
WHAT IS THE IMPACT OF ARTIFICIAL INTELLIGENCE ON LOW-SKILLED LABOR MARKETS?

A Literature Review

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Introduction

The primary goal of this brief literature review was to consult authoritative sources to find a definitive answer to the question, “What is the impact of AI on low-skilled labor markets?” This goal was inspired by my work as a Human Resources Coordinator at a local manufacturing plant in eastern North Carolina where I support over 800 people who would be considered low-skilled workers. A search for sources was conducted using Google Search Engine Results Page (SERP) and Google Scholar. Over 15 sources were considered and 8 were selected for this review. These sources represent very recent research and commentary analysis. Two were academic research pages and six were a mix of commentary analysis and white paper reports from well-respected industry publications like the World Economic Forum and Brookings Institute. Other sources used were authoritative research databases like SSRN and OECD. This review discusses four recurring themes surmised from all eight sources and the surprising answer to the research question. Those themes are 1) certainty that AI’s impact will disrupt labor markets, significantly, 2) barriers to measuring impact with empirical certainty, 3) the urgency for better research to remove the uncertainty, and 4) optimism about the future of AI.

The Debate Brief Background

The Artificial Intelligence (AI) community consists of expert computer programmers, technology researchers, government policy makers, corporations, and economists. For at least the past 20 years, the AI community has been publishing online think pieces, white papers, and academic research papers aimed at examining trends and predicting, accurately, AI’s impact on labor markets--specifically, on low-skilled labor markets. Consequently, many low-skilled workers are experiencing anxiety around future job security due to glass-half-empty narratives that stoke fear instead of encourage creativity and hope for the future of labor markets, significantly, impacted by the rise of AI in daily work and life (Webb).

Did you know automation concerns are not new to the current 21st century Artificial Intelligence (AI) debate? These “how will new technology, positively or negatively, impact human beings” debate date back to the advent of written language in ancient Greece. Approximately 370 BC, Plato’s famous book, *Phadreus*, described concerns that writing would displace human memory and reading would substitute true knowledge with mere data (Frank, Toward Understanding The Impact of Artificial Intelligence on Labor).

Artificial Intelligence (AI) demonstrate significant potential to disrupt labor markets

All eight cited sources researching, analyzing, or reporting on AI’s impact on labor markets agree that AI will, significantly, disrupt labor markets--beyond its current use in industries. For example, a collaborative research work published in The Proceedings of the National Academy of Sciences Journal (PNAS), titled “Toward Understanding The Impact of AI Labor Market” stated, “Rapid advances in AI and automation technologies have the potential to significantly disrupt labor markets.” (Frank, Toward Understanding The Impact of Artificial Intelligence on Labor). It was written by a mix of thirteen computer scientist and economic experts from MIT, Harvard, and other top universities. A more editorial analysis published in the World Economic Forum (WEF) by a pair of AI experts (one a founder of industry leader [Deepen AI](#)) quantified the PNAS author’s opening statement with statistics. They cited WEF’s 2018 Future of Jobs Report which reported 75 million roles will be eliminated by 2022 (Croce).

In addition, research suggests emerging technologies since 2010 are set to change drastically the job landscape over the next few decades (Brekelmans). It is a now a no brainer that AI is impacting not only the workforce but our personal lives with the advent of what the industry calls The [Internet of Things \(IoT\)](#). Examples of IoT would be a refrigerator that keeps inventory of your groceries prompting you to go to the store to restock or taps into the internet to restock order for you. Other examples of IoT, would be your bio-activated fitness tracker that monitors your heart rate or daily steps to transfer to your Fitbit

App. Or, speaking into your smart phone to personal assistants like Alexa or Siri to get driving directions or order lunch.

An influential voice and source of recruiting talent for the tech industry is Accenture. They issued a report on AI's impact on labor that echoes previous industry leader sources cited. Specifically, Accenture's report guides employers on how to best prepare for AI's pending disruption using narrative, graphs, and stats. (Shook). While there is total consensus among industry professionals that AI is here to stay and will, soon and significantly, disrupt labor markets--there is an abundance of ambiguity and uncertainty among many experts and commentators on, exactly, how and what that impact will look like for all labor markets--especially, low-skilled labor markets.

Barriers preventing industry stakeholders and policy makers from quantifying AI's exact impact

All the eight sources cited affirm the industry conundrum that it is almost impossible, at this point, to predict, exactly, how AI will impact labor markets. But a couple sources stand out as unequivocal that this uncertainty needs to be resolved. For example, sources like (Brekelmans), and (Shook) have taken action to conduct studies that provide some empirical data to help better quantify AI's labor impact.

The PNAS collaborative study offers a deep dive into the problems with premature and gloomy predictions on how AI will eliminate entire low-skilled jobs. They state that the purpose for their published research review is to provide recommendations that will influence computer scientists and policy makers to act to create better research models that will produce data outcomes that policy makers and industry leaders could rely upon to make future labor decisions around AI's impact. (Frank, Toward Understanding The Impact of Artificial Intelligence on Labor).

The report called on computer scientists, industry executives, and policy makers to use their findings which exposed significant barriers preventing scientists from, accurately and definitively, predicting AI automation's effect on the future of labor. Barriers like sparse skills data to distinguish if

AI will eliminate or augment a role and limited modeling of industry resilience amid technologic driven trends. They believed the body of research they were analyzing, at the time they wrote their recommendations in 2019, was underequipped to forecast trends--reliably (Frank, Toward Understanding The Impact of Artificial Intelligence on Labor).

Nicole Croce and Moh Musa, executives from Deepen AI, echo the PNAS author's conclusion in the opening sentence of their World Economic Forum's article titled, "The New Assembly Lines: Why AI Needs Low-Skilled Worker Too." They confirm the lack of industry clarity stating, "Whether AI and automation will create, eliminate, or modify jobs, and how much, is the central question of a never-ending debate" (Croce).

Authors, Margaret Lane, and Anne Saint-Martin, draw a similar conclusion and share their observations in a think piece published in the Paris based Organization of Economic Cooperation & Development (OECD) Library. They sum up the consensus among the leading literature, more optimistically, with this broad statement about AI's impact on labor market. They state, "*AI is likely to reshape the work environment of many people, by changing the content and design of their jobs, the way workers interact with each other and with machines, and how work effort and efficiency are monitored*" (Lane). In other words, the best answer as to how AI will impact low-skilled workers and the general labor market is, it depends on many nuanced factors.

Liudmila Alekseeva, conducted their own literature review of the AI research for an economics-based publication called VOXEU (Liudmila Alekseeva). They refer to the lack of clarity and the variety of conclusions about AI's impact on labor markets as a black box. Their review concluded that few studies managed to open this black box and few papers focused on the impact of AI on transforming job task. They found that AI technology mostly affects high-skilled occupations. And in this ladder conclusion, they echo Brooking Institute's Michael (Webb) work, a source cited in this literature review.

The Urgency for Better Research Modalities to Remove Uncertainty

By now the reader should notice a recurring theme among all cited sources in this review. And that is, domestic and international sources on this topic agree on the difficulty experts have in being definite about how, exactly, AI will impact labor markets.

Michael Webb, Economics PhD Candidate from Stanford University, published a work titled, “The Impact of Artificial Intelligence on the Labor Market,” in the Social Science Research Network (SSRN) the number one research repository in the world. In it he responds to this urgency for better research models by creating a new method he developed to predict the impacts of any technology on occupations (Webb). His solution offers a method that identifies observes, and tracks industry exposure to AI and what results emerged.

Although the PNAS authors’ paper was not cited in his bibliography, Webb’s work appears to have been influenced by their call to action to create better data models.

Optimism About AI and The Future Low-Skilled Labor Markets

Of all the sources cited herein, three of them offered an optimistic and objective perspective. VOXEU authors quotes research by Felton in 2019, asserting that early evidence, generally, offers a more positive view of AI’s impact on labor market than negative. It showed that occupations affected by developments in AI experience a positive wage growth and AI does not reduce overall employment (Liudmila Alekseeva). Brookings Institute’s Michael Webb, AI technologies have the potential to decrease wage inequality (Webb).

Finally, the article titled, “The New Assembly Lines: Why AI Needs Low-Skilled Workers Too” is the most optimistic and solution oriented analysis of all the literature I reviewed on this topic (Croce).

They propose the idea that instead of eliminated, low-skilled workers could be retrained to perform a new cognitively repetitive, assembly line-like task called data annotation. To describe the process of data annotation would be beyond the scope of this review, but readers could liken it to a repetitive data-entry kind of skill. Lastly, after surveying this authoritative information on the topic, the surprising answer to the question, “What is the impact of Artificial Intelligence (AI) on low-skilled labor market” is, it depends.

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