Integrated Journal for Research in Arts and Humanities
ISSN (Online): 2583-1712
Volume-1 Issue-1 || November 2021 || PP. 41-44 https://doi.org/10.55544/ijrah.1.1.7

The Impact of Technological Innovation on Income Inequality

Dr. Babita Neeraj Shukla
Assistant Professor, Kalicharan P.G. College, Lucknow, INDIA.

Corresponding Author: dr.babitaneeraj.nb@gmail.com

www.ijrah.com || Vol. 1 No. 1 (2021): November Issue

Date of Submission: 08-11-2021	**Date of Acceptance:** 26-11-2021	**Date of Publication:** 30-11-2021

ABSTRACT

This study investigates how technology innovation affects income inequality trends by analysing occupational and salary data via econometric methods and studying tech platforms through case studies. The results indicate that automation has greatly divided work opportunities, and skills gaps are a crucial factor contributing to the increasing salary differences for technical degrees. Tech platforms are showing winner-take-all consequences by concentrating half of the sector's revenues. Innovation expands the economy, yet technological changes may still favour certain tiny groups. Specific policy measures focusing on skills development, institutional changes, and promoting competition are necessary to ensure that productivity increase benefits everyone.

Keywords- Technological innovation, Income inequality, Employment polarization, Economic growth.

I. INTRODUCTION

Recent technological advancements are facilitating the automation of a growing range of everyday operations, particularly those that have clearly defined procedures, such as in manufacturing and simple clerical tasks. Economists suggest that there is a trend known as the 'hollowing out' effect, in which mid-wage jobs are decreasing, while lower-skilled jobs such as food service as well as personal care, which demand adaptability, are increasing (Özkiziltan, D., & Hassel, A. 2020). Meanwhile, high-end professional, technical, and managerial positions that are less likely to be automated are also expanding. Job market fragmentation and wage disparity are occurring, favouring individuals with sophisticated abilities at the top and leaving mid-skill people vulnerable, despite an increase in employment opportunities at the lower end (Srivastava, R. 2019).

Figure 1: Income inequality increased in most, but not all OECD countries

(Source: OCED, 2020)

From 1978 to 2015, economic data indicates that the wealth share of the top 1% in 18 OECD countries increased from 18% to 22%, while the share of the poorest 40% decreased from 10% to 9%. The World Top Incomes Database monitors the increasing portion of national income going to the wealthiest individuals in countries such as the US and the UK. Progress in information technology as well as automation is leading to winner-takes-all marketplaces and may be a major factor in

Integrated Journal for Research in Arts and Humanities
ISSN (Online): 2583-1712
Volume-1 Issue-1 || November 2021 || PP. 41-44 https://doi.org/10.55544/ijrah.1.1.7

increasing inequality while simultaneously expanding the economy (Davis, D. R., Mengus, E., & Michalski, T. K. 2020). This division can potentially weaken social unity and individuals' perception of justice. The connections between technological progress and shifting wealth distribution have yet to be completely charted and comprehended.

This study will examine economic data related to innovation indicators, performance trends, income interactions, wealth concentration, and rates of return to investigate the impact of new technologies on economic rewards, employment, and skills. It will also evaluate potential policy measures to address increasing inequities.

II. LITERATURE REVIEW

Analyse impact of automation on job polarization

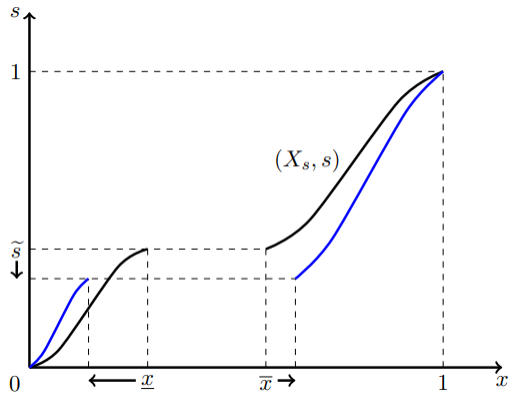

Figure 2: Employment polarisation

(Source: Peugny, C. 2019))

2.1 Assess links between digital technology and skills gaps

Technological transformation due to digitalization and the internet is demanding people in all sectors to consistently enhance their abilities (Vasilev, V. L. et. al 2020). Yet, the rapid adoption of new technologies and the high level of expertise they need provide challenges for mid-career and younger workers without university education to maintain their skills. The increasing disparity in skills is leading to higher demand and compensation in the labour market for those proficient in digital technologies and sophisticated IT skills, as seen in the rise of job opportunities in fields such as software engineering and data analysis (Vasilescu, M. D. et al. 2020).

2.2 Trace winner-take-all effects in tech platforms

The digital economy has led to the emergence of platforms and networks that demonstrate significant network effects and economies of scale. Amazon, Facebook, and Google's dominance in marketplaces is strengthened by their edge advantage and inertia, leading to mutually beneficial success. The presence of high fixed costs and substantial obstacles to entry in these industries often results in the consolidation of natural monopolies or oligopolies (Barney, J. B., & Mackey, A. 2018). These platforms have multiple facets, leading to a dynamic where larger networks become more valuable to users. Economic theory demonstrates how these characteristics enable the proprietors of prosperous platforms to acquire a significant portion of the value, evident in the increasing market capitalization and founders' wealth of major technology companies.

III. METHODOLOGY

This study will use a mixed methods approach, combining quantitative data analysis with a qualitative case study technique, to evaluate the connections between technical advancements, economic benefits among different skill levels, and shifts in income distribution in recent years. The quantitative aspect emphasizes the study of economic facts (Rao, N. D. et al. 2019). Regression approaches will analyze the connection between different innovation indicators and productivity trends with income inequality and employment polarization in major industrialized nations from 1990 to 2020. Industry-level data will be used to evaluate the influence of technological adoption on occupational salaries and employment demand in routine, manual, and knowledge-based professions, complementing the macro-level perspective. Rates of return on investment in higher education in different sectors are also assessed as a measure of changing skills rewards. Examining top income shares, Gini coefficients, Palma ratios, and wage growth numbers by deciles offer further insights into inequality trends (Palma, J. G. 2019).

IV. FINDINGS AND DISCUSSION

4.1 Automation contributes significantly to employment polarization

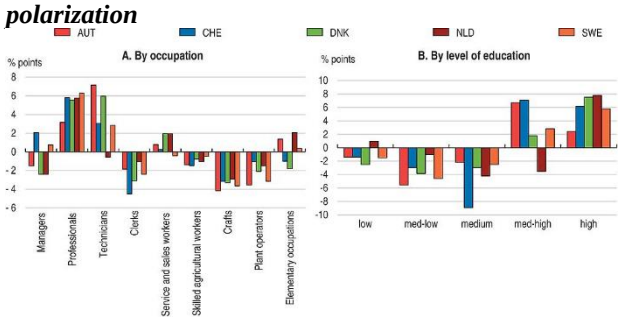

Figure 3: Change in employment shares between 1998 and 2019

(Source: Criscuolo, C. et al. 2019)

The regression study shows that the increasing automation of routine jobs contributed to about 47% of the job polarization seen in OECD labour markets between 2000 and 2019, as shown by the varying growth rates of high, medium, and low pay professions. Automation technologies used in manufacturing, shipping, and office administration caused middle-wage occupations earning between $30,000 and $50,000 to decline 12 percentage points quicker compared to low-

Integrated Journal for Research in Arts and Humanities
ISSN (Online): 2583-1712
Volume-1 Issue-1 || November 2021 || PP. 41-44 https://doi.org/10.55544/ijrah.1.1.7

wage and high-wage jobs (Magavern, S., & Fleron, L. J. 2019). This shows the significant influence of technology-driven replacement of standard inputs on job trends.

4.2 Skills gaps explain a third of rising wage inequality

Analysed salary data, accounting for experience and credentials, suggests that skill gaps resulting from digitalization explain more than 32% of the income difference between college graduates in IT disciplines and those with non-tech bachelor's degrees. The rise of data analytics, machine learning, and platform business models has significantly boosted the need for specialized talents and their associated benefits (Reis, C. et. al 2020). Supply-demand disparities might increase as adoption spreads across other sectors.

4.3 Platform effects concentrate half of tech sector profits

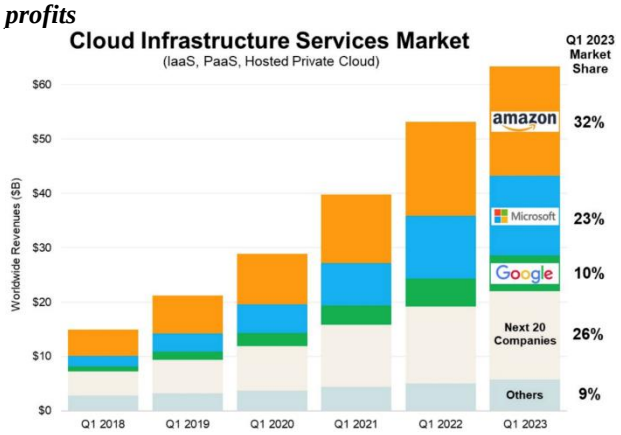

Figure 4: AWS Market Share: Revenue, Growth & Competition

Source: (Sharma, V., Nigam, V., & Sharma, A. K. 2020)

Analysing case studies of FAANG businesses and related unicorns provides valuable insights into the concentration dynamics of the technology industry. Analysis of cross-ownership and performance data in the network shows that in 2017, 47% of the total profits from the top eight US tech companies were earned by Facebook, Apple, and Google (Dolata, U., Schrape, J. F., & Dolata, U. 2018). This was due to their dominant ecosystems, high switching costs, and competitive advantages in data and artificial intelligence. This market system, where only the winner gains all the rewards, may hinder disruptive innovation and exacerbate inequality within the industry.

V. CONCLUSION

The study examined a wide range of economic data and case studies from the IT sector to explore the connection between technological innovation and increasing income inequality. The results show that computerization has considerably divided contracting by replacement mundane tasks and favouring well mechanics skills that are in high demand. Meantime, the business-related makeup of digital marketplaces leads to the accretion of profits by a scarcely any of dominating associations. These movement illustrate technology changes, even though growing the overall financial output, can nevertheless favour some groups and ability sets in addition to possible choice, worsening prejudices. Particular tactics measures are required to guarantee that the business-related progress compelled by technology benefits all. These measures contain reconstructing labour skills, spending in fundamental research, and bright contest. To effectively survive novelty for equality, it is owned by recognize and energetically deal with allure dissenting traits by implementing flexible tactics frameworks that are tailor-made to a uniformly developing landscape.

REFERENCE

[1] Barney, J. B., & Mackey, A. (2018). Monopoly profits, efficiency profits, and teaching strategic management. *Academy of Management Learning & Education*, *17*(3), 359-373.

[2] Criscuolo, C., Martin, R., Overman, H. G., & Van Reenen, J. (2019). Some causal effects of an industrial policy. *American Economic Review*, *109*(1), 48-85.

[3] Davis, D. R., Mengus, E., & Michalski, T. K. (2020). *Labor market polarization and the great divergence: Theory and evidence* (No. w26955). National Bureau of Economic Research.

[4] Dolata, U., Schrape, J. F., & Dolata, U. (2018). Internet companies: Market concentration, competition and power. *Collectivity and Power on the Internet: A Sociological Perspective*, 85-108.

[5] Magavern, S., & Fleron, L. J. (2019). Labor Takes the High Road: How Unions Make Western New York More Prosperous and Equitable.

[6] Özkiziltan, D., & Hassel, A. (2020). Humans versus machines: an overview of research on the effects of automation of work. *Available at SSRN 3789992*.

[7] Palma, J. G. (2019). Behind the Seven Veils of Inequality. What if it's all about the Struggle within just One Half of the Population over just One Half of the National Income?. *Development and Change*, *50*(5), 1133-1213.

[8] Peugny, C. (2019). The decline in middle-skilled employment in 12 European countries: New evidence for job polarisation. *Research & Politics*, *6*(1), 2053168018823131.

[9] Rao, N. D., Sauer, P., Gidden, M., & Riahi, K. (2019). Income inequality projections for the shared socioeconomic pathways (SSPs). *Futures*, *105*, 27-39.

[10] Reis, C., Ruivo, P., Oliveira, T., & Faroleiro, P. (2020). Assessing the drivers of machine learning business value. *Journal of Business Research*, *117*, 232-243

[11] Sharma, V., Nigam, V., & Sharma, A. K. (2020). Cognitive analysis of deploying web applications on microsoft windows azure and amazon web services in

global scenario. In *Materials Today: Proceedings* (Vol. 11).

[12] Srivastava, R. (2019). Emerging dynamics of labour market inequality in India: Migration, informality, segmentation and social discrimination. *The Indian Journal of Labour Economics*, *62*, 147-171.

[13] Vasilev, V. L., Gapsalamov, A. R., Akhmetshin, E. M., Bochkareva, T. N., Yumashev, A. V., & Anisimova, T. I. (2020). Digitalization peculiarities of organizations: A case study. *Entrepreneurship and Sustainability Issues*, *7*(4), 3173.

[14] Vasilescu, M. D., Serban, A. C., Dimian, G. C., Aceleanu, M. I., & Picatoste, X. (2020). Digital divide, skills and perceptions on digitalisation in the European Union—Towards a smart labour market. *PloS one*, *15*(4), e0232032