KATHOLIEKE UNIVERSITEIT LEUVEN

Faculty of Economics and Applied Economics

Department of Economics

Merger Review: How much of Industry is Affected in an International Perspective?

by

Patrick VAN CAYSEELE
Jozef KONINGS
Jan DE LOECKER

Financial Economics

DISCUSSION PAPER

MERGER REVIEW/ HOWMUCH OF INDUSTRY IS AFFECTED IN AN INTERNATIONAL PERSPECTIVE?

by

Patrick VAN CAYSEELE
Jozef KONINGS
Jan DE LOECKER

Financial Economics

Center for Economic Studies
Discussion Paper Series DPS 03.15
http://www.econ.kuleuven.ac.be/ew/admin/default.htm

December 2003

D/2003/2020/16

1. INTRODUCTION

The ex ante merger control process that exists at the EC as well as in many of the constituting member states is a particular type of government intervention, namely one in the market for corporate control. As such, it is supposed to correct for a market failure. Here in particular, merging firms could gain market power and raise prices at the expense of consumers in a way the welfare standard is reduced.[1]

As with any government intervention, the potential benefits of it can be neutralized by government failure. Recently, Duso, Neven and Röller (2003) have documented a particular government failure in the area of merger control. For the EC practice of merger control and over a substantial period of time, they show how the merger control process can make type I-errors, that is block pro-competitive mergers which increase welfare and growth. Equally, type II-errors can take place, when anti-competitive mergers which are detrimental to welfare are cleared. The authors also identify the causes that may lead a competition authority to make errors of type I and II? See also Katsoulacos (2002).

The present paper further documents the costs associated with ex ante merger control by focussing on the obligation to notify the merger i.e. to go through a merger review process in order to obtain a favourable decision by the antitrust auhorities. The costs of such a notification affects both mergers beneficial and detrimental to welfare of the economy alike. For the first group, one thus could argue that an error of type I occurs nearly always since an operation which improves economic efficiency is taxed by the burden of notification, even if it is cleared afterwards[2].

---

[1] Economists over decades have provided estimates of the welfare losses due to monopoly, for a recent survey, see Office of Fair Trading (2002). The dead weight loss estimates associated with monopoly tend to be substantial, sometimes amounting to several percentages of GDP.

[2] A recent study by Price Waterhouse Coopers, see PWC (2003), documents the costs associated with merger reviews. A typical multi-jurisdictional deal on average involves €3,3 million external merger review costs. To this, one has to add the internal costs, and then one only has the costs to the company. For the economy, there are also the costs for the public administration, hearings, legal support, … involved in the review.

In many cases, merger control excludes the notification of operations for which there is prima facie no reason to expect that they will create market power and hence need to be scrutinized by the competition authority. This helps in keeping the costs associated with merger review in control. Usually "small" operations are seen to create no harm.[3]

Merger notification in addition to welfare considerations has a political economy dimension, because the thresholds that trigger the obligation to clear in advance are economy wide, but widely different between the economies of the EC member states. This implies among other things that a merger which needs to be reviewed in order to obtain clearance in one country, could go through without notification f the merging firms had been located in another member state of the EC. Clearly, this will affect the potential for firms to grow by merger and acquisition within a country differently. Or a growing firm in one country will be able to get much further in his external growth strategy without encountering merger scrutiny than a firm in another country. Hence the dynamics of the size distribution of firms will be affected differently across countries by merger control.[4]

It could be argued that firms operating in countries with a lower threshold will adapt to the domestic situation by growing through cross-border merger and acquisition [5]. This however assumes that cross-border operations are as easy as national mergers and acquisitions. Empirical evidence on this points to the contrary: many merger operations are still within the boundaries of a country[6]. Moreover, firms in this way only can circumvent the stricter criteria for notification if these do not use triggers such as worldwide sales. Otherwise a merger operation with a foreign

---

[3] But this re-opens the door for type II-errors since a merger between two relatively small firms operating beyond strong barriers to entry on a particular product or geographic market could do much more harm than a merger between larger but contestable firms who need to notify.

[4] See Sutton (1998) for the economic processes determining the dynamics of the size distribution of firms. Note also in particular the "Fate of Ilford" when facing actions from the U.K. Antitrust Authorities.

[5] The idea that firms will circumvent particular forms of antitrust legislation if other possibilities are available has been put forward by Bittlingmayer (1985). He argues that the Sherman Act of 1890 created such uncertainty about the legality of agreements between firms competing in the same industry that they preferred to merge.

[6] The European Commission recently has proposed a guideline to simplify cross-border mergers, motivated by the argument that such operations for the moment are virtually impossible in the Netherlands, Sweden, Ireland, Greece, Germany, Finland, Denmark and Austria.

firm is in terms of the criteria triggering the merger review process exactly the same as an operation with a domestic firm.

In the rest of the paper, we maintain the hypothesis that the most likely candidate for a merger or acquisition is another firm operating in the same industry in the same country. This is an even more pronounced hypothesis regarding the merger and acquisition process since it not only considers cross-country but also mergers across industries to be less likely. While the latter occur more often than cross-border mergers, they are unlikely to trigger merger review, and probably they shouldn't, for it is not evident that market power could result from the merger of firms operating in different sectors of the economy[7]. Under this maintained assumption, we show that differences in national thresholds matter in an important way for the number of merger operations that are affected by merger control regulations.

To show this result, we first provide a brief survey of merger control criteria in the EC. As such, we identify classes of comparable countries in terms of the different types of criteria used to trigger merger review. In the third section, we introduce a framework that determines quantitatively the impact of threshold differences within a particular class of countries (cluster) using the same qualitative criteria identified in section 2. A statistic for the quantitative impact of threshold differences on merger notification cases is derived. In section 4, we show how this statistic is misleading if the actual size distribution of firms is used to compute the percentage numbers of firms actually affected by notification in the event of potential merger or acquisition. For a number of manufacturing industries in different countries, it turns out that there are important differences. In a fifth section, we indicate how countries can be compared to each other when they do not belong to the same cluster. Section six concludes by offering some reflections on, and extensions of the methodology introduced. Also some policy recommendations are made.

---

[7] There could of course always exist "conglomerate" effects such as enhanced buyer power or improved coordination due to multimarket contact, see e.g. Bernheim and Whinston (1990). For the purpose of the present paper however, it is noteworthy that some countries even have adapted rules saying that such operations should not be reviewed. In Belgium for example, this is called the O+ rule, used to indicate that if a company buys another one in a market in which it has no rules yet, it should not notify.

2. MERGER CONTROL THRESHOLDS IN THE EC: A SURVEY

The triggers for merger notification of EC member states as well as other European countries are widely different in many respects. First the criteria employed are different. Some countries specify turnover on the domestic territory as a trigger, other use worldwide sales, market shares, or even the size of assets as a yardstick. Second, sometimes a single criterion is used while in other countries, many criteria are looked at simultaneasly. Finally, the trigger values of the criteria used are largely different.

In order to give an idea of the qualitative impact of the merger control thresholds and to compare this among countries, it is clear that an analytical approach has to be taken[8]. In the rest of this section, we therefore group countries in terms of having similar (qualitatively speaking) criteria for notification. In terms of the above paragraph, this implies that within a group of countries we will have notification triggers that combine the same elements in the same way. A survey of the different merger control procedures in terms of criteria used, thresholds to be met, a.s.o. is to be found in "Merger Control 2002", where the situation as of 1999 in a number of countries is represented.

A particular class of countries that we can identify is what we call the double sales threshold category. In short, the double sales threshold category groups countries for which notification is mandatory if a combined turnover of y million euro is met and at least two of the parties involved each have a turnover of x million euro.

Within the double sales thresholds category, a further distinction can be made according to the way one measures the combined turnover. In France for example, a combined worldwide turnover of 150 million euro is used, whereas in Belgium the criterion is filled in by a combined turnover of 40 million euro on the Belgian market. We denote the first

---

[8] An economic analysis of competition policy in general in 4 EC members states has been given by Van Cayseele, Van Meerbeeck and Sabatini (2000).

group by "double sales threshold/worldwide" and the second by "double sales threshold/national".

Still within the double sales thresholds category, a third cluster of countries uses for the combined threshold *both* sales on the domestic market and worldwide sales. This implies that instead of two triggers, a third one could lead to merger review. We denote this category by "double sales threshold/both".

Finally, a last cluster of countries can be identified because another criterion is added to the double sale threshold. Mostly, countries that verify additional criteria on top of the double sales threshold use a market share criterion to trigger merger review. We will denote this category by "double sales threshold/market share".

Building upon this, we grouped some European countries according to the similarity of the notification criteria used. This leads to the four distinct clusters just discussed. Appendix 1 provides the details of the countries concerned as well as the particular triggers used. Cluster A includes countries such as France and the Netherlands. Cluster B has Belgium and Hungary in it. Cluster C includes among others Switzerland and the Czech Republic. Finally, cluster D incorporates Greece and Spain.

Since the methodology to count potential mergers reviews, to be developed in the next section, is designed to deal with data on worldwide sales only (as they are made available by the Amadeus dataset), the results *will be upward biased for all four clusters*. Yet, the magnitude of the bias differs from cluster to cluster, as will be shown in the fifth section

The reason why the methodlogy will yield an upward bias is the following. In each group, merger review is triggered by each firm participating in the merger having sales of x in the domestic market. Since the Amadeus dataset only provides worldwide sales, we use the latter whilst verifying whether each party involved in the merger has sales exceeding x. The difference between the true trigger value for x and the one used for our empirical research thus is exports. Since the latter are

nonnegative, the method used will identify *more* merger review cases than those who will actually require merger review. This can best be explained by an example. Suppose the algorithm described in more formal detail in the next section identifies a couple of French firms with resp. worldwide sales of 100 and 55 million euro. Since combined worldwide sales are 155 million euro and each individual firm realises sales in addition of 15 million euro, the algorithm will count this operation as one coming up for merger review.

In reality however, it could well be that the company realizing worldwide sales of 55 million euro exports 45 million euro, leaving it with 10 million of sales on the domestic, French market. In that case, and supposing that the company realizing 100 million euro of worldwide sales doesn't export, we have an operation that does not involve two companies each realizing 15 million euro or more on the domestic market, and hence it is not subject to merger review. Hence, in the absence of having data on domestic sales, working with worldwide sales instead of domestic sales will bias our estimate of the number of cases that will need to be cleared in an upward fashion.

This implies that even within one and the same cluster of countries, one has to be careful in drawing conclusions regarding the impact of the different thresholds from the percentage of firms that is affected by merger review. The reason is the possibility of an export bias. Only to the extent that one assumes that the magnitude of the bias is the same, by assuming that firms in particular countries do not export more than their counterparts in another country, it is possible to conclude from the results of the algorithm that one country is "tougher" than another, when an higher percentage of firms needing review shows up. Also, if one is able to make a justified assumption regarding the direction of the export bias, interesting comparisons can be made. Again two countries in cluster A, inz. France and Sweden. The only measurement error that arises in that cluster comes from the use of worldwide sales instead of domestic sales for the individual sales trigger x. Suppose Sweden exports, as a small country relative to France, more.[9] In the extreme, suppose France doesn't export at all. Then the algorithm described in the next section, when using Amadeus data, as in the fifth section will exactly identify the number of

---

[9] Of course, there can be important sectoral differences in relative exports.

merger operations that need review for France, but it will over-estimate the number for Sweden, since exports are nonnegative in this country. Therefore, should we then find that the percentage of operations affected by merger review in a particular industry in Sweden is less than in France, its is safe to conclude that French thresholds indeed have a stronger impact on that sector.

Along these lines, i.e. by assuming that there either is no export bias, or that exports proportionally decrease in country size, it will also be possible to propose further orderings, within and even between clusters. As argued before, this will be done in the sixth section. For the moment, the algorithm used to compute the number of operations affected needs explanation.

3. A THEORETICAL FRAMEWORK

In this section, we introduce a theoretical framework that illustrates the impact of the different merger control thresholds as well as other parameters on the percentage number of firms affected by prior notification, for a particular cluster, namely A. In order to graphically expose the forces at work, we initially assume a uniform distribution regarding the size of firms. In reality, the skewness of the size distribution of firms will strongly effect outcomes, and hence it is worthwhile to contrast this effect with the indicators proposed in this section. First, some notation is introduced. Then a graphical illustration which is helpful in understanding the algorithm used in the next section is given. Finally some indicative statistics are put forward.

3.a. Notation

Since we focus on the class of countries which maintain at the individual level national thresholds for merger notification, let x denote the individual threshold each of the firms needs to have in terms of sales on the national territory. The combined sales are denoted by y. These now are worldwide sales. Initially we focus on mergers of 2 firms. Finally, denote by z the worldwide sales of the largest firm in the industry.

3.b. A Graphical Exposition

Consider all firms in an industry. On the horizontal axis, they are ordered from small to large. Since we assume a uniform distribution between 0 and z, each point on the horizontal axis represents a firm (should the population be a continuum). Next, plot exactly the same population on the vertical axis. Each point in this plane now represents a merger of two firms, but in order to avoid double counting, only the area below the 45 degree line should be considered.[10] Then introduce the merger control thresholds. Since only operations including firms each realizing a sales volume of x are affected, all operations involving firms to the left of x

---

[10] For merger control purposes, it does not matter whether firm A buys firm B or vice versa. Nor whether the operation comes about by a merger of equity or an acquisition, since only sales criteria trigger merger review.

remain outside merger control. The next threshold involves both parties realizing sales together of y or above. This introduces in the graph a straight line with slope-1, extending from y on the vertical axis to y on the horizontal axis. Finally, the area's considered are always bound by the sales of the largest firm. Therefore, the shaded area in figure 1 below represents the number of firms affected, for the case of z>y>2x. (This holds for all countries in the class of "double sales thresholds" identified in the previous section).

Figure 1: A Graphical Illustration of the Number of Firms Affected in the "Double Sales Threshold/National" class
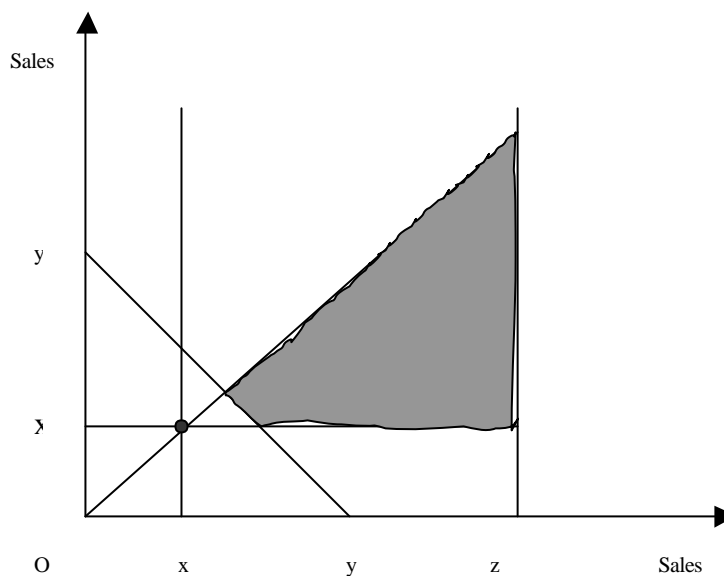
3.c. Indicators of the Impact of Merger Controls

As argued in the previous sub-section, the potential merger combinations in this industry that are affected by prior control are represented by the shaded area. The total of potential mergers simply is represented by the area of the triangle with base and height z. As an initial indicator for the impact of merger control in an industry with sales of the largest company equal to z and operating in a country belonging to the "double sales threshold-class", we propose the ratio of the shaded area and $z^2/2$. Formally, let P represent the percentage number of firms affected, then it is easy to show that:

$$P = 1 - \frac{1}{2}\left(\frac{y}{z}\right)^2 - \left(\frac{x}{z}\right)^2 - \frac{2(z-y)x}{z^2} \qquad (1)$$

A few conclusions result from analyzing how the different parameters effect P. Clearly, P increases in the sales of the largest firm in the industry. It decreases both in the combined and individual sales threshold. Whenever the individual and combined thresholds are 0, p = 1 and all firms are affected. This all is quite intuitive.

As x, y and z determine P, and as countries have different thresholds, the P's will be different in each country. But moreover, the P's will be different for each industry within a country as z differs across industries. Since the size distribution of firms tend to be particularly skew in the tails, see Sutton (1998), we may expect large differences in P across industries within the same country. This illustrates a first effect of the skewness of the size distribution of firms which is usually missed in the political economy debate on thresholds.

Another aspect related to the skewness – which will be illustrated more forcefully in the next section – has to do with the shape of the distribution assumed. For the moment, results are derived for a uniform density of firms having sales between 0 and z. In reality, many more firms will be small and only few will be larger. This implies that the area used to represent the number of potential merger cases that need to be cleared is a biased indicator. Indeed, above y, the number of combinations actually occurring will be much more infrequent than the area used until now. This implies that P is an upper bound for the true statistic, or that in reality, P will be lower. More important however is that the magnitude of the bias increases in y.

3.d. Export Bias

As explained extensively in the previous section, the Amadeus data set provides us with worldwide sales while one threshold of the countries grouped in cluster A denotes domestic sales, viz. at the level of the individual sales criterion x. This implies that the more a country is export oriented, the more the algorithm identifies operations that need to be reviewed while in reality they don't. In figure 1, on both the horizontal and vertical axis, one finds both domestic and worldwide sales. But since

the data set used only provides worldwide sales, domestic sales have been omitted. Worldwide sale however also include exports, hence when worldwide sales data are used to cut off the part of the distribution of firms that needs to notify, whereas domestic data should be used, too few cases will be identified as not needing merger review. But than the domestic sales threshold represented by an horizontal line in figure 1, in fact should be above the horizontal line at the level of x. This clearly shows how the algorithm, making use of worldwide rather than domestic sales identifies too much cases for review.

3.e. Summing up

The present section has introduced a statistic P for indicating percentage-wise how much of industry is affected by merger review. This statistic clearly shows the importance of the level of the thresholds x and y, as well as the impact of the support of the size distribution of firms z. The statistic is an upper bound for the true number of cases that while need review for two different reasons. First of all, the skewness in the size distribution of firms implies that less merger combinations exist with large firms, as opposed to what the statistic P will indicate due to the uniform distribution of firm size that underlies it. When working with the real data however, the numerical algorithm that is presented in the next section is not affected by the skewness of the size distribution (as opposed to the uniform distribution assumed) because the algorithm actually counts all the potential cases that would need a review.

A second bias comes from working with Amadeus data, and hence worldwide sales, while one criterion involves domestic sales. This will lead to an overestimation of the cases identified as being affected, and this bias is not corrected by the numerical algorithm used in the next section for it is inherent to the data used.

4. THE IMPACT OF EX ANTE MERGER REVIEW: THE DIFFERENT TRIGGER VALUES AT WORK WITHIN EACH CLUSTER

In this section, we actually compute the percentage of firms affected by merger control for a number of manufacturing sectors in a selected number of countries. This is done by applying the algorithm described in appendix 2 on the Amadeus data set, for a selected number of countries. We start with the countries in cluster A, that is France (F) and Sweden (S).[11] See table 1 for the results.

A few interesting conclusions emerge. The most striking are the sometimes very substantial differences between countries for one and the same industry, as well as the substantial differences between industries in one and the same country. Commenting upon the differences between countries first, and abstracting from industries in which a particular country has a 0-entry (this could be explained either by zero percent affected or by the country not having any serious activity in that country), we see how for: NACE 15 (Manufacture of Food and Beverages), NACE 27 (Manufacture of Basic Models), NACE 29 (Manufacture of Machinery and Equipment, NACE 32 (Manufacture of Radio, Television, Communication), NACE 34 (Manufacture of Motor Vehicles), NACE 35 (Manufacture of Other Transport Equipment), France tends to have percentage-wise more of industry affected by merger review than Sweden. Given the assumption that for a given level of worldwide sales in France and Sweden, this results in more domestic sales in France and less in Sweden, the algorithm tends to be biased against Sweden in that it takes too many operations as being affected there.[12]

---

[11] Due to the very bad quality of the data in Amadeus for the Netherlands, it doesn't make sense to include that country into the analysis.

[12] Especially for NACE 29, NACE 32 and NACE 34, there could be "obvious" cases of overcounting for Sweden given the resp. strong export position of players such as ABB, B&O, Volvo and Saab.

Table 1: Percentage of potential merger cases needing prior notification for manufacturing industries in countries of cluster A

Nace	Industry	F	S
15	Manufacture of food products and beverages	0,09	0,01
16	Manufacture of tobacco products	16,66	0,00
17	Manufacture of textiles	0,03	0,00
18	Manufacture of wearing apparel	0,01	0,00
19	Tanning and dressing of leather	0,02	0,00
20	Manufacture of wood and wood products	0,00	0,00
21	Manufacture of pulp, paper and paper products	0,79	0,89
22	Publishing, printing and reproduction all media	0,00	0,00
23	Manufacture of coke, refined petrol and nuclear	12,46	0,00
24	Manufacture of chemicals and chemical products	2,55	0,00
25	Manufacture of rubber and plastic products	0,13	0,00
26	Manufacture of other non-metallic mineral products	0,07	0,00
27	Manufacture of basic metals	1,96	0,42
28	Manufacture of fabricated metal products	0,00	0,00
29	Manufacture of machinery and equipment	0,08	0,01
30	Manufacture of office machinery & computers	0,67	0,00
31	Manufacture of electric machinery	0,21	0,00
32	Manufacture of radio, television, communication	0,31	0,26
33	Manufacture of medical, precision & optical	0,02	0,00
34	Manufacture of motor vehicles	1,00	0,33
35	Manufacture of other transport equipment	0,26	0,03
36	Manufacture of furniture	0,01	0,00
37	Recycling	0,00	0,00
Median		0,09	0,00

Hence, it is safe to conclude that in those sectors, the French thresholds for merger notification are tougher in that they affect percentage wise more of industry. Overall France seems to be have tougher triggers than Sweden.[13]

Next, within each of the countries, pronounced differences exist between different industries. For France, the manufacture of tobacco products (NACE 16) and the manufacture of coke, refined petrol and nuclear fuel (NACE 23) is percentage wise much more affected than say the manufacture of furniture (NACE 36). This clearly illustrates how economy-wide thresholds are always to affect industries with strong economies of scale (also notice the "intermediate"-percentages of chemicals (NACE 24) and basic metals (NACE 27)) more than those who not have such scale economies.[14]

Using the same methodology of tracing the nature of the bias, we can engage in country comparisons within other clusters too. In cluster B, we have Belgium (B) and Hungary (H). For this cluster, the algorithm will be even more biased since both the individual and combined thresholds are in domestic sales whereas the algorithm uses worldwide sales. Between these countries, it seems that Belgium is more export oriented, given the relative state of development of the two economies and their geographic position. Therefore it seems safe to conclude that should we find an Hungarian industry that is percentage wise more affected than its Belgian counterpart, Hungary has the tougher regulatory standard for the Belgian percentage will even be more overestimated.

In table 2, it shows that this seems to be the case for a number of industries, namely[15]: NACE 15 (Manufacture of Food and Beverages), NACE 16 (Manufacture of tobacco products), NACE 18 (Manufacture of wearing apparel), NACE 20 (Manufacture of wood and wood products), NACE 21 (Manufacture of pulp, paper and paper products), NACE 22 (Publishing, printing and reproduction), NACE 28 (Manufacture of fabricated metal products), NACE 30 (Manufacture of office Machinery and computers), NACE 31 (Manufacture of electric machinery), NACE 32 (Manufacture of radio, television, communication), NACE 33 (Manufacture of medical, precision and optical), NACE 34 (Manufacture

---

[13] The Swedish Authority on the other hand has a strong tradition in fighting cartels, see Konkurrensverket (2001).

[14] Of course, strong scale economies will imply fewer players being able to reach the minimum efficient sale and hence fewer competitors.

[15] Again, zero percenatges have been left out of the comparison because this could point to the activity not being undertaken.

of motor vehicles), NACE 35 (Manufacture of other transport equipment), NACE 36 (Manufacture of furniture), NACE 37 (Recycling).

Table 2: Percentage of potential merger cases needing prior notification for manufacturing industries in countries of cluster B

Nace	Industry	B	H
15	Manufacture of food products and beverages	3,55	17,75
16	Manufacture of tobacco products	35,95	100,00
17	Manufacture of textiles	3,71	2,18
18	Manufacture of wearing apparel	0,43	2,92
19	Tanning and dressing of leather	0,62	0,00
20	Manufacture of wood and wood products	0,37	1,69
21	Manufacture of pulp, paper and paper products	8,24	10,13
22	Publishing, printing and reproduction all media	0,75	12,59
23	Manufacture of coke, refined petrol and nuclear	41,18	37,14
24	Manufacture of chemicals and chemical products	19,23	10,17
25	Manufacture of rubber and plastic products	5,82	2,97
26	Manufacture of other non-metallic mineral products	1,54	0,00
27	Manufacture of basic metals	17,28	9,52
28	Manufacture of fabricated metal products	0,52	3,34
29	Manufacture of machinery and equipment	2,64	2,72
30	Manufacture of office machinery & computers	0,95	12,46
31	Manufacture of electric machinery	3,65	12,22
32	Manufacture of radio, television, communication	7,21	17,48
33	Manufacture of medical, precision & optical	0,86	15,93
34	Manufacture of motor vehicles	8,92	10,24
35	Manufacture of other transport equipment	1,96	14,28
36	Manufacture of furniture	0,85	6,45
37	Recycling	0,54	0,00
Median		2,64	10,13

This is a rather long list, indicating that Hungary has rather tough merger review enforcement standards. To judge on Belgium, a comparison with another developed economy should be made. This is deferred to the next section.

Also in this cluster, pronounced differences exist between different industries. For Belgium, as in France, the manufacture of tobacco products (NACE 16) and the manufacture of coke, refined petrol and nuclear full (NACE 23) is strongly affected, but so are the manufacture of chemicals and chemical products (NACE 24) and the manufacture of basic metals (NACE 27). The just mentioned comparison with another developed economy therefore is more than justified.

Finally, a comparison of the countries within cluster C can be made, for within cluster D we only have been able to compute the results for Spain. Countries in cluster C are as any other country upward biased in terms of the percentages of merger operations that need review due to the use of worldwide instead of domestic sales. But compared to countries in cluster A or B, another criterion is added, in the form of an "or" condition. More in particular, these countries have an individual sales threshold at the domestic level, and two combined thresholds: one using domestic sales, another using worldwide sales. Since the algorithm only looks at individual worldwide (instead of domestic) and combined worldwide sales, one trigger (combined domestic sales) is ignored, leading to possible underestimation.

Within the cluster however, it again is plausible to assume that more exports will lead to a relative overestimation, and hence that Switzerland being more advanced will in reality probably have fewer cases than estimated. This again implies that if we find a percentage for Switzerland (CH) below that of the Czech Republic (CR), we will conclude that the last countries regulations are tougher for that particular industry.

Again as becomes clear from table 3, this happens in very many cases. The list here tends to be as long as that for Hungary (compared to Belgium). We only mention the codes of the industries, viz. NACE 15, NACE 16, NACE 21, NACE 22, NACE 24, NACE 25, NACE 26, NACE 28, NACE 29, NACE 32, NACE 34 and NACE 35. This leads to the conclusion that also this transition country tends to have low trigger values for merger review.[16]

---

[16] The question of course is: how tough is the review process once it has been triggered?

Table 3: Percentage of potential merger cases needing prior notification for manufacturing industries in countries of cluster C

Nace	Industry	CR	CH
15	Manufacture of food products and beverages	29,8	15,82
16	Manufacture of tobacco products	100,00	71,42
17	Manufacture of textiles	19,24	0,00
18	Manufacture of wearing apparel	2,85	0,00
19	Tanning and dressing of leather	13,33	0,00
20	Manufacture of wood and wood products	8,85	0,00
21	Manufacture of pulp, paper and paper products	31,88	14,00
22	Publishing, printing and reproduction all media	4,72	0,89
23	Manufacture of coke, refined petrol and nuclear	100,00	0,00
24	Manufacture of chemicals and chemical products	24,95	15,96
25	Manufacture of rubber and plastic products	10,94	1,17
26	Manufacture of other non-metallic mineral products	23,57	3,29
27	Manufacture of basic metals	40,90	0,00
28	Manufacture of fabricated metal products	8,32	2,66
29	Manufacture of machinery and equipment	11,62	10,03
30	Manufacture of office machinery & computers	0,00	0,00
31	Manufacture of electric machinery	8,13	12,92
32	Manufacture of radio, television, communication	7,69	4,76
33	Manufacture of medical, precision & optical	5,07	6,83
34	Manufacture of motor vehicles	38,38	16,67
35	Manufacture of other transport equipment	29,42	6,67
36	Manufacture of furniture	8,91	0,00
37	Recycling	0,00	0,00
Median		11,62	2,66

5. THE IMPACT OF EX ANTE MERGER REVIEW: A COMAPRISON BEWTEEN CLUSTERS

It is easy to see that clusters C and D are using the same triggers as cluster B, but add an additional criterion that triggers review. Therefore, if we compare countries similar in exports (hence controlling for the export bias overestimation) in the B cluster to countries in the C and D cluster, it is clear that a lower percentage of merger operations affected in the B cluster points to tougher standards in the countries belonging to the C or D cluster. As such, when we for example assume that Belgium and Switzerland have about the same export bias, Switzerland is tougher than Belgium for NACE 15 (Manufacture of food and beverages), NACE 16 (Manufacture of tobacco products), NACE 21 (Manufacture of pulp, paper and paper products), NACE 26 (Manufacture of other non-metallic mineral products), NACE 27 (Manufacture of basic metals), NACE 28 (Manufacture of fabricated metal products), NACE 29 (Manufacture of machinery and equipment), NACE 31 (Manufacture of electrical machinery), NACE 33 (Manufacture of medical, precision and optical instruments), NACE 34 (Manufacture of motor vehicles) and NACE 35 (Manufacture of other transport equipment).

Again this is a long list indicating that Belgian thresholds are rather high although they induce on an extremely low budget antitrust authority a tremendous work load.

Comparing Hungary (from cluster B) to the Czech Republic (from cluster C) is an equally interesting exercise. Since the Czech Republic adds a criterion that is not checked by the algorithm (or to put it differently checks two criteria that are different by computing only one test), it tends to underestimate the percentage of cases affected for this country. Hence if we find a lower percentage in Hungary, we again may conclude that the latter has a soften standard, assuming the export bias is the same to the two countries. Again a long list of sectors for which this holds true can be given. Hungary tends to have soften standards than the Czech Republic for NACE 15, NACE 17, NACE 20, NACE 21, NACE 23, NACE 24, NACE 25, NACE 27, NACE 28, NACE 29, NACE 34, NACE 35 and NACE 36. A few sectors in which the reverse situation *might* prevail however also exist. A comparison between Belgium or Hungary and Spain, the only country from cluster D for which we could do

computations seems less relevant due to the very different economies induced. Methodologically speaking, an higher percentage for Spain would lead us to the conclusion that Spain is tougher, for we miss cases by not taking into account the fact that the market share threshold might be reached.

Other comparisons between countries belonging to different clusters can be done in the same spirits. Cluster C can be seen as cluster A with an addition al criterion, allowing also comparisons between e.g. Switzerland and Sweden. A smaller percentage of operations affected for Sweden would then lead to the conclusions that Swedish standards are weaker for that industry. Such an exercise would show that this indeed holds for NACE 15, NACE 21, NACE 29, NACE 31, NACE 32, NACE 33, NACE 34 and NACE 35. Each of these sectors (except NACE 26 for which Switzerland cannot be compared to Sweden for we detected not any significant activity of it in Sweden), was also in the list of countries for which we argued there was a reasonable indication that Switzerland was tougher than Belgium, hence it is safe to conclude that Switzerland is a rather tough country for these sectors.

The most interesting comparison however seems to be between countries in cluster A and B. More in particular then between Belgium, France and Sweden. As argued already, although Belgium asks for a combined sales thresholds in terms of domestic sales, we use worldwide sales instead. Also, in terms of openness, this country seems to export on average more than Sweden or France. Hence the algorithm will overestimate the percentage of merger operations affected by merger review most for this country and hence if we find an higher percentage for France or Sweden, we may conclude that Belgium has softer standards.

Nonetheless, comparing industries in Belgium vis-à-vis France and Sweden yields the conclusion that there is no single sector where Belgian regulatory standards are softer than those in France or Sweden.

6. CONCLUSIONS

The present paper has investigated the impact of the different criteria used to determine whether or not a merger should be cleared in advance. We have documented the implications of such a prior notification regulation in terms of the percentage number of potential merger cases affected. As could be expected, since the criteria in a country hold for all industries involved, substantial cross industry variation emerges. However, as the criteria used differ between countries, the latter generically impose different burdens upon the private sectors plans for growth by domestic mergers or acquisition.

In order to show the above results, a number of assumptions had to be made, and hence limitations are around. Future research should in this context certainly proceed by using exact domestic sales rather than approximating them by worldwide sales to determine the impact of the individual sales trigger.

Cross-country comparisons yield many interesting conclusions. While there may be individual sectors who do not follow the pattern described below, it nonetheless seems to be the case that:

- transition countries tend to have low trigger values, implying many cases needing review;
- Hungary tends to review less than the Czech Republic;
- developed countries such as Belgium, Sweden and France do not seem to review many cases, but
- Switzerland seems to.[17]

Since we have indicated that all these conclusions simply are based on biased estimates, few policy conclusions, especially regarding toughness standards between countries, can be drawn for the moment. The "order" of toughness indicated in this contribution however is a good first indication of the impact of the different merger criteria used. Mostly if not always, these are determined "ad hoc". Hence, this first contribution should "trigger" an academic discussion regarding the determination of the criteria for merger review, in view of a "fair level playing field" for industry willing to grow by merger and acquisition.

---

[17] Again it is important to stress that this contribution has focussed on the number of cases that come up for review. The next stage is how many cases that actually have been blocked and here wide differences between countries exist too. Switzerland for example has 0% for the ratio prohibited/examined, whereas Belgium has 1,6% and France even 4,6%, see Katsoulacos (2002).

REFERENCES

Bernheim D. and M. Whinston, 1990, Multimarket Contact and Collusive Behavior, *Rand Journal of Economics*, pp. 1-26.

Bittlingmayer G., 1985, Did Antitrust Policy Cause the Great Merger Wave?, *Journal of Law and Economics*, pp. 77-118.

Katsoulacos Y., 2002, *Rethinking Merger Control Policy*, in E.U. Competition Law and Policy, Development & Priorities, Athens, pp. 29-44.

Konkurrensverket, 2001, *Fighting Cartels, Why and How?*, Stockholm.

Merger Control 2002, Merger Control in 47 Jurisdictions Worldwide, www.global-competition.com

Office of Fair Trading, 2002, *The development of targets for consumer savings arising from competition policy*, London, 166 p.

PWC, 2003, *A tax on mergers? Surveying the time and costs to business of multi-jurisdictional merger reviews.* A study commissioned by the International Bar Association and the American Bar Association.

Sutton J., 1998, *Technology and Market Structure*, M.I.T.-press, 676 p.

Van Cayseele P., P.L. Sabbatini and W. Van Meerbeeck, 2000, *National Competition Policies*, chapter 4 in: Galli G. and J. Pelckmans (eds.), Regulatory Reform and Competitiveness in Europe, Horizontal Issues, Edward Elgar Publishing, 544 p.

Appendix 1   Clusters of Countries following Qualitatively the Same/Similar Criteria for Notification. Situation anno 1999.

Cluster A   "Individual Domestic Sales and Combined Worldwide Sales Threshold"
Cluster B   "Individual Domestic Sales and Combined Domestic Sales Threshold"
Cluster C   "Individual Domestic with both a Domestic and Worldwide Combined Sales Threshold"
Cluster D   "Individual Domestic with Combined Worldwide Sales and Market Shares"

	Country	x	y_D^C	y_W^C	m
A	France	€15 million	-	€150 million	-
	The Netherlands	€….	-	€….	-
	Sweden	SEK 100 million	_	SEK 4 billion	-
B	Belgium	€15 million	€40 million	_	_
	Hungary	USD 200.000	USD 40 million	_	_
C	Czeck Republic	K 200 million	K 550 million	K 5 billion	_
	Switzerland	SF 100 million	SF 500 million	SF 2 billion	_
D	Spain	10 billion Ptas	40 billion Ptas	_	25%
	Israel	USD 2,6 million	USD 35,5 million	_	50%
	Greece	€15 million	€150 million	_	35%

where x denotes sales on the domestic market, y_D^C is combined sales on the domestic market, y_W^C is combined sales worldwide and m denotes the market share of the merged entity.