

Registered Office: C/O: Institute for Human Development, New Delhi
Address for Correspondence: N S Siddharthan, 47, 3rd Street, East Abiramapuram, Chennai - 600004

13th Annual Conference of Knowledge Forum

November 16-18, 2018

(In partnership with Tata Trusts)

Hosted by: Tata Institute of Social Sciences, Mumbai

Conference Theme: *Technology and Employment*

Concept Note and Call for Papers

Paradigm changes in technology have always triggered debate on employment prospects. As stated by Schumpeter (1942) creation of new products and processes tend to destroy old products resulting in massive unemployment in the sun-set industries. However, they also create huge opportunities in the new industries. Schumpeter termed this phenomenon as ‘Creative Destruction’. He gave the examples of the introduction of the Railways resulting in the destruction of the Stage Coaches and the mass production of goods using new machinery harming artisans and craftsmen. However, loss of jobs for artisans and craftsmen did not result in an overall decline of employment. This was mainly because the market for the new goods grew rapidly to offset the unemployment in one or two sectors. However, in the initial years it did create turmoil. To Schumpeter development is ‘turmoil’ as it created beneficiaries and victims. Technological change cannot be stopped. Nevertheless policies could be formulated to identify the victims and reduce the turmoil.

To cite a more recent example the introduction of Information Technology (IT) in the banking and travel sectors created apprehensions for employment during the third quarter of the 20th century. Introduction of IT did decrease employment per customer or per account in the banking sector but it favourably influenced the overall employment in these sectors. In fact the overall employment in these sectors rapidly increased after the introduction of IT. At the same time the nature of employment and the skill requirements changed rapidly resulting in victims and beneficiaries. One of the objectives of the conference is to analyse the impact of IT in employment.

Similar fears and apprehensions are expressed regarding the on-going technological revolution that is affecting almost all the sectors and activities (Autor 2015, UNCTAD 2016 and Anthes 2017) .We now have about 20 years of experience with the on-going technological revolution and it is time to take stock of the employment consequences as revealed in the data and also to comment on future technological changes and their consequences.

The conference will concentrate on the following five sub-themes. The sub-themes are illustrative and papers are also welcome on other issues dealing with the main theme – Technology and Employment.

- **Internationalisation - FDI and trade**

Foreign Direct Investments and trade are two important sources of technology transfer to the developing countries. Literature suggests that FDI contributes to growth. Even here several studies show that only FDI in manufacturing contributes to growth and FDI in non-financial services could harm growth and even result in deindustrialisation (Doytch and Uctum (2011). It is not clear whether FDI contributes positively to employment. Evidence in this area is mixed (Karlsson 2009, Liu 2012). There is also a view that FDI outflows to developing and other countries could harm employment in the home countries. However, empirical evidence does not support this view (Navaretti et al 2010, Federico 2008). We welcome papers on these issues.

- **Digitalisation**

Digital technologies include artificial intelligence, robotics, cloud computing. These will transform nearly every sector – agriculture, medicine to manufacturing to sales, finance and transportation (Anthes 2017). As quoted by her in her *Nature* article:

“Millions of jobs will be eliminated, millions of new jobs will be created and needed, and far more jobs will be transformed” – Erik Brynjolfsson.

It is argued that professional jobs may not be affected as they involve face to face interaction and collaborations. Likewise, abstract jobs and professional services will also not be affected. In these cases digitalisation will not act as a substitute. Autor (2015) has shown that for almost all European countries the on-going technological revolution has resulted in a growth of both high paid and low paid jobs. But the middle level jobs have been badly affected and have been experiencing a negative growth. We welcome studies on other countries, in particular, India and other Asian countries analysing the characteristics of those whose employment increased and those whose job prospects decreased.

We also welcome studies by scientists and technologists analysing the impact of future technologies like quantum computers, solar energy and quantum dots on employment prospects. In this context some of the papers presented in our earlier conferences show that when quantum computers come, most of the current hardware and software would become unusable (Baskaran 2008, Lal and Paul, 2017). This would give enormous opportunities for software professionals and hardware manufactures to step-in and create products and services.

- **Robots**

Robots could be considered as part of digitalisation. However, since there are several studies on its impact, it is listed as a separate sub-theme. The deployment of Robots could spread to several sectors including traditional ones like garments and textiles (UNCTAD 2016). It is already playing a significant role in automobiles, micro-electronics and consumer electronics. Some

countries have already started combined robots with three dimensional printing. This could benefit the small and medium firms. It is also likely to play a role in surgery and other medical fields. To take advantage of this countries like China are already in the forefront in the production of Robots. Currently they are far ahead of other countries with more than 600 thousand stocks of Robots. UNCTAD (2016) recommends that developing countries should embrace digital revolution and redesign the education system. However, currently there is no study on the impact of robots on overall employment.

- **Social and other dimensions including inequality**

Several studies including the ones presented in our earlier conferences (Bhat and Siddharthan 2013) showed the skill bias of the current technological revolution. In the case of India the states that spent more on education and health attracted higher investments in manufacturing and financial services. It is worth analysing the relative importance of primary, secondary and higher education in attracting investment. There is already a significant inequality between states and between citizens with regard to access to health and education. UNCTAD study is in favour of redesigning the educational system. We need informed discussion on these issues.

- **Technology, supply chain and production**

The internet and the LAN system have enabled small and medium firms to participate in the global supply chain and globalise their operations. To fully participate in the system the country should invest in logistics and telecommunications infrastructure. Studies on these issues are also welcome.

Conference Format

- The conference will have an introductory session followed by Competitive Sessions.
- In the competitive sessions all the papers will be refereed before accepted for presentations.

Last date for submission of title of papers and abstracts: May 30, 2018

Last date for full paper submission: July 30, 2018

Send the abstracts and paper to: fgksindia@gmail.com

N. S. Siddharthan and K. Narayanan

References

- Anthes, Emily (2017), “The Shape of Work to Come”, *Nature*, Vol. 550, October.
- Autor, David H. (2015), “Why are There Still so Many Jobs? The History and Future of Workplace Automation”, *Journal of Economic Perspectives*, Volume 29, Number 3, 2015, pp. 3-30.
- Baskaran G. (2008), “Scientific Developments: A Vision” in *High Tech Industries, Employment and Global Competitiveness*, Routledge, London, New York and New Delhi, i-xi, 1-268. (S R Hashim and N S Siddharthan, Eds).
- Bhat, Savita and N S Siddharthan (2013), “Human capital, Labour productivity and employment” in N S Siddharthan and K Narayanan (Ed.), *Human Capital and Development: The Indian Experience*, Springer, pp. 11-22.
- Doytch, Nadia and Merih Uctum (2011) “Does the worldwide shift of FDI from manufacturing to services accelerate economic growth? A GMM estimation study”, *Journal of International Money and Finance*, 30, pp. 410–427.
- Federico, Stefano and Gaetano Alfredo Minerva (2008), “Outward FDI and Local Employment Growth in Italy”, *Review of World Economics*, Vol. 144 (2), pp. 296-324.
- Karlsson, Sune, Nannan Lundin, Fredrik Sjöholm and Ping He (2009), Foreign Firms and Chinese Employment, *The World Economy*, pp. 178 – 201.
- Lal, K and Shampa Paul (2017), Paradigm shifts in information technology, fgks.in/images/pdf/conf/2017/20_lal.pdf
- Liu, Liyan (2012), “FDI and Employment by Industry: A Co-Integration Study”, *Modern Economy*, 3, 16-22.
- Navaretti, Giorgio Barba, Davide Castellani, and Anne-Ce’lia Disdier, (2010), “How does investing in cheap labour countries affect performance at home? Firm-level evidence from France and Italy”, *Oxford Economic Papers*, 62, pp. 234–260.
- Schumpeter, J.A. (1942). **Capitalism, Socialism, and Democracy**, Harper, New York.
- UNCTAD Policy Brief 50. *Robots and industrialisation in developing countries*, October 2016.