



BANK ĊENTRALI TA' MALTA  
EUROSISTEMA  
CENTRAL BANK OF MALTA

## THE COMPETITIVENESS RESEARCH NETWORK

## BOX 6: THE COMPETITIVENESS RESEARCH NETWORK<sup>1</sup>

A commonly used definition of a competitive economy is an environment in which institutional and macroeconomic conditions allow productive firms to thrive and expand, thereby supporting the expansion of job creation, investment and trade.<sup>2</sup>

In 2012 the European Central Bank (ECB) established a Competitiveness Research Network (CompNet) to better understand the drivers of competitiveness and productivity in the European Union, and to identify how competitiveness indicators are related to policy outcomes, such as exports and economic growth. The network has participants from all EU national central banks, including the Central Bank of Malta, as well as from international institutions interested in competitiveness issues.<sup>3</sup>

Discussions on competitiveness have traditionally centered on price and cost indicators, such as ULCs and real effective exchange rates. However, it is increasingly recognised that such traditional indicators do not tend to clearly explain developments in trade and related imbalances.

The objective of CompNet is therefore to complement traditional indicators regularly used by policy institutions by acknowledging the multi-faceted aspects of competitiveness, encompassing macroeconomic, firm-level and cross-border features. On the macroeconomic front, new indicators on sectoral information have been developed to investigate non-price competitiveness aspects. On the microeconomic front, a lot of effort has been devoted to the collection of firm-level information to arrive at cross-country indicators of productivity and its drivers. Finally, to take into account the cross-border dimension, new indicators have been established to break down the added value incorporated internationally at various stages of production.

### Trade performance and competitiveness

Standard export equations, with foreign demand and price competitiveness as the two main explanatory variables, are normally unable to explain more than 60% to 70% of the variation in exports. This implies that other factors, such as non-price competitiveness, are likely to play an important role in driving exports of individual euro area countries. However, even when the sensitivity of exports towards price competitiveness is considered, euro area countries exhibit significant differences. One particular study finds that Maltese exports of goods are among the most sensitive to relative price movements among euro area countries, whereas exports of services are less sensitive to price developments.<sup>4</sup> Of course, differences exist even within the services sector, with traditional markets like tourism being more sensitive to price and cost developments compared with other industries.<sup>5</sup> For instance, two recent studies that focused on the price sensitivity of British, French and

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<sup>2</sup> Draghi, M., "Competitiveness: the key to balanced growth in monetary union", *Speech* delivered on 30 November 2012.

<sup>3</sup> Further information on CompNet is available at: [https://www.ecb.europa.eu/home/html/researcher\\_compnet.en.html](https://www.ecb.europa.eu/home/html/researcher_compnet.en.html)

<sup>4</sup> Christodouloupoulou, S. and Tkačevs, O., "Measuring the effectiveness of price and cost competitiveness in external rebalancing of euro area countries: what do alternative HCIs tell us?", *Working Paper* 1736, European Central Bank, 2014.

<sup>5</sup> See for instance, the article entitled "Wage and price setting in Malta", *Quarterly Review* 2010:4, Central Bank of Malta, 2010.

German tourists coming to Malta found that, in the context of a competitive Mediterranean market, tourists are very sensitive to price changes, especially the German market.<sup>6</sup>

A holistic analysis of macroeconomic competitiveness should therefore also include non-price elements with traditional indicators of price competitiveness. The former include, for instance, product quality, technological innovation, and the geographical and country sectoral specialisation.

### **Productivity and reallocation**

Economic literature points to the crucial role of firm-level factors, such as size, ownership and technological capacity, in understanding the drivers of competitiveness, the determinants of productivity and the role of resource misallocation.

From the outset, the CompNet recognised the importance of firm-level indicators and embarked on an ambitious exercise to collect micro-data that led to new evidence on competitive drivers across European countries. Given the promising results, the database was further expanded to collect additional firm-level indicators on trade, the labour force, mark-ups and financial information, together with a thorough validation process to ensure data quality. The expanded CompNet database covers 13 euro area countries, including Malta, and 70% of EU gross domestic product.<sup>7</sup> The Maltese sample covers more than 1,000 firms for the period 2003-11 and, in addition to information on size, costs and productivity, covers also structural characteristics of the companies, such as their involvement in foreign trade.

In-depth studies have been undertaken to understand the shape of firm-level productivity distribution instead of looking at simple averages. This was primarily done as the impact of a given shock, similar to events during the financial crisis of 2009, may differ, depending on the underlying distribution of firms' performance. For instance, highly productive firms may react differently to a given shock compared with less productive ones. In addition, the high heterogeneity and skewness of firm distribution enlarge the scope to enhance overall productivity through the reallocation of resources across firms.

A number of stylised facts were identified from the firm-level information.<sup>8</sup> First, there are wide variances in firm productivity, not only across sectors but also within sectors. Firms in both tails of the productivity distribution, that is, the most and least productive firms within the sector, display different dynamics, for instance, with respect to interaction between respective sizes and labour costs. This finding would suggest that structural policies should aim at exploiting the shape of the productivity distribution. For example, policies targeted to switch resources from non-tradable to tradable sectors should also be complemented with others intended to improve resource reallocation within the tradable sector.

Second, there is a positive relationship between labour productivity and the size of the firm. Export activities are typically concentrated among a limited number of firms that are larger

<sup>6</sup> Gatt, W., and Falzon, J., "British tourism demand elasticities in Mediterranean countries", *Applied Economics*, Volume 46 Issue 29, pp. 3548-3561, 2014 and Gatt, W., and Falzon, J., "French and German tourism in the Mediterranean – A market share analysis", *Journal of Tourism & Recreation* Volume 1 Issue 1, pp. 21-36, 2014.

<sup>7</sup> Lopez-Garcia, P., di Mauro, F. and CompNet Taskforce, "Assessing European competitiveness: the new CompNet micro-based database", *Working Paper* 1764, European Central Bank, 2015.

<sup>8</sup> CompNet, "Competitiveness Research Network: First year results", *Publication*, European Central Bank, June 2013.

and exhibit higher productivity. These results imply that there is a substantial potential to boost overall productivity by fostering reallocation of resources within and across industries, over and above enhancing productivity of incumbent firms.

Chart 1 plots the distribution of labour productivity for the Maltese sample of firms with more than 20 employees. As in other countries, the accumula-

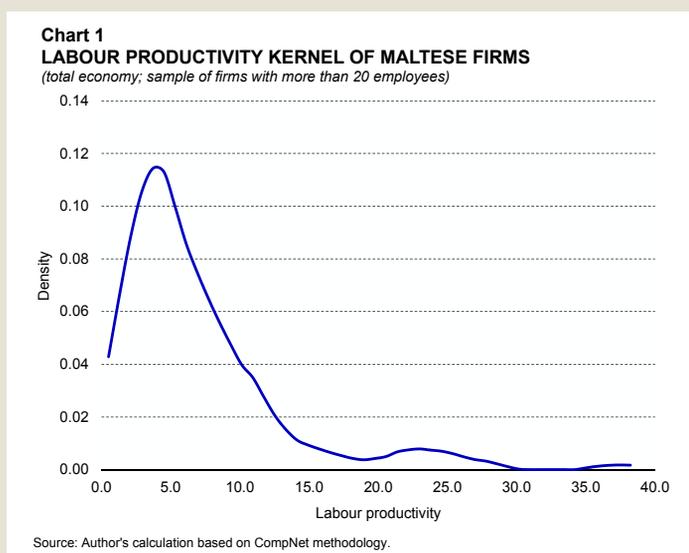
tion of density is centred on low productive levels with a long right tail of the distribution. This feature confirms that the productivity distribution is not only dispersed but also very asymmetric, featuring a large mass of low productive firms and very few high productive ones.

The CompNet micro-database sheds light on different features among firms. For instance, capital intensity, defined as the capital stock per employee, in top productive firms is around four times larger than in the least productive firms within the same sector. This confirms that productivity is highly related to capital deployment and the exploitation of technology.

Studies using this database also suggest that an increase in ULC does not necessarily negatively affect the exporting capacity of firms engaged in research and development (R&D) activities.<sup>9</sup> On the other hand, an increase in ULCs for firms that do not undertake R&D activities translates more strongly into a probable reduction in their ability to export. Such findings provide additional evidence that quality considerations may severely alter the ability of aggregate cost measures, such as ULCs, to provide an adequate description of external competitiveness.

### The role of global value chains

At cross-border level, CompNet research points to the importance of understanding the implications of integration into global value chains (GVC) for the overall assessment of competitiveness. Studies indicate that European countries are highly and increasingly integrated into GVCs.<sup>10</sup> Most of them have moved upstream along the production chain, which is consistent with the general increase in the length of value chains and with the outsourcing phenomenon.



<sup>9</sup> Altomonte, C., di Mauro, F. and Osbat, C., "Going beyond labour costs: how and why 'structural' and micro-based factors can help explaining export performance", *CompNet Policy Brief No.1*, European Central Bank, 2013.

<sup>10</sup> De Backer, K. and Miroudot, S., "Global value chains reshape our policy thinking", *CompNet Policy Brief No.6*, European Central Bank, 2014.

A related development associated with additional integration of countries into GVCs is the growing importance of services. It is now widely recognised that production of final manufactured goods embodies a larger share of service activities. One particular study finds that in some European countries job creation in service activities embodied in final manufactured goods more than compensated for the job losses in manufacturing, thus favouring policies that support high-skilled services and improve domestic services infrastructure.<sup>11</sup>

The internal fragmentation of production processes, with intermediate goods and services crossing borders multiple times, inflates gross trade and, thereby, reduces the reliability of international trade statistics as a measure of a country's competitiveness. A more appropriate measure of the value a country exports is domestic value added, which corrects for imported value contained in gross exports.

Studies using World Input-Output Tables show that, being a small and open economy, Malta is one of the most integrated countries in the European Union in GVCs and has a relatively high share of foreign value added in exports.<sup>12</sup> The latter share, however, has been declining over time, from more than 50% in 2000 to around 40% in 2011, as the country's production structure shifted away from manufacturing towards services. In addition to helping policy makers better understand the changing structure of production processes over time, these estimates are also useful for researchers, including those at the Central Bank of Malta, to better calibrate the Bank's macro-econometric model, for instance, on the import content of exports, to ensure that the model remains an adequate representation of the Maltese economy's production structure.

### **Policy conclusions**

Competitiveness is a comprehensive, multi-dimensional concept that is related to a myriad of factors, in addition to the traditional price and cost indicators, such as firm-level characteristics, structural and macroeconomic factors, and international production networks.

The research points to the need for targeted structural reforms to address all components of production costs, such as labour, cost of finance and energy, together with initiatives to reduce red tape, thereby enhancing business ability to compete internationally. Education constitutes a key element in increasing the quality of human capital to ensure that the workforce has adequate skills that are needed by today's industries. The economic and institutional environment must be conducive to innovation, growth and entrepreneurship, thereby allowing businesses and entrepreneurs to upgrade the quality of their products and re-direct their exports towards strongly growing markets, in addition to traditional ones.

Going forward, analysis of Malta's competitiveness should focus more on sectoral trends and, increasingly, on firm-level developments, rather than on economy-wide measures of costs and productivity. This granular detail requires an improvement in the quality and availability of statistics. A number of improvements have already been registered in recent years, such as the close cooperation between the Central Bank of Malta and the National

<sup>11</sup> Di Mauro, F., Plamper, H. and Stehrer, R., "Global value chains: a case for Europe to cheer up", *CompNet Policy Brief No. 3*, European Central Bank, 2013.

<sup>12</sup> *Ibid* 10.

Statistics Office in the collection and analysis of firm-level data to produce homogenous indicators aggregated at industry level, which can, in turn, be used in cross-country comparisons. In other areas, however, the absence of key statistics, such as those on sectoral price indices, limits the in-depth analysis of industry-level productivity trends.

The richness of the novel firm-level information provides interesting avenues for further policy research. In particular, future research will focus on the characteristics of exporting and non-exporting firms in Malta, and on better understanding the relationship between productivity, size and export performance. In addition, the use of homogenous indicators facilitates cross-country comparisons, for instance, on export performance, investment and financial constraints by firms in different productivity distributions before and after the financial crisis.