. But we then have to put some restrictions on the demand structure. Unfortunately, the curvature of demand is decisive for the magnitude of the price effect following a merger.

Let us assume that two symmetric firms that produce differentiated products decide to merge. Furthermore, let us focus on the case with no synergies, *i.e.*, no change in marginal costs.[8] As shown in Shapiro (1996), the price increase on both products are the following:[9]

Linear demand (IPRL): $\frac{DL}{2(1-D)}$ (9)

Iso-elastic demand (IPRO): $\frac{DL}{1-D-L}$ (10)

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[7] This critique of the UPP approach is, among others, found in Schmalensee (2009).

[8] Note also that the simple formula with linear demand is made possible by imposing a strong assumption concerning demand. The demand for each unit is defined such that the slope of each demand curve is equal to – 1.

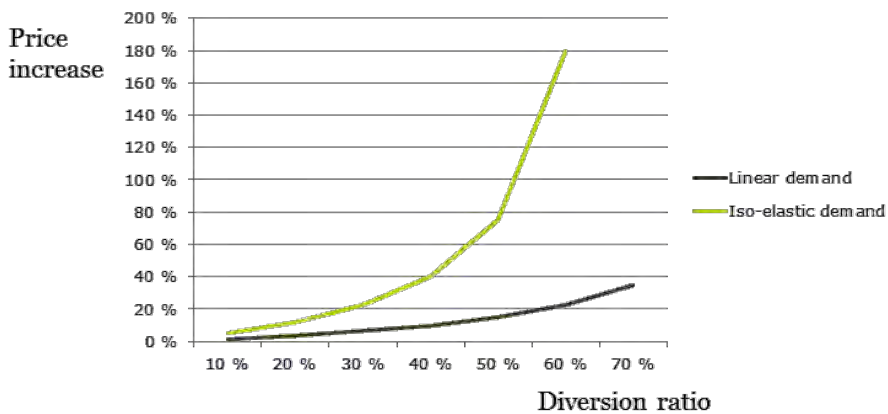
[9] A simple formula for the price increase following a merger is also presented in Moresi (2010), who introduced a formula denoted GUPPI (Gross Upward Pricing Index). See also Schmalensee (2009). Hausmann, Moresi and Rainey (2011) report the exact formula for a price increase with asymmetries and linear demand.

These formulas have been used in several merger investigations in the UK, and they have labeled this an 'Illustrative Price Rise' (IPR) (see section 6.4.1).

We see that for the calculation to make sense for iso-elastic demand, then $D < 1 - L$. If this condition is not met, the merged firm can make arbitrarily high profits by setting higher and higher prices. This is a warning against using this formula for a case with a combination of high diversion ratios and high price-cost margins.

In Figure 2 we have shown the predicted price increase following a merger assuming linear and iso-elastic demand, respectively, given that price-cost margin is 30 %. For high diversion ratios the predicted price increase with iso-elastic demand becomes very high, as noted above, and it is not defined in this particular case if the diversion ratio is 70 % or higher.

Figure 2 **Price increase with linear and iso-elastic demand, given that L = 30 %**



The large variation in predictions, depending on the chosen demand function, should be a concern. It turns out that the demand curvature will have a decisive role for the price increase also in more full-fledged merger simulation models than the simple formula we have

shown here.[10] One approach would then be to use the demand function that leads to the most conservative prediction when mergers are scrutinized in detail. The linear demand function would then be the appropriate one, and it would avoid false positives (wrongly finding that the merger is anticompetitive).

Often it is argued that there are large asymmetries. For example, a small firm might impose a smaller competitive constraint on a large firm than vice versa. Then a merger between a small and a large firm may lead to a larger price increase on the small product. We could then take the extreme case where only the price of one of the products is changed after the merger. As shown in Shapiro (2012), the price increase on one of the two products following a merger and given that the demand function is linear is the following:

$$\frac{p_1 - p_0}{p_0} = \frac{DL}{2} \qquad (11)$$

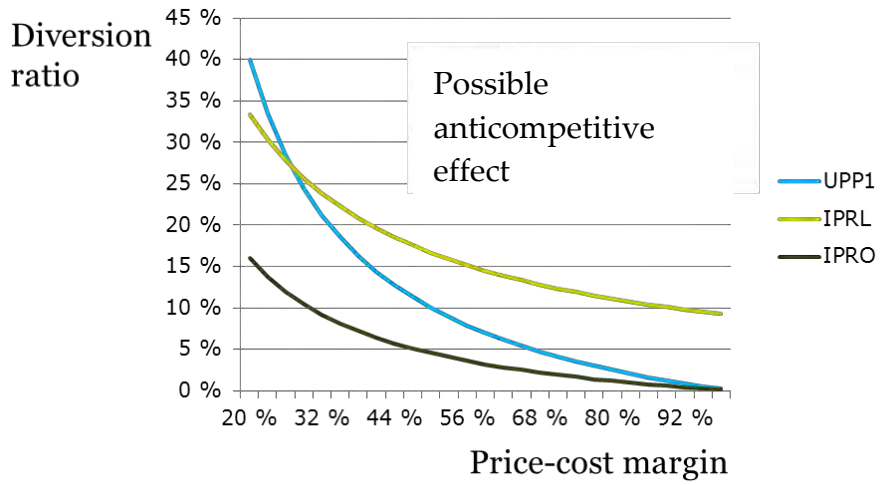
There are similarities between the IPR approach and the UPP approach. To illustrate this, let us check how each of them could be used for screening. To do that, we have to define some threshold levels for any potential anticompetitive effects. One alternative is to assume a reduction in marginal cost and apply the UPP_1 approach, and for example use 10 % reduction as a default as proposed by Farrell and Shapiro (2010a) as an illustrative threshold level. Then we check whether there is an upward pricing pressure. An alternative would be to not focus on possible cost savings, but the possible price increase as such. We could apply the IPR approach and tolerate minor price increases, but let 5 % be the threshold level.[11] Given

[10] This is shown in Crooke *et al.* (1999) and Froeb *et al.* (2005), where they apply merger simulation models to illustrate how price predictions will depend on the curvature of the demand function.

[11] One argument for using 5 % is that it is in line with the SSNIP test. However, in merger guidelines this threshold level is set solely for methodological reasons and should not be regarded as a tolerance level.

these threshold levels, we can compare the UPP and the IPR approach.

Figure 3 **Threshold level with an UPP approach, an IPR approach and (i) linear demand (IPRL) and (ii) IPR and iso-elastic demand (IPRO)**



In Figure 3, we have shown the critical diversion ratio that leads to no upward pricing pressure from the UPP_1 formula and a 5 % price increase from the IPR formula for iso-elastic and linear demand, (IPRL and IPRO, respectively).

Interestingly, we see that those two approaches share a similar pattern when we plot them as in Figure 3. Any possible anticompetitive effect may arise if the price-cost margin is high and

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Alternatively, one could argue (as in Schmalensee, 2009) that agencies must prioritize between mergers and then have to choose the ones with the largest anti-competitive effect and for that reason sets a 5 % threshold level. The competition authorities in the UK have applied a 5 % threshold level for the IPR test, se OFT (2011), Section 6.4.

the diversion ratios between their products are high as well. In our case the IPR approach will we more lenient as a screening device if we assume a linear demand, and more restrictive as a screening device if we assume an iso-elastic demand function (except for sufficiently low price-cost margins).

One obvious shortcoming with the IPR approach is that the non-merging firms are by assumption not changing their prices. Given that firms set prices, we know that a price increase by the merging firms will give the non-merging firms incentives to increase their prices as well. This shows that if we only allow for price increases on the merging firms' products this typically will underestimate the price increases in the industry. However, some of the restrictive assumptions imposed when the simple IPR formulas were derived may imply that those formulas overestimate the price increase in some cases.[12] Other responses to the merger, such as for example repositioning by the outsiders following a merger, may dampen the merged firms' price increases and therefore may imply that the simple calculation based on the merged firms' price response alone may not be an overestimate of the overall price effects.

6.3.3 UPP vs IPR vs SSNIP

Apparently, the approach we have described differs substantially from the traditional approach. Market definition has played an important role in merger cases, and then the SSNIP test is decisive for the definition of concentration and the merging firms' market

[12] Note that the formula for iso-elastic demand will obviously overestimate the price increases if the diversion ratios and the price cost-margin are sufficiently high (see above). Note also that the formula for linear demand is derived given that we assume each products price elasticity to be equal to – 1. Moreover, asymmetries call for a more complicated formula for price increases, as reported in Hausmann *et al.* (2011) for the case of linear demand.

shares. As is well known, the SSNIP test is a hypothetical monopoly test for whether a 5-10 % price increase is profitable. Although apparently different from the approach shown in the previous section, the modern version of the SSNIP test can be directly compared with the approaches we have discussed. The mathematical formula for the SSNIP test is reported in the so called critical loss analysis. O'Brien and Wickelgreen (2003) have reformulated the critical loss test, so that it depends on (i) the price increase, (ii) the price-cost margin and (iii) the diversion ratios.[13] They have shown that two symmetric products belong to the same market if:

$$D > \frac{\alpha}{\alpha + L} \tag{12}$$

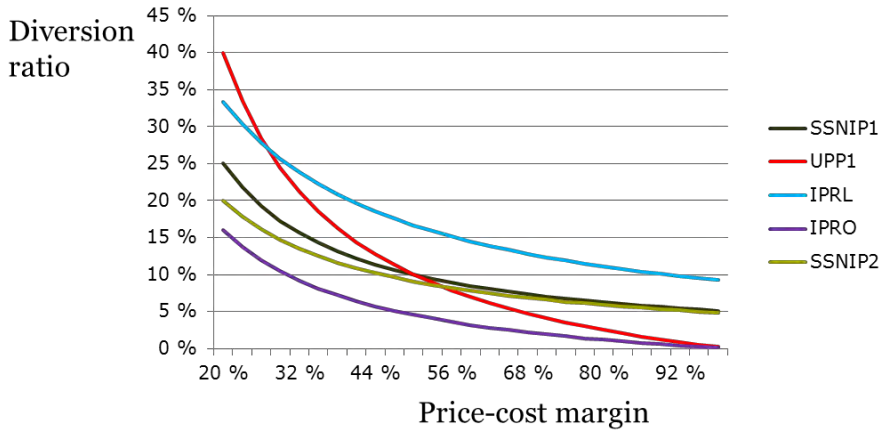
α is the relative price increase. In line with the UPP approach, we should in such a case check whether a price increase on only one of the products would be profitable for the hypothetical monopoly firm. As shown in Daljord *et al.* (2008), in such a case the two products belong to the same market if:

$$D > \frac{\alpha}{L} \tag{13}$$

Now we can extend Figure 3 to also including the two-product SSNIP test in (12) and the one-product SSNIP test in (13), denoted SSNIP2 and SSNIP1 respectively. In line with the assumption in the IRP test, we assume a 5 % price increase as the threshold level.

[13] See also Katz and Shapiro (2003), who at the same time introduced an analogous approach. The critical loss analysis was first presented in Harris and Simons (1989).

Figure 4 **A comparison of threshold levels from the UPP approach, the IPR approach and the SSNIP approach**



We see from Figure 4 that SSNIP1 and SSNIP2 are located as threshold levels in between what we find from IPR with linear and iso-elastic demand, respectively. This will give us a rough idea of the consistency between various threshold levels, either threshold levels for market definition or threshold levels for the anti-competitive effects.

Figure 4 indicates that the threshold levels we can derive from SSNIP, IPR and UPP are not necessarily very different. Although this is interesting, it should be of a concern if those various tests are used at different phases of the merger screening. In the first phase of the merger investigation we should not be very concerned about false positives, since one expects that those mergers should be cleared later on following a more in depth merger assessment. But if we apply the same test later on as a major part of the final competitive assessment, false positives should be a larger concern. Simons and Coate (2010) warns that the UPP test with a 10 % marginal cost reduction as the threshold level can lead to a large number of mergers being characterized as problematic, and they claim that it will be much more mergers defined as problematic than what has been the case under the traditional approach. This calls for a careful

use of the threshold levels from these modern approaches when used in the final phase of the merger investigation. In particular, it is a warning against using the IPR formula with isoelastic demand for predicting price increases at the final stage of the merger assessment since that at least in the symmetric version seems to be the most restrictive test.

6.4 Some Applications

In the previous sections we have warned against using market shares and the change in market shares as proxies for the anticompetitive effects of a merger in a market with differentiated products. Moreover, we have shown how we can use simple formulas based on diversion ratios and price-cost margins to assess the anticompetitive effects as well as the delineation of the relevant market. In this section we discuss how this approach is used in practice, and discuss the potential improvements and pitfalls when applying such an approach compared to the traditional approach.

Diversion ratios are crucial for detecting the possible anticompetitive effect of a merger. There are numerous ways one can find the diversion ratios. One would be to estimate it from internal documents from the merging parties. For example, they might have done their own study that might reveal diversion ratios. An alternative would be to apply detailed data for prices and quantities of the products sold by the merging parties to estimate a demand system. From the price elasticities it is possible to derive the diversion ratios. Unfortunately, such data are in many merger cases not available in the short time frame of a merger investigation.

A more realistic alternative – given the time frame of merger control – would be to exploit information from a shock in the market, an event that can give information about the overlap between products. For example, how consumers reallocate when there is a sudden change in the capacity available for the production of one of

the products. In what follows we illustrate this approach with a case from the ferry market in the North Sea (see Section 6.4.1).

Diversion ratios can also be derived from surveys among consumers. For example, asking them questions that can reveal their second choice, *i.e.*, which product that would be the best alternative if they did not buy the one they actually have chosen. Obviously, there are potential problems associated with applying a survey.[14] In what follows we sidestep from these issues, and show how diversion ratios derived from surveys have been applied in retail mergers in the UK (see Section 6.4.2). In addition, we report from a merger case in the grocery sector in Norway where we have more detailed information about diversion ratios than in the merger cases in the UK (see Section 6.4.3).

6.4.1 A Shock in the Ferry Market

Although it was not a merger case, the Norwegian Competition Authority was questioning whether two ferry routes between Norway to Denmark were close substitutes. That was Color Line's ferry route from Southern Norway to Northern Denmark, and Fjord line's ferry route from Western Norway to Northern Denmark.[15] In Figure 5 we have illustrated those two ferry routes.

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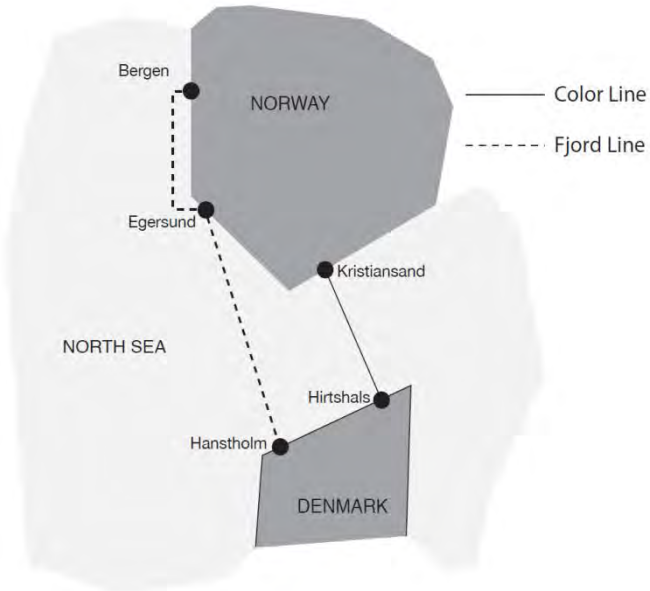
[14] For a discussion of UK competition authorities' use of survey for detecting diversion ratios, see Hughes and Beale (2005) and Reynolds and Walters (2008). See also Bertrand and Mullainthan (2001), discussing potential problems with surveys more in general.

[15] Color Line entered in April 2005 the route between Bergen and Northern Denmark. The Norwegian Competition Authority investigated whether this was predation by Color Line, trying to force Fjord Line to exit. If those two routes shown in Figure 5 are close substitutes, it would imply that such a behavior would dampen the competition between Fjord Line and the route between Southern Norway and Denmark. In July 2006 the Norwegian Competition Authority concluded that this was not predation.

Figure 5 Two ferry routes between Norway and Denmark[16]



To check whether these two routes are close substitutes, we could apply the approach above. In particular, we could try to detect the diversion ratios between those two products.

Daljord *et al.* (2007) exploits a shock in this market to detect diversion ratios. In April 2003 the ferry company Fjord Line expanded its capacity by 50 % on its route between the West coast of Norway and the North coast of Denmark. The question is whether this sudden expansion in capacity had any effect on the number of passengers on the other ferry route, the one owned by Color Line.

There is a large asymmetry between Fjord Line's and Color line's route. Color Line has a much larger number of passengers than Fjord Line. Furthermore, Color Line's pricing will be constrained by other ferries from the eastern part of Norway. This indicates that if those two firms merged, there would be a larger price increase on Fjord

[16] This is Figure 1 in Daljord *et al.* (2007).

Line's than on Color Line's route. This is an argument for applying an asymmetric test, where prices increase only on Fjord Line's ferry after a possible merger.

The shock in April 2003 can be used to derive the diversion ratios from Fjord Line to Color. Note, though, that the shock is reversed compared to the effects of a price increase. In order to increase sales following a capacity expansion, Fjord Line must lower its prices. Given that we observe any reduction in Color Line's number of passengers, it would indicate that any change in Fjord Line's prices would affect Color Line and thereby that there will be an overlap. If Color Line responded to this shock by also reducing its prices, this would dampen the diversion from Color Line to Fjord Line. In that respect any detected diversion ratio is expected to underestimate the true diversion ratio.

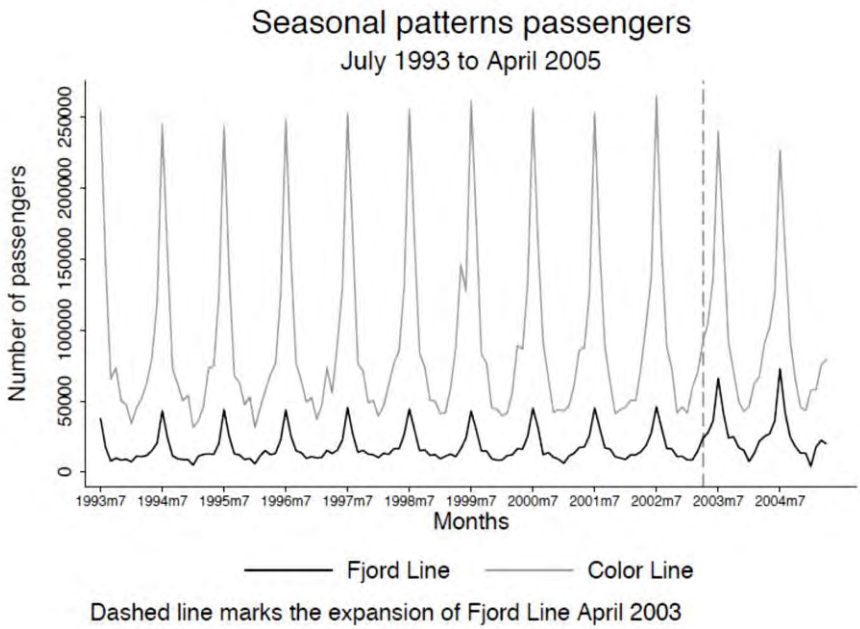
A ferry on this route typically serves three different consumer groups: (i) passengers with a car going to or from Denmark, (ii) cargo traffic and (iii) passengers that take the ferry as a cruise experience. Consumer groups (ii) and (iii) are spread out throughout the year, while consumer group (i) is especially active in the summer months (bringing their car on a holiday).

The capacity utilization is very seasonal. For example, in January and February the ferries have idle capacity while in July there is no idle capacity. This implies that an expansion of capacity is expected to have no effect except in the months with no idle capacity initially. To exploit this feature, let us focus on the month July, and see how the capacity expansion changed the number of passengers on the Fjord Line and the Color Line routes. One interpretation would then be that the shock can reveal the substitution between those two ferries for consumer group (i), those passengers with a car.

In Figure 6 we have shown the monthly passengers on those two routes from July 1993 to April 2005.[17] The seasonal pattern is very visible. The dotted line shows the introduction of a larger capacity on Fjord Line's route. In off-peak months it is not easy to see any difference at all following the capacity expansion. This is in line with what we predicted, since capacity is not a binding constraint in off-peak months. In July we see that there is a much larger number of passengers. If we look more carefully, we see that there seems to a tendency of a change in the number of passengers on those two routes in July after the capacity expansion. It seems as if Fjord Line has more passengers, and Color Line fewer passengers.

[17] The data are from ShipPax and they are publicly available. We cannot use data for later months, because Color Line entered with a new route from Bergen to Denmark in May 2005.

Figure 6 Monthly passengers on Fjord Line and Color Line[18]



In Daljord *et al.* (2007) they report a very simple regression that is done to find a measure of the effects in July of the capacity expansion. Since the seasonal pattern is so evident, they included dummies for elven moths and one constant. To measure the effects of the capacity expansion, a dummy was included for the months after the capacity expansion. The diversion ratio will then be measured by the July shock dummy for each of the ferry routes. They found that the capacity expansion resulted in an increase in the number of passengers for Fjord Line in July with 25.600 and a reduction in the number of passengers for Color Line with 20.100. The diversion ratio is therefore 78 %. This is a rather high diversion ratios, which all else equal is indicating that the two products are close substitutes for this

[18] This is Figure 2 in Daljord *et al.* (2007).

particular consumer group. Note, though, that we have few observations after the capacity expansion, which is an argument for a careful interpretation of this result. In Daljord *et al*. (2007) it is also discussed which price cost margins that will imply that we can conclude that those two products are close substitutes. In particular, they show how one from an observed diversion ratio can derive the critical price-cost margin that is the lowest one that leads us to conclude that those two products are close substitutes.

This simple analysis illustrates how diversion ratios can be found just by exploiting an event in the industry. In this case we considered a capacity expansion. Another example would be a sales campaign for one product. If the price of one product is cut drastically for a period, we could observe the change in the sales of other products with no change in prices. If there is no change in the sales of those other products, then this indicates that they are not close substitutes. On the other hand, with changes in sales we can use the formulas derived in the previous section to find out whether they are close substitutes or not.

6.4.2 Retail Mergers in the UK

We illustrated our critique of the traditional approach, focusing on market shares and the number of firms, with an example from an acquisition in UK in 2005. An isochrones analysis was applied by OFT in the first phase of the merger investigation of Somerfield's acquisitions of Safeway stores. We argued that such an approach has some obvious shortcomings. This motivated our discussion of the UPP as well as the IPR approach, and the comparison with the modern SSNIP approach. However, in that particular merger case the phase II investigation undertaken by Competition Commission (CC) did apply such an approach we have presented here.

CC conducted surveys among shoppers outside many of the Safeway stores. The aim was to detect the shoppers' second choice, *i.e.*, which store they would prefer if this particular store was not

available. CC could from each of these surveys find the diversion ratios between the acquired Safeway store and the nearest Somerfield store. In addition, they made assumptions concerning the price-cost margin. Given the symmetric SSNIP test formula shown in equation (12), they found that $D = 14.3$ % was the cutoff point.[19] If the diversion ratio between the acquired and the acquiring store was higher than that, it indicated that the acquisition would have an anticompetitive effect in that local area.

By such a procedure they came to the conclusion that Somerfield had to sell out 14 of 115 acquired stores for the merger to be approved. Interestingly, the method used for reaching such a conclusion was primarily based on the SSNIP test. In particular, they applied the formula we reported in equation (12) although they only knew diversion ratios in one direction to pick those stores that should be sold out. Their approach implied that they implicitly assumed the diversion ratio in the other direction was identical to the one they had observed. To illustrate the potential price increase if no divestiture, they also applied the formulas for estimated price increases in equations (9) and (10) given linear and iso-elastic demand, respectively. Unfortunately, some of the estimated price increases become highly unrealistic.[20]

A shift away from just counting number of rival stores towards diversion ratios is clearly an improvement. In later merger cases both OFT and CC has further developed their method.[21] First, they have focused more directly on the anticompetitive effect rather than the

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[19] Although not stated explicitly, it is straight forward to see that given a price increase of 5 % and a diversion ratio of 14.3 %, the price-cost margin has to be equal to 30 %.

[20] For one of the acquired stores they predicted from the formula for the iso-elastic demand function that the price increase would be larger than 1898.4 %! See Annex E in the final decision made by Competition Commission.

[21] For a description of merger cases where this approach was applied, see OFT (2011).

size of the relevant market. Instead of focusing primarily on the SSNIP test and thereby the relevant market, they have focused more directly on the potential price increase. Given that the method has been used to decide whether a merger should be permitted or not, it is natural with such a shift in their approach. On the other hand, we have shown that it is in reality not a fundamental shift in focus. The main input in their estimates of harm (or market size) is diversion ratios and price-cost margins, and then it is more a matter of setting the threshold level. As shown above, a 5 % price increase in the SSNIP test is rather similar to assuming a 5 % price increase in the IPR test. In that respect there is not much of a change in method. In more recent merger cases they moved away from estimating price increases and instead focused on whether the price increase would exceed 5 %. It then became even closer to the initial method where they applied the symmetric SSNIP test with a threshold level.

Second, they have become concerned about asymmetries. They recognized that firms differ. This may imply that diversion ratios from product A to product B can be very different from the diversion ratio in the opposite direction. If so, one product will be a more restrictive constraint on the rival's price setting than vice versa. This was first recognized in the Amazon/LoveFilm merger by OFT, when they applied the SSNIP test where they increased the price on only one of the products (as in the formula in equation (13) above). In later cases they applied the asymmetric IPR test, as for example in the Asda/Netto merger case. OFT argued that the competitive constraint that Asda exercised on Netto was greater than the constraint that Netto exercised on Asda. It implies that they expected the diversion ratio from Asda to Netto to be smaller than the diversion ratio from Netto to Asda. They then used the following screening procedure[22]:

[22] See the final decision by OFT in Asda Stores Limited's acquisition of Netto Foodstores Limited, published 20 October 2010, p. 9-10.

- Stage 1: Counting the number of rivals (isochrones analysis), to clear stores with more than three rivals.
- Stage 2a: Survey outside Netto to find diversion ratios. Applied the symmetric IPR test, assuming symmetric diversion ratios.
- Stage 2b: Survey outside remaining Asda stores to find the diversion ratio from Asda to Netto. This combined with the diversion ratio in the opposite direction (see 2a) was used to estimate the asymmetric version of the IPR formula.

It was set a 5 % threshold level for the price increase. Note that at stage 2a it is assumed that the diversion ratio from Asda to Netto is identical to the one they have found in the opposite direction. Since they expect the diversion ratio from Asda to Netto to be smaller than from Netto to Asda, it implies that such a test leads to false positives. This sounds plausible for screening at that stage, since false positives can be cleared later on when a closer scrutiny is undertaken at stage 2b.

The closer scrutiny at stage 2b is done by finding diversion ratio in the opposite direction for those stores not cleared at stage 2a, and to apply an asymmetric version of the IPR formula assuming isoelastic demand.[23] By using such a formula one will find that asymmetric diversion ratios leads to asymmetric price increases, in this particular case a larger price increase for Netto than for Asda after the acquisition. The method therefore takes into account that the main competitive concern in this case is the possible price increase at Netto stores after the acquisition.

As explained above, though, assuming an isoelastic demand curve may lead to false positives. After calculating IPRs, OFT took into consideration any other evidence that may mitigate the possible anticompetitive effect found when calculating IPRs. In particular, they considered evidence concerning cost reductions passed on to

[23] They applied a formula analogous to equation (1) in Shapiro (2012), except that the formula they used assumed isoelastic (not linear) demand.

consumers through lower prices, any gains from re-positioning of some of the stores and thereby more differentiated stores, and the likelihood of entry. Following an overall evaluation, OFT concluded that the acquisition would have anticompetitive effects in 47 local areas. Asda offered to divest those 47 stores, and the acquisition was cleared in March 2011 with these remedies.[24]

Third, we have witnessed that the size of the price-cost margin has become a more controversial issue. Since price setting is the issue, one should take into consideration those costs that are relevant for price setting. This is the marginal (also called variable) costs. The parties have realized that it matters a lot for the test, irrespective of whether an IPR or a SSNIP test is applied. No surprise that the parties and the competition authorities in some cases disagree on the estimate of the price-cost margin. One important issue is the time period considered. The longer time period, the larger fraction of total costs is variable and the lower is the short run price-cost margin. In the Asda/Netto merger, for example, the OFT used one month as a reasonable period over which to assess the variable price-cost margins. It has been argued that the time horizon that should be applied is the same as the time horizon for the price change.[25]

6.4.3 An Acquisition in the Norwegian Grocery Market

In 2007 the retail chain Norgesgruppen (NG) acquired the rival chain Drageset. NG is the largest retail chain in Norway, with a national market share close to 40 %, while Drageset was a small chain only present in a few local markets. Screening based on market shares indicated that the acquisition might have an anticompetitive effect in

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[24] See the decision made by Office of Fair Trading March 9 2011. Note that Asda was not able to sell one of the 47 stores, and OFT accepted in November 2011 that they did not sell that store.

[25] See Katz and Shapiro (2003), footnote 6.

the local market at Voss. The acquisition would imply that NG, with four out of the eight largest stores prior to the acquisition, would increase its market share from below 50 % to over 60 % in that local area.

As a part of their master thesis two students undertook a survey among 100 shoppers outside each of the eight largest stores in Voss. Among other things customers were asked about their second choice. From these answers the expenditure-weighted diversion ratios (d_{ij}) among all 56 pairs of stores were calculated.[26] We will use this information to illustrate several aspects of the tests we referred to above.

First, let us see how well market shares predict the observed diversion ratios. If it turns out that it is a good proxy for diversion ratios, then market shares can capture quite well the anticompetitive effects of a merger. From market shares s_i and s_j and an assumption that a fraction s_0 of customers (sales) leaves the market, the diversion ratio (proportional to market share) is computed as $D_{ij} = s_0 \, s_j \, /(1\text{-}s_i)$. Consider the index $I_{ij} = d_{ij} \, /D_{ij}$, shown in Table 1 for all combinations of stores. The first five stores that are listed are located in the center of the village, the sixth one 1,5 km to the East while the two remaining stores are located 3 km to the North. If market shares are good predictors for diversion these index-numbers should be 1.[27]

[26] For details of the study, see Halleraker and Wiig (2008). The study is also described in Mathiesen *et al*. (2011).

[27] A chi-square-test makes us reject the hypothesis that the observed and the inferred diversion ratios are equal.

Table 1 **The relative diversion ratios:** $I_{ij} = d_{ij}/D_{ij} \quad j \neq i.$

Stores	Kiwi V	Spar	CoopM	Rimi	Meny	Kiwi P	Drageset	CoopP
Kiwi V		1,84	0,49	1,13	0,09	1,17	0,33	0,52
Spar	2,00		2,66	0,48	0,82	0,70	0,53	0,31
Coop Mega	1,40	2,48		2,18	2,19	0,82	1,21	0,96
Rimi	1,65	0,25	0,53		0,46	1,59	0,36	0,34
Meny	0,26	1,01	1,14	0,92		1,78	0,97	0,49
Kiwi P	2,80	0,62	0,22	1,66	1,33		0,61	0,89
Drageset	0,02	0,24	0,15	0,14	0,89	0,22		2,83
Coop Prix	0,12	0,29	1,62	0,94	0,32	0,38	3,54	

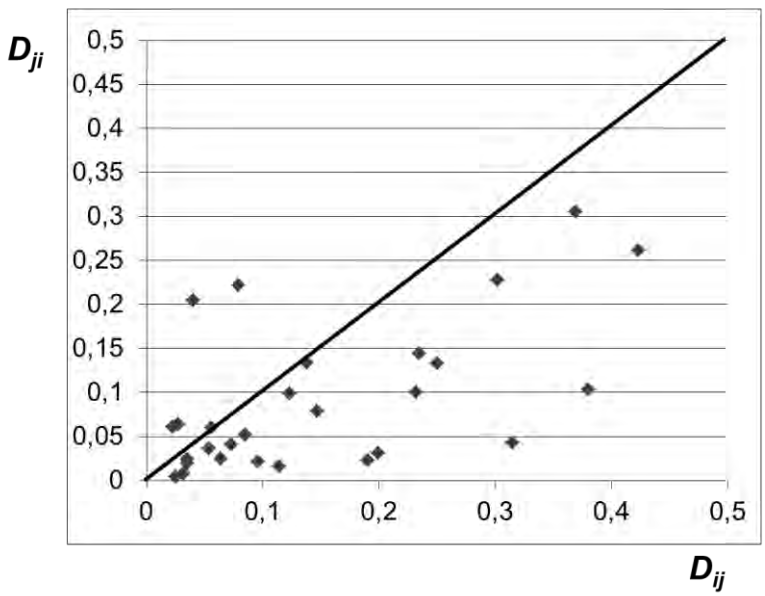
Mathiesen *et al*. (2011) argue that the stores at Voss are differentiated along several dimensions. First and most obvious, stores are located in different areas. The acquired store is located to the North together with Coop Prix that remains outside the acquisition; observe the very high index-numbers of this pair of stores (2,83 and 3,54, respectively). Several other pairs of index-numbers of neighboring stores are also well above one showing that location is important. Second, four stores offer few brands, while the other four stores offer a larger number of brands at somewhat higher prices.[28] Some customers answer that their main concern is price, while others say they prefer a larger number of brands. The observed diversion ratios are largely consistent with such answers, indicating that the dimension the number of brands is also important for differentiation. For example, the neighboring stores Meny and Rimi have index numbers in Table 1 lower than one which can be explained by those two stores belonging two different segments concerning the number of brands.

Second, let us check the possible asymmetry between diversion ratios. Since the survey took place at all outlets, they could estimate diversion ratios in both directions for each pair of outlets. This made

[28] The four stores offering few brands are Rimi, Coop Prix and the two Kiwi stores.

it possible to detect any asymmetry in diversion ratios. Figure 7 reports the diversion ratios for each pair of outlets. Since there are eight outlets, there will be 28 different pairs of outlets. The diversion ratios in both directions for each pair of outlets are shown in Figure 7 with a diagonal square mark.

Figure 7 Asymmetries in diversion ratios at grocery stores at Voss



If we have a square mark on the 45° line, then the diversion ratios for that particular pair of stores are identical. We see that this is not met for any stores, and for some of the square marks for the pair of diversion ratios are located far away from the 45° line. This indicates that for many of the stores the diversion rate in one direction differs considerably from the diversion ratio in the other direction. Although this is just one example from one local market, it indicates that one should be careful with imposing symmetry in diversion ratios after observing the diversion ratio in only one direction.

Third, we compare the proposed UPP_1 test in equation (6) – a price change on only one product – with the more accurate UPP test

in (7) with a price change on both products (or in this case all products). The acquired store, Drageset, has a sale that amounts to approximately 1/3 of the joint sales of all four NG stores. Let us consider increasing only the price of Drageset and assess the required reduction in its marginal costs. A cost reduction could follow because this store would become part of a much larger retail chain with presumably more efficient distribution and lower input prices. The aggregate observed diversion ratio from Drageset to the stores in NG – Meny, Spar, Kiwi V and Kiwi P, is 38.9 %. With a price-cost margin of 25 %, from the formula in equation (6) we find there will be an upward pricing pressure on Drageset unless marginal costs are reduced by at least 12.9 %. From the more accurate test in equation (7) we find that the critical change in marginal cost is 12.7%. It illustrates the point that when products are sufficiently asymmetric, the accurate UPP may be more conservative than the UPP_1 test on only one product (false positives).

Fourth, let us illustrate the importance of the non-merging firms' price response. When the price on only the acquired store is increased, Shapiro (1996, 2012) offers the price-prediction formula $M_2 \cdot D_{12}/2$.[29] Filling in our numbers, we obtain a price increase of 5.8 %. In Mathiesen *et al.* (2011) it is reported how the diversion ratios can be applied to calibrate a demand system, and then to simulate possible price effects of this acquisition. When applying this merger simulation model it also predicts a 5.8% price increase for the Drageset store when the prices of all other stores are constrained at pre-acquisition levels. This merger simulation model predicts a 7 % price increase for Drageset when also the other NG stores increase their prices, and 7.5 % when also outsiders respond. If price increases from others than the acquired firm are modelled, the acquired firm then sets a price that is almost 30 % higher. This indicates that

[29] See also the price prediction test put forward in Moresi (2010) and defined as GUPPI, *Gross Upward Pricing Pressure Index*. It can be seen as a reformulation of the UPP test, and thereby implicitly assuming no price response from non-merging firms. See also Schmalensee (2009).

ignoring the price response from other products and firms can lead to a substantial downward bias on the predicted price increase.

Finally, let us compare predictions of average price increase for two merger simulation models, one (called OBS) based upon the observed diversion ratios and one (called MS) where cross price elasticities are calibrated from market shares.[30] The OBS model predicts an average price increase that is 40 % lower than the prediction from the MS model. This is because market shares overestimate the diversion from Drageset to the other NG stores. It illustrates the point in Willig (1991) that inferring demand from market shares may lead to a serious bias in predictions. In other cases the bias may of course go in the opposite direction.

6.5 Some Concluding Remarks

I have argued that the traditional approach with focus on market shares and concentration indexes can be a bad predictor for estimating the anticompetitive effect, and in particular in markets with differentiated products. The new approach with focus on diversion ratios and price-costs margins is much more targeted towards measuring the unilateral effects of a merger. It might not be more demanding to find data for diversion ratios than for market shares, as illustrated by the simple method for finding diversion ratios in the ferry market.

It is of interest to contrast how the new approach is applied in the US versus some European countries. The UPP approach in the US is meant to be a screening device early in the merger investigation. Those not cleared should be scrutinized further. In that respect the

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[30] For details concerning the merger simulations, see Mathiesen *et al.* (2011). See also Farrell and Shapiro (2010b) and Epstein and Rubinfeld (2010) for a discussion of merger simulation model and the use of market shares for calibration.

UPP approach, with no prediction of the magnitude of the expected price increase, makes sense. In European countries, and in particular in the UK, the competition authorities have applied the analogous approach IPR as an important test for whether a merger should be blocked in the final phase of an investigation. Then it seems more appropriate to consider the magnitude of the price increase, as they do with the IPR approach.

However, when we compare the various test – UPP, IPR and SSNIP – we observe that they share several features. In all these tests it is found that the relevant market will be narrow and the mergers will be seen as potential anticompetitive if (i) the diversion ratios between the merging firms are high and (ii) the price-cost margins are high. This shows that the merger assessment, as well as the market definition, should focus on those two factors. It is interesting to note that in two recent mergers in Norway they have focused on the diversion ratios. In my view this is an improvement compared to the traditional approach used earlier.[31]

One concern, though, is the definition of the threshold level. As long as the test is used as an early screening, one should not be very concerned about false positives since those mergers can be cleared later on during a more in depth merger assessment. But if an analogous test is used as an input for the final merger decision, one should be more careful and be more concerned about false positives since there is less of a change to correct a false positive. This calls for a higher threshold level for the final decision than for the merger screening early on. If the new approach is used as an important input for the final decision, it is also natural to exploit all the information that is available at that stage. This could imply that one should not use the simplified formula where it is assumed symmetry, but rather apply the more complex but also more precise formula – such as the

[31] See decision V2012-11 (A-pressens acquisition of Edda Media) on 28.06.2012, and decision V2012-18 (Plantasjen's acquisition of Oddernes Gartneri) on 22.08.2012.

one reported in Hausmann *et al.* (2011) – that takes into account asymmetries between firms.

Finally, it is worth noting that the new approach is not necessarily in conflict with the traditional approach. Those two methods can supplement each other. Note that the UK competition authorities still use concentration and market share thresholds in the first initial screening. For example, they still use isochrone analysis in the first phase in some of the retail mergers. There can be practical reasons for this, simply the time restriction in the first phase that does not make it possible to estimate diversion ratios. Furthermore, there are aspects concerning the anticompetitive effects of a merger that will not be taken into account in the new approach. In particular, the new merger assessment approach should be supplemented with a discussion of other aspects such as barriers to entry and repositioning of the products in the industry.

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