1st Bank of Italy – World Bank International Research Workshop

Building Human Capital for 21st Century Jobs

Welcome address by Ignazio Visco

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It is a pleasure to welcome you to the first workshop jointly organized by the Bank of Italy and the World Bank on "Building human capital for 21st century jobs".

In the last 25 years the world has been profoundly transformed by rapid technological advancements, the globalization of trade and production processes, demographic trends and intense migration flows. By their very nature, these factors intrinsically spread beyond individual national borders and, therefore, require the support of renewed international and multilateral coordination. No single country can successfully conquer these challenges alone. This makes cooperation a key element for the promotion of sustainable growth and the boosting of shared prosperity. And this enhances the role played by international institutions, as well as their responsibilities.

Technological progress in the "second machine age" poses distinct challenges at both an economic and a social level. Digitalization and automation of production phases, the introduction of new materials and the rise of entirely new processes (like data-driven production and artificial intelligence) are drastically changing the functioning of economies and societies in general. This new "knowledge society" promises great opportunities in terms of welfare in the long run, but it also poses major challenges during the initial transition period. The burden of the changes required in the transition is likely to be borne unevenly by different income and social groups, increasing the risk of a substantial decline in employment and wage growth in certain industries and regions, underpinning a revival of the concept – originally proposed by Keynes in 1930 – of "technological unemployment".

Indeed, new technologies are replacing labour at great speed: today's firms have already begun to automate not only manual and routine jobs, but also data-processing and information-intensive tasks, re-designing productive processes in fields where human intervention previously appeared to be decisive. In France, Germany and Italy the number of robots per worker in manufacturing has doubled in the last 20 years and it has risen fourfold in Spain; the "Great Recession" further accelerated the process. Artificial intelligence allows even non-manual tasks to be automated: think about the increasing number of firms hiring "internet bots" to handle the initial stages of customer services; or consider the growth of language teaching software that, through machine learning techniques, provides customized on-line courses; or the possibilities opened up by the latest generation of virtual personal assistants.

Globalization has further fueled the process of technological change, raising other challenges. Major companies have increasingly spread their operations around the world in order to better serve their customers and improve their competitiveness. While corporate revenue and profit growth have been enhanced by globalization, this trend has clearly created strains on those regions and towns in

developed countries that have seen jobs and significant portions of key industries relocate to other geographic regions, now benefitting in terms of employment and production spillovers. As global trade between countries has expanded, economic conditions in one nation now have a greater potential to impact economic conditions in others, through the trade of goods and services as well as through capital flows and labour market dynamics. Global frontier firms, such as the major players in the tech industry (the "Big Tech") are best placed to take advantage of network effects. This advantage can lock-in their market dominance, creating a winner-takes-all dynamic, potentially leading to increased earnings inequality across firms. Concentration allows for greater benefits from economies of scale, but there is a risk that barriers to entry can stifle innovation. The changes that innovation and globalization bring about in the corporate structure and organization and in labour demand clearly need to be understood and responded to.

The most significant impact of the current wave of globalization is, again, on the labour market. Whether it is low cost or skilled manufacturing workers in China, software or customer service professionals in India, or highly skilled employees in Eastern Europe, companies can now access new pools of human capital across the globe – a fact that can have a profound influence on their strategy and structure. The availability of a global pool of human capital also presents new challenges as to how firms should organize themselves to take advantage of this opportunity. The uneven distribution of skill requirements and wage levels between advanced and emerging countries has also proved to be a strong push factor for surging migration flows.

These changes couple with key secular demographic trends. Higher living standards have increased life expectancy around the globe and, for the first time in history, the world not only is experiencing a growing population (increased by about 50 per cent in the last thirty years and expected to reach 10 billion in the next thirty years, from the 7.5 billion today) but also, in most advanced countries as well as in China, a dramatic increase in old-age dependency rates. One billion people today are aged 60 or over, 13 per cent of the world's population, and this age group is growing much faster than the younger ones. This trend will bear directly on the rates of workforce participation and, in turn, impact rates of potential economic growth across the industrialized world. At the same time, while in relative terms the old exceed the young, the number of young people in the world is the largest in history. But it is not distributed evenly around the globe: of the 2.2 billion people added to the world population since 1990, less than 1 in 10 live in advanced countries. In addition Africa, which comprises some of the poorest countries in the world, is expected to have the fastest population increase and to reach Asian figures within this century in absolute terms. Future higher pressures on migration flows are to be expected, as well as further, possibly dramatic consequences for climate change.

In response to all these changes, which policies are countries called on to design and implement? My view is that the first and most important response to the confluence of rapid technological change, globalization and demographic trends should be to rebuild human capital and, then, to prioritize human capital investment as a key strategy for economic competitiveness and growth.

Many observers are now advocating for a greater emphasis on the more creative subjects into a wider school curriculum, integrating science, technology, engineering and mathematics (the

traditional acronym STEM) with the arts (STEAM) and reading and writing (STREAM). It is widely suggested that once both manual and data-driven tasks have been automated, human contribution will be concentrated in those creative tasks that will redefine product differentiation: understanding and anticipating the needs and behaviour of consumers, designing the aesthetics of new products and their integration into every-day life.

But this is not sufficient: a more complex and comprehensive definition of "human capital" should be endorsed. In the 21st century, the traditional classroom method where knowledge is imparted passively from teacher to students is no longer enough. Today's citizens are required to develop and continuously refine a large arsenal of both cognitive and non-cognitive skills. They need to be able to search for specific information in the ever-growing digital ocean that is the internet, recognize the quality of this information and process it critically. To adapt to the modern and more flexible model of business organization, the workforce must develop soft skills such as problem-solving attitudes, teamwork, effective communication and negotiation. Workers can survive and successfully exploit the acceleration of the pace of technological innovation only if they "learn to learn", and continuously update their skills.

Re-designing education policies is an extremely challenging task. It requires the ability to assess the quality and quantity of the skills available among the population, determine and anticipate those demanded by the labour market and implement efficient strategies to maintain and update them throughout workers' lifecycles. Data on available skills is, however, of poor quality and the demand for skills, present and future, is often a black box. In developing countries challenges are even greater as access to basic-level schooling remains an issue for a sizeable share of the population: action will have to be taken to carefully balance equal access to and completion of lower-secondary education with further learning both for school-age children and for adults.

These strategies require coherence and co-operation among schools, the private sector and social partners: the world of learning and the world of work must be linked. Formal education attainments do indeed display high complementarity with on-the-job training and other initiatives intended to increase the coherence between the supply and the demand of skills.

Human capital investment is key not only to boosting productivity but also to tackling inequality and promoting social mobility, enhancing social capital and maintaining social cohesion. Adults with low levels of education have a higher likelihood of reporting poor health and a lower participation in community groups and organizations. At the same time, more qualified adults are much more likely to feel that they have a voice that can make a difference in social and political life. These results are consistent across a wide range of countries, confirming that skills have a profound relationship with economic and social outcomes in many different contexts and institutions. Investing in skills is far less costly, in the long run, than paying the price of poorer health, lower incomes, unemployment and social exclusion that could lead to political aversion towards technological advancement and progress.

Finally, I would like to stress the important role of international cooperation in the management of the long and uncertain transition phase. An institutional synoptic design encompassing all policies (fiscal and welfare, antitrust, and structural reforms) is highly desirable. Greater attention must be paid to the coordination of policies at a supranational level and to the sharing of data and

statistics in order to correctly measure and interpret the economic variables as well as the channels through which the effects of these policies will meet their intended target.

Let me conclude by thanking the organizers – Emanuela Ciapanna, Fabrizio Colonna and Paolo Sestito from the Bank of Italy as well as Ciro Avitabile, Ritika D'Souza and Roberta Gatti from the World Bank –, all the economists who will be sharing their research over the next two days, and the representatives from both the international institutions and the private sector that will animate our policy panel tomorrow afternoon. I wish all of you a fruitful interaction during this conference.