

# **Effective use of economics in competition enforcement**

## **Panel II**

*Modelling vs. Storytelling: Finding the Right Balance*

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# ***“The Portuguese Experience: The case of a Competition Agency in a Small EU Economy”***

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# *Modelling vs. Storytelling: Finding the Right Balance*

1. The amount and the level of sophistication of the economic analysis required for a case to be successfully concluded and defended;
2. Proper institutional role of economists within a competition authority;
3. Quantitative and qualitative economic evidence as part of the case narrative;
4. Economic concepts which lawyers may find difficult to understand and how to solve the communication problem.

1. The amount and the level of sophistication of the economic analysis required for a case to be successfully concluded and defended.

# Amount and the level of sophistication of the economic analysis

My view is that there is no *a priori defined* amount and level of sophistication of economic analysis required for a case to be successfully concluded and defended.

In principle, one should strive to apply the amount of economic analysis that a “sophisticated” economist would deem necessary to answer the relevant questions that are raised in a competition policy case.

# Amount and the level of sophistication of the economic analysis

What really matters is how you use, explain and justify the economics you used in front of a Court and whether it fits other hard evidence you might have collected. Hard evidence is preferable but is not always available to the degree you would like to.

Economic evidence and results must be presented in a simple and intuitive yet rigorous way. Economic experts can be called in either by the Court or by the PCA.

# Amount and the level of sophistication of the economic analysis: Salt cartel

The 1<sup>st</sup> hard core cartel (between 4 firms) to be assessed & upheld by the 2 review Courts (LCC or Lisbon Commerce Court & LCA or Lisbon Court of Appeals)

The 1<sup>st</sup> cartel case with an assessment of the Economic Benefit (EB) of around € M 5,2.

Sanctioned by its object & effect on significantly affecting competition (in the relevant markets)

# Amount and the level of sophistication of the economic analysis: Salt cartel

Substantial hard (testimonial & documentary) evidence, collected from dawn raids.

Substantial evidence allowed computing the Economic Benefit (EB) in an intuitive way, related with its “legal concept” & not subjected to probabilistic uncertainty.



# Amount and the level of sophistication of the economic analysis: Salt cartel

## The Case:

- 4 salt producers & wholesalers, from October 1997 to January 2005, well-organized exchange of highly sensitive information, & regular meetings to monitor agreement;
- 2 families of customers: industry & food distribution sector;
- Set target sales quota & compensation scheme:  $k = € 12,5/\text{ton}$  &  $€ 17,5/\text{ton}$  of salt sold to industry & food sector respectively.

# Amount and the level of sophistication of the economic analysis: Salt cartel

- Covered period: 1998-2004;
- Target quotas ( $qi^*$ ) on the basis of average sales over the period 1995-1997;
- Compensations at the end of each year:

Firm  $i$  pays  $k(qi - qi^*)$  if  $qi > qi^*$  or

receives  $k(qi - qi^*)$  if  $qi < qi^*$

# Amount and the level of sophistication of the economic analysis: Salt cartel

Unitary EB =  $mi$  (mark-up differential between the observed cartel and the unobserved market state absent the cartel)

Thus,  $EB_i = miq_i - k(q_i - q_i^*)$

If  $q_i = q_i^*$ ,  $EB_i^* = miq_i^*$

Since at the beginning of each year, each firm ignores whether she will sell below or above her quota, we must have that

$$miq_i - k(q_i - q_i^*) \geq miq_i^* \text{ iif } m(q > q^*) \geq k$$

# Amount and the level of sophistication of the economic analysis: Salt cartel

Minimal value of the 'Economic Benefit':

$$EB(q < q^*) = k(qi^* - qi) \text{ [compensation]}$$

$$EB(q > q^*) = kqi - k(qi - qi^*) = kqi^*$$

Data on  $k$ ,  $qi$ , &  $qi^*$   $\Rightarrow$  total minimal EB around €M 5,2 over the 4 firms & over the period 1998-2004

# Amount and the level of sophistication of the economic analysis: Salt cartel

## Some Lessons Learned:

- Use simple and intuitive economic reasoning in Courts (judges are usually not economists!);
- The Portuguese salt cartel is an example of this, but the successful outcome was only possible because of the substantial information that was collected on the case (not always possible);
- The challenge is both for Courts & for Competition Agencies since there is a clear tendency for the use of an effects based approach, i.e., to rely more and more on economic analysis

# Amount and the level of sophistication of the economic analysis: telecoms

In 2010 , and following a request by the PCA Antitrust Department, which was dealing with two antitrust cases (two ‘abuse of dominance position’ cases) the Bureau of Economic Studies conducted an (in house) study titled “*Hypothetical monopolist test for triple-play products*” The focus of this study was to determine whether triple-play products, composed by fixed voice, pay-TV and (fixed) broadband access services, constitute a *relevant product market* in the two antitrust cases at hand.

In the study we developed a version of the SSNIP test based on the 1997 notice of the EU Commission “*Commission Notice on the Definition of the Relevant Market for the Purposes of Community Competition Law*”.

# Amount and the level of sophistication of the economic analysis: telecoms

This test involved calculating the change in profits caused by a 5% or 10% price increase in different subsets of products controlled by a hypothetical monopolist. A version of the same test, based on the recently introduced upward pricing pressure test of Farrell and Shapiro (*The B.E. Journal of Theoretical Economics*, 10(1) *Policies and Perspectives*, Article 9.), was also performed.

For this purpose, billing information with full detail of invoices, including the fixed monthly fee and variable components, e.g., movie rentals, channel rentals, internet traffic above contracted limits, expenditure on telephone calls and minutes of conversation information was collected from six Portuguese telecommunications firms.

# Amount and the level of sophistication of the economic analysis: telecoms

Data was also collected on the characteristics of telecoms services contracts as well as of the clients. The data set consists of a cross-section with 3 243 observations for December 2009. This choice based dataset was calibrated using information from available survey data from the sectorial regulator, ICP-ANACOM.

Using this data several discrete choice models were estimated, namely a multinomial logit, a nested logit, a cross-nested logit and a mixed logit model. Given the estimates about demand own and cross-price elasticities, the study reached the conclusion that, in Portugal, price increases of 5% and 10% by a hypothetical monopolist controlling triple-play products are profitable, i.e, triple-play offers of fixed voice, pay-TV and broadband access services constitute a relevant market.



# Amount and the level of sophistication of the economic analysis: fuels markets

Following the 2008/2009 fuel price hikes and resulting outcry in the media, and the resulting concerns expressed by both Parliament and Government, the PCA developed a full report on fuels markets. Among other goals, we aimed at finding out whether the so-called “rockets & feathers” type of phenomenon in fuel markets could be identified. From that we followed the *econometric methodology* developed by S. Borenstein et al. (QJE, 112 (1), 1997) applied to the extensive amount of data on prices and other variables covering the period between 2004 and 2008.

We split the price chain from Brent to Platts and then from Platts to domestic retail prices in the EU 15 countries), including Portugal. The analysis did identify, at least for some countries a “rockets & feathers” type of phenomenon. A report from July 2012 by the CNC (Spanish CA) did identify the same type of phenomenon for Spain.

# Amount and the level of sophistication of the economic analysis: fuels markets

This PCA Report led to several recommendations being issued to the government, among them a reminder of several recommendations already made back in 2004.

We have also followed the *dynamic treatment effect methodology* developed by Halbert White (2006, 2007) when we recently constructed counterfactual scenarios to assess the impact on fuel price levels, price dispersion, etc, from installing along all the highways in Portugal information panels on the fuel prices being charged by the next three refilling stations lying ahead along the highway, and possibly belonging to different oil companies, following a recommendation made to the government by the PCA back in 2004 (but only fully implemented by May 2009).

# Amount and the level of sophistication of the economic analysis: fuels markets

It consists of a two-step procedure: In the first step a dynamic predictive model for the retail price at each petrol station is estimated using time series data from the period prior to the introduction of the price boards. In the second step the counterfactual prices result from the dynamic prediction obtained from that model.

The model specification explores information available on the retail price recommended by the petrol companies which acts as a control variable, allowing identification of different price regimes that lead to different types of counterfactual.

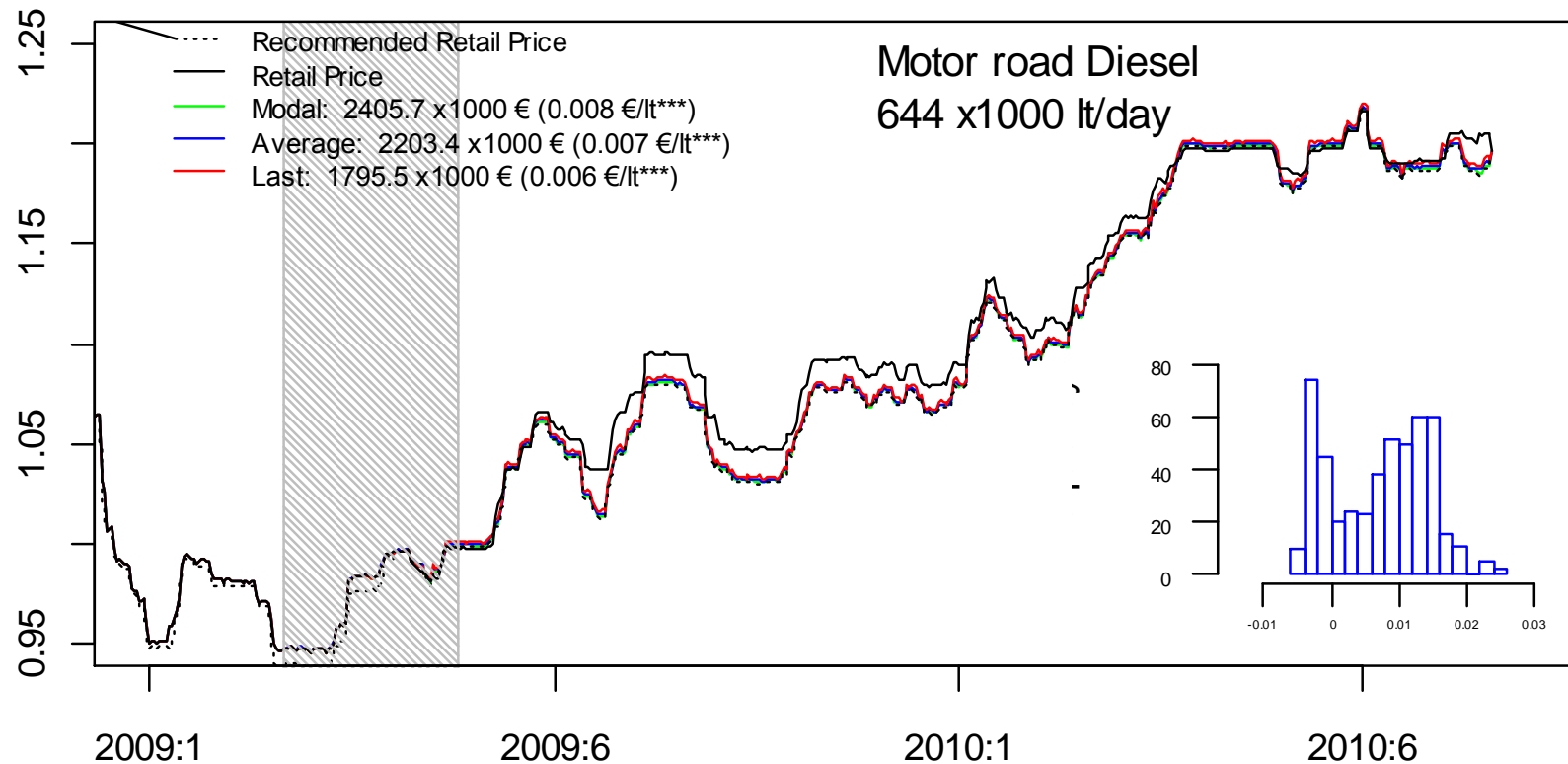
# Amount and the level of sophistication of the economic analysis: fuels markets

All the next three graphs show us weighted average prices at each petrol station (weighted by the volume of diesel sold). We could show similar graphs for gasoline 95.

The first graph shows us five lines: one for recommended average prices by the different oil companies operating along as retailers the highways. The full black line shows us the actual average retail price charged. The three other lines show us the average counterfactual prices according to three different “pricing strategies” (modal, average and the strategy followed in the day before the introduction of the panel) that all four companies could have followed in the period prior to the installation of the panels.

These “pricing strategies” take into account how close companies set the actual price relative to the recommended price (which is set for petrol stations in and out of the highways).

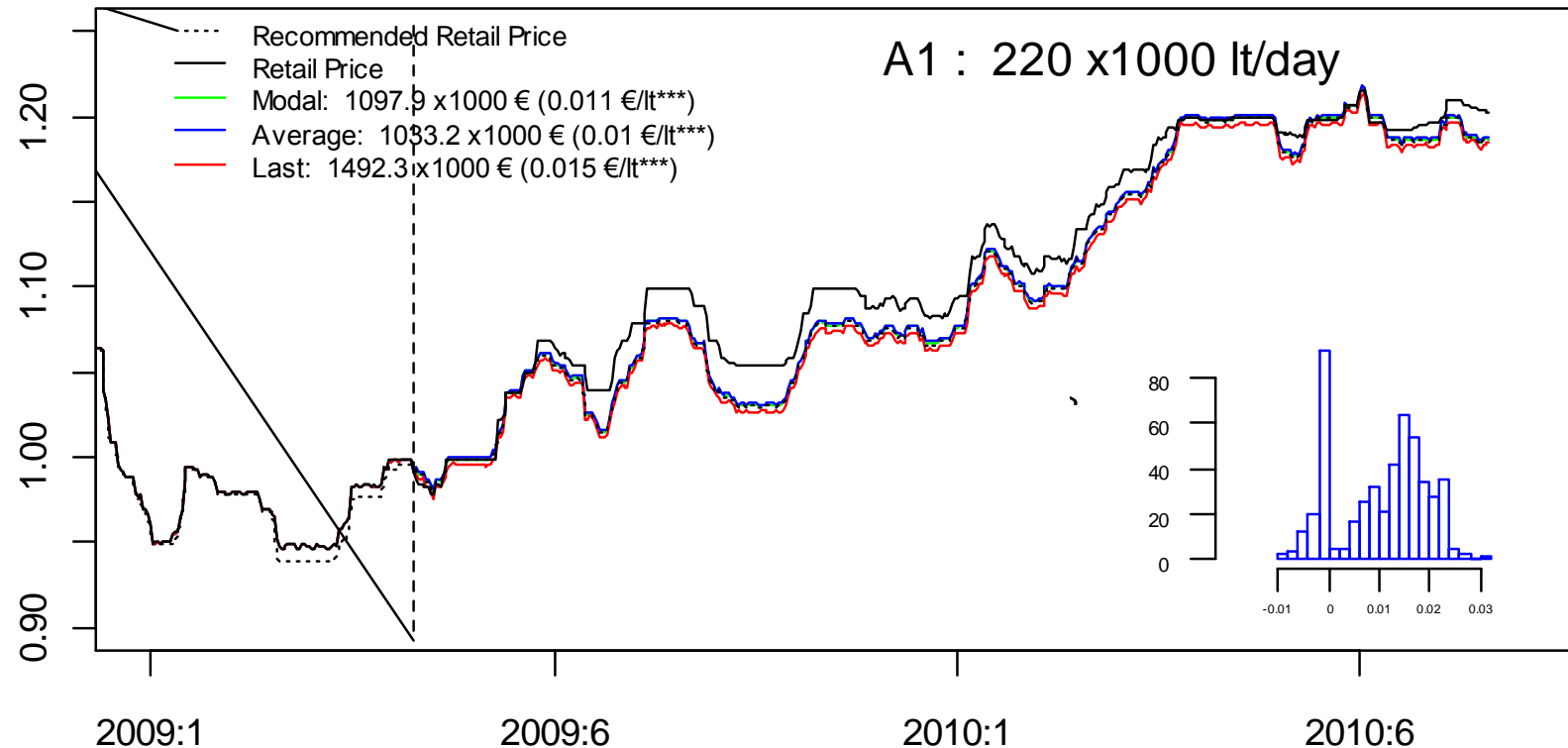
# Motor road diesel average retail price and counterfactual price estimates for all the highways studied (average prices for all highways)



Zero price variation does not belong to the: 99%(\*\*); 95%(\*\*); 90%(\*) Cl..

Source: AdC analysis based on oil companies data.

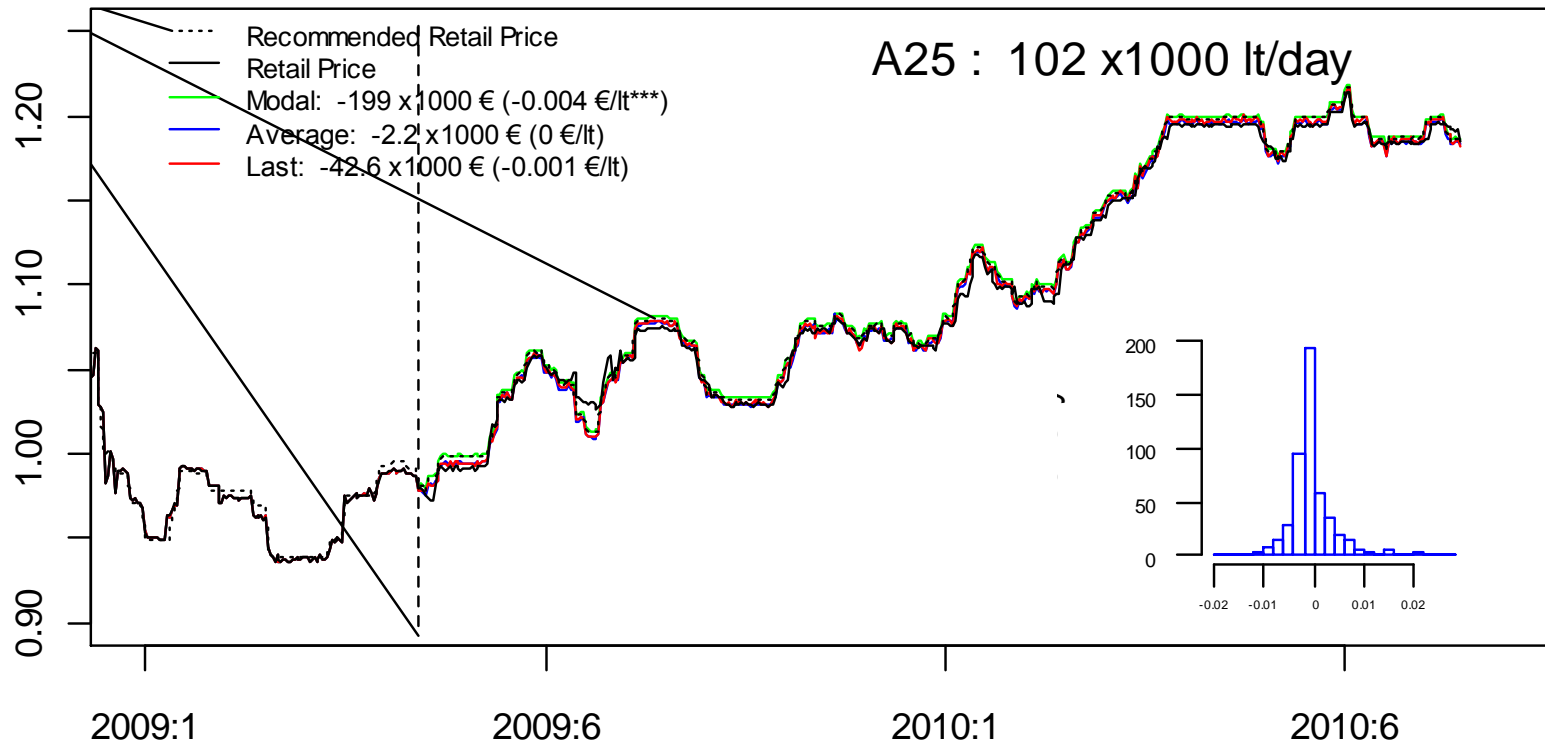
# Motor road diesel average retail price and counterfactual price estimates at the A1 highway, one of the two highways which connects Lisbon to Porto.



Zero price variation does not belong to the: 99%(\*\*\*); 95%(\*\*); 90%(\*) Cl.

Source: AdC analysis based on oil companies data.

# Motor road diesel average retail price and counterfactual price estimates at A25 highway, connecting Aveiro, in the Portuguese coast, to Spain



Zero price variation does not belong to the: 99%(\*\*\*); 95%(\*\*); 90%(\*) Cl.

Source: AdC analysis based on oil companies data.

# Amount and the level of sophistication of the economic analysis: beverages

The PCA is conducting a study to evaluate, ex post, the impact of a merger between two Portuguese producers of nutritional consumer products.

As a first step, we develop an industry model, related to Bonnet and Dubois (2010) and Villas-Boas (2007), that: (i) formalizes explicitly the vertical relation between producers and retailers, and (ii) distinguishes between types of retailers. In addition, this first model will also include both retailer's and producers' advertising decisions, i.e., both types of firms will have two choice variables. Afterwards, we will use this first model as a building block to construct a dynamic model that fully accounts for advertising and its impact on brand awareness and consumer inertia.



# Amount and the level of sophistication of the economic analysis: beverages

We requested to twelve producers, thirteen large retailers and two wholesalers quarterly product level data, from the first quarter of 2006 to the second quarter of 2011. Our data set includes both sales and accounting data, and both wholesale and retail data. We use a very detailed product characterization.

The structural model we specify includes a demand and a supply side and takes advantage of the richness of our data set. For the demand side, we use a discrete choice model. Products are defined by a very detailed set of characteristics that include: brand, flavor, type and size of container and distribution channel. For the supply side, we use an oligopoly model that distinguishes between producers and manufacturers, between large and small retailers and between producer and retailer own-brands. In addition, firms, producers and retailers, have two choice variables: advertising and prices.

# Amount and the level of sophistication of the economic analysis: non-life insurance

In a 2004 merger case in the insurance sector (Caixa Seguros/NHC BCP Seguros), the PCA conducted simulations using the PCAIDS (*“Proportionality-Calibrated Almost Ideal Demand System”*) model for assessing the impact of the merger on the insurance prices and consumer surplus. In addition to this in-house study, the PCA also commissioned an econometric study to outside economists, which allowed for a more detailed and sophisticated simulation, with less restrictive departing hypothesis than those underlying the PCAIDS.

This study, developed using a database made available by the PCA, aimed at addressing the proposed definition of the relevant markets, characterising firm behaviour on the Portuguese insurance market, simulating the potential price effects and evaluating the cost efficiencies driven by the merger. The specification of the structural model used was based on a descriptive analysis of the data concerning the Portuguese non-life insurance markets. In particular nine non-life insurance relevant markets, all domestic except one which was deemed to have an international dimension). The results obtained with this fully specified model were actually not very different from those which had been obtained using PCAIDS.

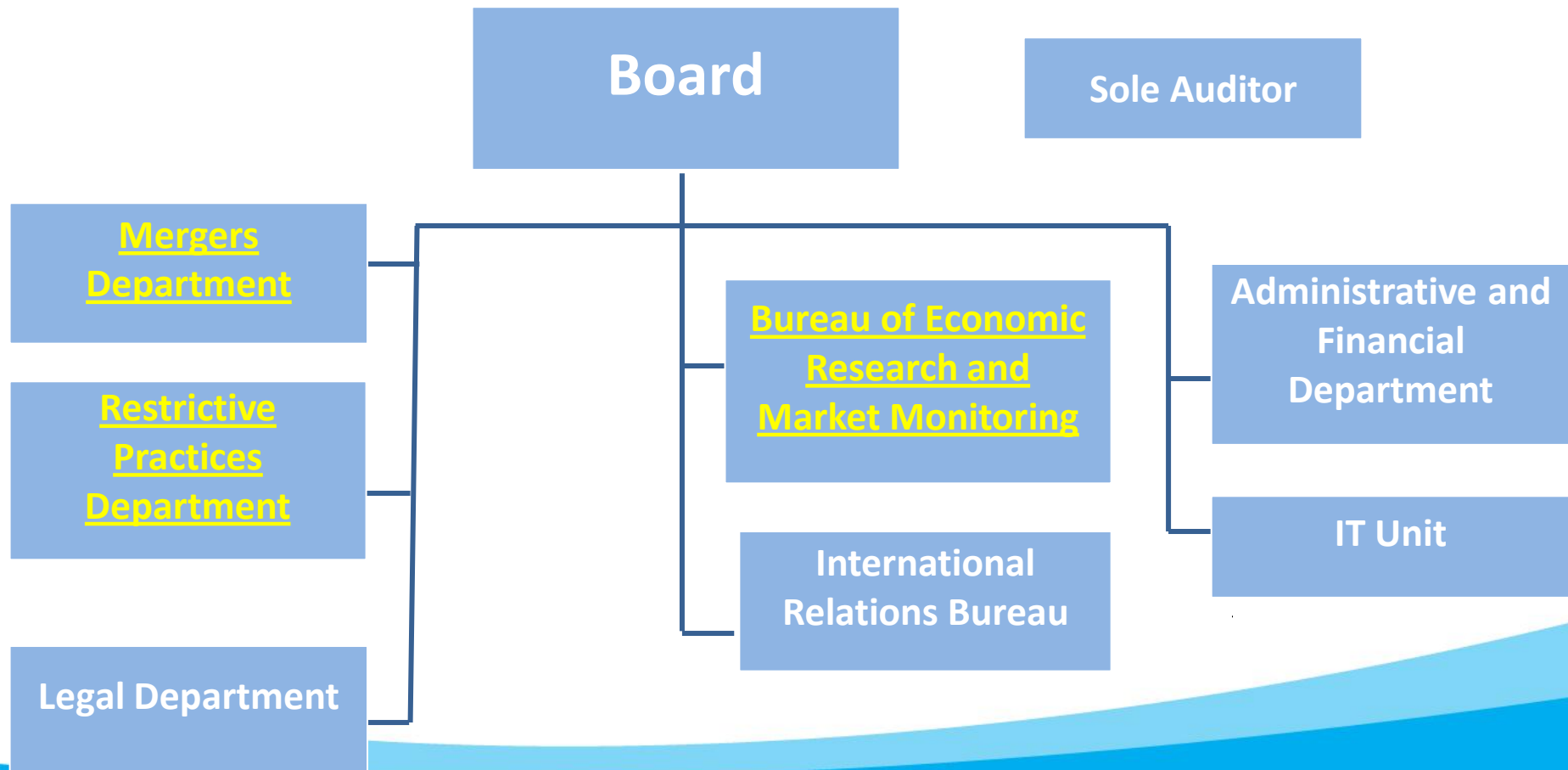
# Amount and the level of sophistication of the economic analysis: banking

More sophisticated quantitative techniques were also used in analyzing a 2006 merger case in the banking sector (BCP/BPI). Econometric studies were conducted so as to assess the unilateral and coordinated effects on prices of the merger under review, in some markets where the competitive impact of the merger raised more concerns. After an extensive exercise of information gathering, a cross section of consumer level data and discrete choice models were used to estimate price elasticities of demand and marginal costs, allowing for a simulation of the unilateral and coordinated effects of the merger.

For assessing the coordinated effects, this study followed the approach of Kovacic, Marshall, Marx, and Schulenberg (2006), which consists on quantifying the payoffs associated to collusion and analysing how they are affected by the merger, by simulating the effects of a hypothetical collusion before and after the merger. Once the increase in prices and the effects on market shares driven by the merger were estimated, the impact of collusion on firms profits pre and post-merger were evaluated and compared, allowing the measure of the impact on firms' incentives to collude.

## 2. Proper institutional role of economists within a competition authority.

# AdC/PCA: Internal Organisation



# Proper institutional role of economists

In the Portuguese Competition Authority, both economists and lawyers typically work together in teams in the different cases dealt either by the Mergers Department or by the Restrictive Practices (or Antitrust) Department.

The Bureau of Economic Research and Market Monitoring is composed only by economists except for a single legal officer.

All these three departments are colored in **yellow** in the Internal Organization Chart above.

# Proper institutional role of economists

**Mergers Department:** 9 economists + 5 legal officers (jurists), including the director (PhD in economics) = **14** people

Of the 9 economists 2 have PhD's and 4 have Masters Degrees.

**Antitrust Department:** 5 economists + 8 legal officers (jurists) = **13** people

Of the 5 economists, one has a PhD and another a Masters Degree.

**Bureau of Economic Studies:** 8 economists + 1 legal officer (jurist), including the director (PhD in economics) = **9** people

Of the 8 economists, 5 have PhD's and 3 have Masters Degrees

# Proper institutional role of economists

In case handling, economists should typically work alongside legal officers. They will both gain from their interaction and the outcome will be of better quality.

In their turn, economists should be very well trained in industrial organization/industrial economics, microeconomic theory and advanced statistics. They should all be familiar with competition law in their own jurisdictions as well as with European competition law (the importance of Jurisprudence).

There is usually a need for econometricians at a masters or PhD levels. They should become familiar with competition law. There might a tendency for them to refrain from thinking about the law. That will be a mistake.



# Proper institutional role of economists

Each competition authority/agency should decide whether they need a Chief Economist with a CE team.

Each competition authority/agency should decide whether they need a Bureau of Economic Studies and Market Monitoring.

Each competition authority/agency should decide whether they can and want to combine a Bureau of Economic Studies and Market Monitoring with a Chief Economist Team in a single Unit with enough economics expertise and independence.

A Bureau of Economic Studies and Market Monitoring can play many roles, one being the exercise of “competition advocacy”, a form of *Soft Power*.

When a Bureau of Economic Studies and Market Monitoring exists and carries out its work, it's good to remember what Phil Evans called the “*The Regulatory Heisenberg Principle*”: «***The agency affects the market it is reviewing simply by reviewing it.*** »\*

However, a competition authority's Soft Power without the support of that same competition authority's Hard Power will surely become eventually ineffective.

\*In Phil Evans, “*Consumer protection and competition policy: An overview of EU and national case law*”, in e-Competitions, N.º 45245, 2012.

### 3. Quantitative and qualitative economic evidence as part of the case narrative.

# Quantitative and qualitative economic evidence

Both are important. Quantitative data can be a crucial part of the narrative one is trying to build.

Judges are not economists, even if they may benefit from the help of economic experts.

Quantitative and qualitative economic evidence should go in the same direction so as to build a consistent and convincing case, a **credible narrative**.

Moreover, one should be prepared to deal with lots of gaps in quantitative data. And there is only so much one can do (e.g., econometrically) to overcome such gaps.

# Quantitative and qualitative economic evidence

Economists working in competition agencies ought also to recall the words of Arnold C. Harberger, notwithstanding the need to keep up with theoretical advances:

*“It [today’s economics training] neglects what is fundamental, what is basic, and what is at the core of the discipline of economics as a useful theory for understanding the world around us. (...) In my view, this trend towards super-technicism [in economics training] represents a deviation from the main track of the economics profession. I believe Colander and Klammer [in *Economic Perspectives*, 1 (2), 1987] are right. The new techniques are not being valued because they have proven themselves vis-à-vis older, simpler and I would say, more robust methods. They are instead valued because they are on the frontier of the profession, and that is where academic reputations are made.”*

In “The Economist and the Real World”, *International Center for Economic Growth*, Occasional Papers No. 13, pp.9 & 11.

4. Economic concepts which lawyers may find difficult to understand and how to solve the communication problem.

# Difficult economic concepts for lawyers, judges, etc

Hard to say (!) but:

One should strive to present economic and econometric evidence and results in a simple and understandable way.

Stress and explain the importance of core economic concepts such as marginal and average costs, incremental costs, economies of scale and scope, network effects, etc.

# Difficult economic concepts for lawyers, judges, etc

The PCA has been running internal seminars on competition economics and law since 2003 on a regular basis, which are open to their staff and to the public in general. The PCA has been offering opportunities for their staff to attend training sessions either e.g., in Portuguese universities, or abroad.

Portuguese law firms themselves encourage their own lawyers to enroll in economics courses suitable for lawyers, or courses specifically in competition economics (e.g., at a post-graduate level) in Portugal or abroad. The offer and attendance levels of such courses in Portugal has increased significantly in the last few years (LLM's, etc).



# Dziękuję !

# Thank you !

I thank my colleagues at the Bureau, Jorge Rodrigues, João Lopes, João Vareda and Montezuma Dumangane, for their input in putting together these slides.

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