

**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE****Summary Record of the Workshop on Methodologies to Measure Market Competition**

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Summary Record of the Workshop on Methodologies to Measure Market Competition

The Competition Division held the **Workshop on Methodologies to Measure Market Competition** on 23rd February 2021. The workshop was divided into two sessions (09:00-11:45 CET and 16:00-18:45 CET) for the convenience of the participants.

In the **first part** of the workshop, following the welcome and opening remarks by the Secretariat, there were **presentations by three experts** on an overview covering objectives, methodologies and data to measure market competition.

First, **John Davies (Executive Vice President, Compass Lexecon)** gave an introductory presentation focusing on the two main **objectives** for competition authorities to measure market competition.

First, competition authorities need to measure market competition for **legal purposes** in the legal processes to apply the law. For example, competition authorities try to find that changes of concentration in relevant markets after a merger (inputs) may result in price increase or decrease of consumer welfare (outputs). It is not an easy process to connect the inputs and outputs since there is no one-for-one relationship between the change in the inputs and the outputs. Alternatively, rivalry can be measured more directly through measuring elasticities and critical loss. However, elasticities require many data to measure and, often, even in intensive competition investigations is only inferred.

Second, market competition also need to be measured for **policy processes** such as policy design/evaluation/advocacy. For example, one can use aggregate measure of rivalry at the industry/national level to assess policy: whether pro-competitive intervention is needed (e.g. how competitive is this industry/country compared to others) or likely to be beneficial and by how much.

Second, **Stephen Davies (Professor of Economics, University of East Anglia, UK)** explored various **methodologies** to measure market competition and discussed some key issues with these methodologies.

There is a multitude of **measures of competition** such as Concentration Indices (e.g. *HHI*, *CRs*), Market Shares, Entry Rates, Churn/Turbulence, Profitability Measures (e.g. *Lerner Price-Cost Margins*), Within-industry Comparison of Firms and Surveys of Consumer or Business Sentiments.

However, current available measures are all with **limitations**, so the safest approach is to **use a plurality of different measures** capturing both sides of each dichotomy (Structural/Performance, Static/Dynamic, Firm/Industry level data, Inter-/intra-industry comparisons).

Also, there are **concerns** about how measures have been used to date:

- There is a need to improve the **conceptualisation** of what competition really is. For example, one could learn from history that high concentration is not necessarily indicative of soft competition (the largest firms may earn higher profits not because they are more efficient but because they are able to exploit their dominance with anti-competitive practices). Current measures fail to capture the dynamic essence of competition which is a dynamic process which evolves over time (see, e.g., *Philippon(2019)* which captures this neatly with his distinction between good and

bad concentration). In addition, they are ambiguous on identification and causality. (*Conceptualisation*)

- They suffer from being **too aggregate** in definition and measurement. Nearly all studies employ data, which is more aggregate than is ideal. Antitrust markets are typically much smaller than SIC/NAICS/NACE industries. The typical antitrust market is far more concentrated than the typical SIC industry, and it is important whether industry level measures are representative of concentration in its constituent anti-trust markets. (*Definitions*)
- Competition takes place between (not only) domestic producers, but also **importers and multinational firms**. For example, one of the lessons for measuring competition in the UK market is concentration measured by production statistics is often meaningless and imports are often important. (*Scope*)

Third, **Chiara Criscuolo (Head of Division, STI, OECD)** introduced recent **OECD analysis** of overall trends in competition measures.

- Each of the multiple measures to try to capture trends in competition but have limitations in capturing product market competition. However, all measures seem to point in the same direction, which is not just a coincidence but a result of correlation.
 - There have been rising **industry concentration**, which are measured by ‘share of industry sales generated by the 10% largest firms’ and ‘Share of sales due to 8 largest business groups’ between 2001 and 2014.
 - **Mark-ups** and **M&A** have also been rising during the same period.
 - **Business entry/exit rates** indicate business dynamism have been declining.
- **COVID-19** exacerbates above trends, and the patterns of competition measures in **digital sectors** have following features:
 - increase in concentration is stronger in intangible-intensive industries;
 - mark-ups are higher in digital intensive sectors;
 - large increase in number of M&A deals with digital targets; and
 - declining business dynamism (business entry/exit) particularly in digital intensive sectors.

In the **second part**, competition authorities shared their experience of measuring market competition with participants.

In the **morning session** (09:00-11:45 CET), first, the **CMA** introduced **UK’s** recent study on the state of competition.

The CMA estimated several metrics of **concentration** (structure of industries, dominance of large firms, partial ownership), **dynamic competition** (rates of entry and exit, stability of firms’ positions in the economy), **mark-ups and profitability** (levels, distribution and persistence of profits and mark-ups), **consumer surveys** (measures of trust and satisfaction with businesses), and **real time indicators** including business formation and closure data.

CMA’s main findings tend to show **a long-term weakening in competition**:

- **Concentration** rose across the economy following the 2008 financial crash – while recovery slightly it remains higher than before the crash;

- The number of “younger” large firms has increased – suggesting some **entry and exit** – but churn at the very top remains lower than 20 years ago; and
- Average **mark-ups** have risen by 7% over the last 20 years and there has been some small increase in **profitability** (EBIT margins) for the most profitable firms. **Return on capital employed** seems to have fallen.

Second, the NZCC described New Zealand’s trends of competition indicators.

The NZCC analysed **margin indicators** (profit elasticity, price-cost margin) and **concentration indicators** (HHI, concentration ratio) in **39 industries** between 2001 and 2016.

They **pooled** the data into two time periods (2001–2008 and 2009–2016) and **compared** the results to each other. For example, average price-cost margin for 39 industries were compared between 2001–2008 and 2009–2016, by which we can find which industries were more competitive in 2001–2008 than in 2009–2016, and vice versa.

They also explored some **methodological challenges** of the measures including followings:

- Different indicators can give different indications of the degree of (and changes in) competition in an industry;
- Industry classifications do not typically correspond with markets that would be defined for competition law analysis;
- Marginal costs are difficult to compute in practice, so the margin indicators need to be calculated using an approximation (in this case, variable costs); and
- Margin indicators do not account for fixed costs, which can play an important role in competition (e.g. barriers to entry).

They also shared some **data challenges** in their analysis:

- For confidentiality reasons, all published concentration indicator data uses share of labour employed (not share of output) to represent market share;
- They only have access to disaggregated data for the margin indicators, not the concentration indicators. This limits their analysis; and
- They would also like annual (i.e., not pooled) data that is more recent.

Third, Romania introduced RCC’s Aggregate Index of Competitive Pressure (AICP).

AICP was introduced in **2013** to implement a **systematic approach** to market/industry monitoring. AICP indicates the **propensity to full manifestation of competition in a particular market/industry** and allows **comparisons** over time across different industries.

AICP is **composite index** based on **21 primary qualitative/quantitative indicators** capturing different aspects of competition (structure, behaviour, outputs, dynamics, etc.). The indicators are evaluated using a 7-step scale (low to high competitive pressure) and weighted by importance when aggregated.

- Category A+: barriers to entry
- Category A: number of competitors, market concentration, “maverick” competitors,

- innovation, market transparency, price elasticity of demand, product homogeneity and business associations
- Category B: symmetry of market shares, structural links, symmetry of costs, marketing and communication efforts, demand shocks, buyer power and external competition
- Category C: stability of market shares, multimarket contacts, profitability, market growth and general price level

AICP is expressed in percentage terms and defines **the propensity towards competition**. AICP values are **comparable across periods and across industries**: Higher values indicate pro-competitive situations and lower values indicate risks to competition.

AICP is determined yearly bases for selected industries (almost 50 industries each year) and used for both a **cross section evaluation of national industries** and a **reference for case specific analyses**.

AICP has successfully **contributed** to the RCC in many ways (advocacy, prioritization, knowledge management, market screening, deterrence, performance measurement) and, in particular, can be useful for **detecting collusion** in suspected sectors.

Finally, the **ACM** presented the **Netherlands'** experience on measuring the intensity of competition in **banking industry** by using the *Boone indicator*.

Jan Boone proposed a new competition measure which is called "*Boone indicator (BI)*" in 2008. The basic intuition of the BI is the relationship between efficiency and performance strengthens when competition increases, because in competitive markets:

- inefficient firms leave the market;
- inefficient firms are taken over by efficient firms; and
- inefficient firms become more efficient.

The BI relies on **Relative Profit Differences (RPD)** and this approach is based on the notion that **competition rewards efficiency**.

In an industry where a rise in competition reallocates output from less efficient to more efficient firms, it is the case that more intense competition raises RPD.

There are several **advantages** of the BI. The BI is a better measure than profit margin (PCM) since firms can compete on efficiency and not just on price. In addition, the framework of BI works for both Bertrand and Cournot competition model.

However, the need of at least three firms and the assumption of "no loss making firm" are the **disadvantages** of the BI. With these disadvantages, there is huge gap between theoretical framework and empirical approach.

For the **application** of the frameworks to **bank and insurance sector**, the ACM used market share instead of profits, due to large sample of firms with losses.

They got a new insight that there should be **distinction between competition in the market and by individual firms**. In other words, in the plot of the nonlinear relationship between efficiency and profits, the surface provides a measure of competition in the **market** while the elasticity provides a measure of competitiveness of the individual firms.

In the **afternoon session** (16:00-18:45 CET), first, the **NCA** introduced its recent experience in measuring the intensity of competition in the **Norwegian** economy.

A report from *Menon Economics*, commissioned by the NCA, analysed the development in **market shares and profitability** in Norwegian industries for the period **1992 to 2018**. (published in 2019)

Based on annual accounting data of all Norwegian companies in **137 industries** (excluding non-profit maximizing companies, export intensive industries, and industries dominated by franchising), they measured **market concentration** and **profitability** of each industry.

Measures for market concentration includes:

- HHI (standard index computed using firm level revenues);
- Corporate group adjusted HHI (aggregating revenues of firms belonging to the same corporate group within the same industry); and
- Modified HHI (attempts to capture common minority ownership of companies).

They find that the overall concentration levels in Norway have been **higher** than those of Europe and the US, but there has been **a slight reduction in concentration levels** and **profit margins** have been **fairly stable** in Norway over the period, which seems to mean competition in Norwegian industries seems to be working well.

Second, the **CADE** described **Brazil's** view in methodologies to measure market competition.

Competition, which can be defined as “a situation in which someone is trying to win something or be more successful than someone else”, is a complex process and thus one measurement is not enough.

In addition, one needs to consider both static dimension and dynamic dimension of competition. Most traditional measures are based on the concept of relevant markets but in some cases (e.g., multi-sided platforms), it is hard to even define the market itself. Considering dynamism, high concentration does not necessarily mean market power.

In practice, they emphasized the need of more comprehensive view (e.g., composite index) in complex cases, and development of innovative approaches (e.g., use of computational agent-based modelling and simulation) to capture the dynamic aspects of competition in the market.

Third, the **FCA** (UK's Financial Conduct Authority) introduced the **UK's profitability and business model analysis in retail banking sector**.

The FCA is the **conduct regulator for financial services sector** in the UK. One of their strategic objectives is to **promote effective competition** in the interests of consumers in financial services, so it is crucial to measure market competition effectively.

They suggested that profitability can be a useful indicator of the intensity of competition, although there are some **challenges**:

- it is difficult to find appropriate **benchmarks** and **evaluate** the degree of ‘excess’ profitability
- it may be difficult to measure and hard to work out in **multi-product firms** such as banks.
- it is challenging to **interpret** what the level of profits mean

They emphasized that **sectoral regulation** provides an opportunity to **track trends in profitability over time**, which, when **combined with competition analysis**, may create a fuller view of the nature of competition and where and how the intensity of competition may be changing over time.

By looking at what drives profitability and how that changes, **financial and business model analysis** can generate deeper insights for a clear understanding of which aspects are **key drivers of profit** and generate the greatest **competitive advantage**.

- For example, in the UK, profitability analysis shows that personal current accounts and cheap deposits are key drivers of profit and competitive advantage.
- Contribution analysis with the consumer-level data may take this one step further and highlight the sources of profits (e.g. overdraft charges, funding benefit, etc.).

Sectoral regulation means profitability analysis doesn't need to be just a one-off exercise.

- Regular updates to financial data allow us to examine **trends** using a consistent methodology over time and understand what drives changes and relate back to **competitive dynamics**.
- Financial data can also be used for **ex-ante modelling** (e.g. of policy proposals or exogenous impacts), **ex-post evaluation of policy changes** (e.g. overdraft intervention).

Fourth, EU (DG COMP) shared their view on the application of different competition measures for competition policy enforcement and advocacy.

They suggested that different measures of market competition can be used for different levels of analysis.

At micro level, case-by-case decision (e.g. merger control and abuse of dominance cases) uses measures of market competition for the assessment of competition and effects on competition in relevant markets.

The choice of measures to use depends on market characteristics and data availability.

At **industry level**, measures of **industry concentration/profitability** are useful to resolve the **dilemma** EU competition policy faces.

Some argue that EU competition policy is too strict and prevents the emerging of European champions. Others claim, on the contrary, EU competition policy is too soft and enables excessive concentration and profits.

Such a dilemma can be explored further by **analysing over-time trends of concentration and profitability levels**.

Current indicators show concentration and profitability have been moderately rising in Europe, which might be an issue.

- Average industry concentration C4 (in DE, ES, FR, IT, UK) has been moderately increasing, though widespread across industries, and showing trend towards oligopolistic structures (but not monopoly).
- Net profit as a share of GDP (in 14 EU countries, UK, US) has been increasing as a trend.

At **macro level**, concentration and profitability measures are used mostly for **advocacy purposes**.

- For example, assessment of **macroeconomic impact of competition policy enforcement** by making a link between the strength of competition policy enforcement (as measured by the number and importance of merger interventions and cartel prohibitions) and competition (as measured by mark-up and price shocks).

- The increased market competition may contribute to the economic growth by enhancing efficiencies (allocative efficiency, productive efficiency, dynamic efficiency) and stimulating productivity (labour productivity, TFP) in an economy.

Lastly, they emphasized further challenges for competition authorities to overcome: **discrepancies between theory and practice** in market analysis and discrepancies between **micro-indicators and industry & macro-indicators**.

Finally, the workshop closed with a **closing remark** by **Antonio Capobianco**, OECD Acting Head of Competition Division.