

Policy brief on the first joint workshop of the Horizon 2020 projects Globalinto and Microprod

The first joint workshop of the Horizon 2020 projects Globalinto and Microprod was held on Thursday October 29. The theme of the workshop was the role of intangible assets for productivity growth and the implications of Covid-19. Prior to the Covid-19 crisis, a key policy issue for EU and other countries was the productivity puzzle: what are the factors behind the slow productivity growth? What's most puzzling is that the slow productivity growth has happened even though multiple factors support productivity such as increased investments, low or negative interest rates and the rapid digitalization including the use of ICTs and the artificial intelligence revolution. Both Globalinto and Microprod are committed to the development of new measures and analyses that can address the many questions raised by the productivity puzzle. Covid-19 has added a new perspective and new urgency to many of these issues. This particularly concerns support for investments in intangibles and rethinking the roles of digitalization and global value chains for productivity. This policy brief first

reviews key messages from presentations made by members of each project and thereafter a panel policy discussion on intangibles, productivity and the role of Covid-19.

Analysis of the importance of intangible capital and knowledge for productivity measurement

As part of the Microprod project Márta Bisztray, Balázs Muraközy and Dzsamila Vonnák investigate how different types of info-communication technologies (ICT) help firms finding „good” business partners, i.e. suppliers or buyers. They find that usage of Enterprise Resource Planning software (ERP) (e.g. SAP) and automated sharing of supply chain management information with partners (information sharing) significantly helps supplying multinational enterprises. In addition, there exist a significant complementarity when two firms apply ERP and information sharing. These results imply that while ICT is a form of intangible capital, it also contributes to the creation of another type of intangible capital, namely business links and integration into global value chains. This can be an additional



indirect channel of ICT increasing a firm's productivity.

Measuring intangibles from register data at firm level – use of occupational data

Over the last 20 years, work on intangibles measurement has been instrumental in demonstrating the contribution of intangible assets to productivity, however, many challenges remain within the measurement of intangibles, particularly at the firm level. Carter Bloch presented an occupation-based approach for firm level measurement of intangible assets, that has been developed in the Globalinto project and builds on earlier work within the FP7 Innodrive project. This approach seeks to quantify intangibles investments based on the resources used in generating intangibles, forming estimates of own-account investments, which though may also encompass some intangibles purchases. The approach will be applied in productivity analyses for four countries: Finland, Denmark, Norway and Slovenia.

Innovation-labor biased technical change and growth

Hannu Piekkola of Globalinto discussed methods to measure the quality of innovation work (IBTC) and its relation to innovations and growth. Based on a study of CIS data from Finland, Piekkola's first finding is that organizational capital (OC) is the

structural capital that acts as an important driver of both product innovations and growth, while R&D seems to be only a driver for innovations. Secondly, the study indicates that investments in quality through OC-IBTC improves the firm's level of innovation, but R&D-IBTC does not have the same effect. The negative effect on organizational innovations (through OC-IBTC) can be explained by lower need for them when organizational workers are of high quality. Thirdly, the study finds that OC has positive effect through OC-IBTC on product innovation. Data also shows that well performing firms in Finnish economy have in recent decades relied on either reforming the organization form or investing in the quality of organizational workers.

Intangible Capital and Productivity. Firm-Level Evidence from German Manufacturing

Wolfhard Kaus, Viktor Slavtchev and Markus Zimmermann of Microprod argue that with new and evolving technologies and ways of production, as well as new business models, intangible factors become increasingly important. Using firm-level panel data from German manufacturing, the authors present stylized facts on the evolution of intangible investment over time and its distribution across firms. Among others, they find that investment in intangibles has increased over time and

that the total amount of intangible investments exceeds investment in physical capital such as machines, equipment and buildings. The study finds a positive and statistically significant output elasticity of intangibles. However, the amount individual firms invest in intangibles varies considerably and there seems to exist a considerable heterogeneity of the effect. While firms with high intensity of intangible investment show larger output elasticities, the elasticities are lower for firms with lower intensity of intangible investment. Moreover, there is a significant number of firms, for which intangibles are more important than physical capital. The total amount of intangible investment is highly concentrated in few firms. However, intangibles become, with time, important for more and more firms, and there is no evidence for increasing concentration.

Are innovation and intangible assets drivers for EU's manufacturing competitiveness in Global Value Chains?

Aggelos Tsakanikas et al. investigate the linkage between intangibles, innovation and participation to global value chains (GVCs) and study their effects on sector performance. They use the novel GLOBALINTO Input-Output Intangibles Database (2000-2014) and focus specifically on the manufacturing sector industries for EU27+UK. The authors find that imported intangibles

intensity has a positive and statistically significant effect on sector performance when domestically produced intangible inputs are present. Thus, imported intangibles appear to be a driver for sector competitiveness. The study also finds a positive effect of the patent and backward participation in GVCs interaction term. This supports the claim that the production of an innovation – such as a patent application – is in fact a driver for sector performance when the sector is participating in GVCs.

Intellectual Property and the Organization of the Global Value Chain

Bolatto, Naghavi, Ottaviano and Zajc Kejžar of Microprod study how supply chain organization and knowledge transmission interact in presence of both contractual incompleteness for tangibles and imperfect intellectual property rights (IPR) protection for intangibles. The results show that the quality of institutions protecting tangibles and intangibles have opposite effects on supply chain organization. Strong IPR institutions are crucial for firm decision, particularly for complements, inducing increased propensity toward international outsourcing by final good producers. However, high relative knowledge intensity downstream increases the firm's propensity to integrate. According to the authors, these results

are in contrast to the tangible property rights notion of contract enforcement.

Covid-19, intangibles and policy (panel discussion)

The COVID-19 pandemic has created certain puzzling macroeconomic conditions. According to Maria Demertzis, it seems that the markets do not believe that the interest rate will be back to the normal 2%. While interest rates were indeed very low prior to the crisis, COVID-19 appears to have exacerbated this situation. In fact, current developments suggest that nominal interest rates can be expected to be negative for 10 years and inflation could be around zero for 5 to 6 years. Hence, negative real interest rates are to be expected in EU and the US. This is not a desired situation as it will result in financial instability which can lead to markets malfunctioning or at least create financial imbalances and improper risk distribution. The big question is how will investments react? How will this affect the balance between physical capital and intangible capital? In many countries, the long-term trend is a move towards the knowledge economy, which should imply at least a certain level of constant investments in intangible capital.

The trend of digitalization is increasing rapidly in the current situation with lockdowns, to a greater or lesser extent, across the globe. A common characteristic for most digital intangible assets is that setting it up

entails a high amount of sunk costs in the beginning and after that the firm's expenditures in relation to the specific digital device are usually low and they can start profit from it. In times with lockdowns and businesses' increased usage of online communication, some states see the potential in investing in digital production. An example is Greece, where the state has made rapid investments in digital production, which has proved to be very important during the crises. Often, though, the Greek public sector has been called slow and ineffective. This can partly be linked up with the fact that most often intangible assets are not accounted significantly in governments accounting.

A considerable part of production is ignored in the statistics when intangibles are not accounted for in the national accounts. According to Felix Roth, member of the GLOBALINTO consortium, accounting for intangible assets would double the investment rate in EU. He points to the ten largest companies in the world, such as Amazon and Facebook, and asserts that they have their comparative advantage in intangibles. Miscounting for intangibles is something to be considered in monetary policy. One implication could be more to consider intangibles in monetary policy and to start seeing them as a service, with effects on accounting.

Demertzis notes that it is difficult to predict the future globalization trend. The US-China economic relations have been locked in a trade war, while the pandemic might, at least short-term, prompt countries to rely less on markets far away. Countries might try to secure that they have enough of a product before participating in international trade with it. As a result, the global value chain might shorten, i.e., a product might be produced with fewer countries than before. Aggelos Tsakanikas suggested that maybe we may speak of regional value chains at some point. To that end, we may need to advance the internal EU value chain. For instance, during COVID-19 several European countries have voiced concerns about being heavily reliant on Chinese medic materials like protective gear. The related proposal is most often to be self-reliant internally inside the EU. In rethinking the EU value chain, we should not only reconsider how intangible assets are measured and accounted for, but also how they are used. Even though two firms buy the same IT product it might have a different value in each company's production line and in the end the value creation.

Hannu Piekkola argued that intangibles will play an important role in any shifts in global value chains. We may experience great differences in multinationals and smaller firms' ability to invest in new knowledge,

along with an increased concentration of intangibles, which may eventually lead to uneven growth rates in the EU. How can this be addressed?

Maria Demertzis added that we should keep in mind that intangibles and innovation are more than just R&D, so that it is important that policy and financing supports less technical innovations and their scaling up, as this can be an important source of recovery and growth.

Yannis Caloghirou argued that in many ways, a pragmatic but inclusive approach is needed in fostering intangibles investment and knowledge accumulation. This includes the synthesis of different types of intangibles at a strategic level, combining ICT and complementary organisational knowhow and developing the capabilities of SMEs.