

Appraisal of “Ex-Post Analysis of Two Mobile Telecom  
Mergers: T-Mobile/tele.ring in Austria and  
T-Mobile/Orange in the Netherlands”

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# 1 Overview

This study is a welcome addition to a growing literature on retrospective studies of mergers of competitors. Despite the tremendous amount of resources dedicated towards horizontal merger enforcement, only a very small share of mergers that combined competitors but were nevertheless approved have been studied. This is somewhat surprising given the immense challenges involved with effective horizontal merger enforcement: teams of lawyers and economists must predict how potential mergers across a huge range of industries would impact markets, often with little historical evidence to guide their decisions. Furthermore, these decisions must be made rapidly by statute. To be sure, there are also challenges in determining the impact of mergers on markets retrospectively, however, in my view, this is the only way to determine if merger enforcement decisions have protected competition. For these reasons, this is an important study.

Over the past 15 years, there have been several mergers of mobile telephone network operators in European Union member countries. The report studies two that happened long enough ago to be evaluated. The first is T-Mobile's acquisition of the Austrian mobile operator tele.ring, which combined the second and fourth largest operators out of the five that were present at the time of the merger. After being reviewed by both the Austrian telecommunications regulator (Telekom Control Commission, TKK) and the European Commission (EC), the merger was approved subject to T-Mobile and tele.ring selling spectrum and mobile sites to competitors. The second merger studied in the report is the T-Mobile/Orange merger in the Netherlands. This merger reduced the number of independently owned mobile network operators from four to three by combining the two smallest of the four firms at the time of the merger. Despite raising concentration substantially in what was already a concentrated market, the merger was approved without modifications partially because on the basis of consumer switching behavior and pricing T-Mobile and Orange did not seem to compete closely with each other. In addition, the expansion of Mobile Virtual Network Operators (MVNO's) in the Netherlands was believed to limit the ability of the combined

firm to raise prices.

The Report studies these two mergers using time series of various price indices for different EU countries spanning periods before and after the mergers. Three different datasets containing prices for various mobile services were used to construct the price indices. The first covers 14 European countries (including Austria and the Netherlands) from 2004-2010 but includes only the largest two operators. The second and third cover tariffs from all operators in Austria and the Netherlands, respectively, over the same time period. The basic approach in the report estimates how the merger changed pricing using a difference-in-difference estimator that contrasts how price indices evolved in countries where there were mergers relative to other European countries over the same time period.

The report estimates that prices fell between 2 and 20 percent because of the modified T-Mobile/tele.ring merger, while (relative) prices increased between 5 and 15 percent after the T-Mobile/Orange merger. The range of estimated price changes in each case reflects the detailed attention and meticulous care that was given to testing and exploring the sensitivity of the results to model specification and data construction. While the exact magnitude of the estimates varies across specifications and the report is careful to qualify its conclusions, across specifications the T-Mobile/tele.ring merger lowered prices, while the T-Mobile/Orange merger raised prices.

In my opinion, the report gives a thorough investigation of how prices changed after the T-Mobile/tele.ring and T-Mobile/Orange mergers. Given the available data, I do not think there is a better way to study how the mergers changed pricing than the modified difference-in-difference approaches taken in the report. I served as an academic appraiser of this report, and provided feedback on preliminary drafts that was incorporated into the final report. This final assessment is divided into two remaining parts. First, I describe and give context to the econometric approaches used to estimate how the mergers changed pricing. Second, I conclude and offer some suggestions for future research.

## 2 Comments on the Econometric Approach

The main challenge in estimating how a merger changed pricing is developing a credible estimate of how prices would have changed had the merger not occurred. Mobile service prices were generally falling in both Austria and the Netherlands before the mergers of interest took place. One key challenge of this study is untangling any effects of the merger from these pre-existing price trends. The report takes three different approaches to doing this.

First, the report constructs a set of comparison countries where there were no important changes in market structure. In principle, by subtracting how prices changed in these comparison countries from the change in price in Austria and the Netherlands, factors that change prices aside from the merger are purged from the estimates. This basic approach is put into a regression framework so that demand and cost factors that might impact the two groups differently are held constant. This was done separately for three segments of the market: high, medium, and low usage consumers. In each of the two mergers, the results are clear: prices fell after the T-Mobile/tele.ring merger in Austria, for each segment of the market, while prices increased in the medium and high-usage segments after the T-Mobile/Orange merger in the Netherlands but remained stable in the low-usage segment in most specifications.

The key assumption necessary for the basic difference-in-differences approach to give good estimates is that prices in Austria, or the Netherlands, change relative to the comparison countries only because of the mergers. Of course, this is an untestable assumption in the time period when the merger occurred, but it is possible to check the basic specification by testing whether prices between the “treatment” and “control” countries diverge in time periods before the mergers could have had any impact. Importantly, the report does just that and finds that in some cases there were statistically significant divergences in the prices of the two groups of countries. If these divergences were economically important, the basic difference-in-differences estimates could just reflect how prices were changing differently across countries

for reasons having nothing to do with the mergers. For this reason, the report takes two additional approaches. First, the report allows for different linear trends in prices in each country. Second, the report constructs a composite comparison group by taking a weighted average of prices across the different potential comparison countries. Roughly, the weighted average is constructed so that it best approximates the pre-merger evolution of prices in the countries where the mergers took place.

Both the difference-in-differences specification that includes linear, country-specific trends in prices and the synthetic control group approach yield qualitatively similar results. While precision is sacrificed by removing country-specific price trends, the estimates of the two modified approaches are qualitatively in line with the basic difference-in-differences estimates: prices decreased after the T-Mobile/tele.ring merger and increased after the T-Mobile/Orange merger. The exact magnitude of the estimates varies across the different approaches, so unfortunately it is challenging to summarize exactly how the merger changed prices with one number. However, the credibility of the report is bolstered significantly by the attention that is paid to potential violations of the underlying assumptions made to identify the impact of the mergers on prices in different models. Given that prices were falling at substantially different rates across EU countries during this time period, any approach that does not adjust for this fact or explore the sensitivity of conclusions to alternative comparison groups could be misleading.

### **3 Conclusions and Suggestions for Future Research**

In summary, I think this is a carefully executed and detailed examination of two important mergers that occurred in a constantly evolving industry. More generally, the evaluation and appraisal process were very well planned and implemented. The team of authors gave me their code and data far in advance to when they expected my comments on their draft, they were very responsive to my suggestions, had great knowledge of the industry, and had

thoughtful, clear ideas to improve the draft as we worked together. It was a true pleasure working with them.

There are some natural areas for future research. First, the same approaches used in this study could be used to study other mergers of MNO's that have happened over the past decade in the EU. Second, retrospective studies like this could be used to assess and, hopefully, ultimately improve models used in the course of merger review. Merger enforcement involves making predictions. How accurate are they? Given the limited resources available for antitrust enforcement and the huge variety of demands on the time of economists at the EC, it is important to understand what we get out of different approaches to forecasting how mergers change market outcomes. This is where I think more research would be useful, and where retrospective studies could be valuable. By keeping track of different predictions and comparing them with what actually happened, it is possible that merger review could become more efficient. For example, in the report it is mentioned that when reviewing the T-Mobile/Orange merger it was concluded that the two firms did not compete that closely with one another. Ex-post it was found that prices increased more in the mid and high-usage segments of the market than in the low-usage segment. Did consumer switching behavior suggest that pre-merger competition was more substantial in the mid and high-usage segments than the low-usage segment? If not, what else might be going on? Did the MVNO's compete more directly with the low-usage segment than the segments where prices increased? Similarly, it was mentioned that the mergers might lead to more efficient use of spectrum by the combined firm. How rapidly would this happen, would it impact variable costs, and is that reflected in post-merger pricing? These are just examples. Of course there is idiosyncratic error involved in the predictions of any single merger and there are surely data availability issues, but ideally by doing this systematically across cases an empirical basis for merger enforcement could be developed over time.