

# The Role of Artificial Intelligence Tax in Reducing the Unemployment Problem

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The fear of the impact of artificial intelligence applications in the labor market on unemployment rates has increased. After the total global investment in this field did not exceed eight billion dollars in 2015, the global market for artificial intelligence globally will reach about 70 billion dollars by 2025. Many economic analysts believe that the application of artificial intelligence in industrial fields in particular will produce factories with much fewer employees than the current number, which will cause an increase in unemployment rates. Therefore, countries are trying to adapt to these systems, not only at the level of research and development of these systems, but also on the extent of strategic planning for the change they bring about on the economic level in general, and on the labor market in particular. One of the tools that these countries can use in their attempts to solve this problem is the artificial intelligence tax.

*Keywords:* artificial intelligence applications, artificial intelligence tax, unemployment problem, strategic planning

## Introduction

Labour Market is an economical market that represents the offer and demand on labours whether from the Owners of Companies & Institutions or from others. Human resource considered the most important element of production and the basic pillar to elevate the Living Standard & the Human Resources Development, where the countries depend on the strategic planning to achieve a permanent development, where the human resource represents the labour force that practices all the services, productivity, and consumption services in the society.

Therefore, Central Agency for Public Mobilization and Statistics is keen to produce various of Indicators and Statistics on Labour Market, which including data on labour's size, average wages, average work hours, and unemployment rates.

The results of previous studies differ about the role of artificial intelligence (AI) in the presence of some professions and jobs; some results of studies have concluded that artificial intelligence will affect the labor market, as many people will lose their jobs, while some other studies believe that artificial intelligence will be positive for humans if they are good at using it. The use of this artificial intelligence requires training in certain skills, whether for employees or for those who want to work in this field.

It is certain that with the expansion of the use of artificial intelligence, new job opportunities will appear, and there will be companies that will lay off their employees, and there will be jobs that will disappear, but in return there will be other new jobs.

Artificial intelligence can be a useful factor or a hindrance, but it will certainly never replace humans. What changes with artificial intelligence is the human role at work. However, people will continue to work, for example in the education sector the role of the teacher has not disappeared despite online education. What has changed is the role that has become a facilitator, but there is always someone who has to prepare the educational content and correct it. With each development, roles change and new roles are created, but AI does not replace humans.

### **Research Problem**

The problem of unemployment is a worldwide problem that represents a major challenge for every country in the world; it is a problem that could be reduced in some places but never ever was fully solved, academics and economists always mentioning it and trying to come up with a solution or a policy to get rid of; it is just never enough. In Egypt we have been facing this problem for a long time; now there is always more labor force than the existing places which can handle; in 2009 the unemployment rate reached 9.4%, but who should take the responsibility for this, the government, policy makers, the people?

There are currently more than three million industrial robots working in factories around the world. According to the International Federation of Robotics, another three million robots perform many other operations such as transporting goods, cleaning homes, and helping surgeons perform operations.

According to *World Development Report 2021* (World Bank, 2021), the robotics industry was valued at \$45 billion in 2020, and by 2030, it will grow at a compound annual rate of 29% to \$568 billion, leading to increased jobs in robotics and related industries. Over time, robots are becoming smarter, more autonomous, and more flexible in movement, and many experts believe that robots will one day be able to imitate human behavior and manage tasks in a way similar to humans.

In many cases, one robot replaces many labors. Will people be dispensed with in many jobs, and then the problem of unemployment is exacerbated, especially since automation is constantly increasing?

The research question for this study is: Does taxing artificial intelligence projects reduce unemployment in the sense that workers are replaced by machines? Is there an impact of artificial intelligence tax in solving the unemployment problem?

### **Research Objectives**

- Recognize the negative repercussions of artificial intelligence.
- Identify the positive repercussions of artificial intelligence.
- Recognize the availability of an organizational and ethical system that governs the work of artificial intelligence.
- Identify laws that guarantee basic human rights against the negative effects of artificial intelligence on the labor market.
- Identify the impact of the artificial intelligence tax and its role in solving the unemployment problem.

### **Research Importance**

Unemployment is one of the main reasons that lead to the deterioration of any society ethically, economically, and securely. As the accumulation of labor of young people leads to the creation of many

problems, such as the moral disintegration of society, it makes society suffer from shortcomings in the security and economic aspects, which result in many social problems.

The importance of the applied study is the following:

- The researcher's attempt to measure the impact of the artificial intelligence tax and its role in solving the unemployment problem.
- Explore the impact of artificial intelligence on the job market unemployment.
- Identify and analyze statistics related to artificial intelligence and its impact on the labor market, to be an indication of the use of artificial intelligence tax to solve the unemployment problem.

### **Research Methodology**

In many cases, to be crucial is the type of intelligence that is mainly used to perform a job to make it more or less vulnerable. Tasks requiring analytical intelligence are the easiest to replicate (Jarrahi, 2018). AI is becoming particularly useful in jobs involving classification tasks. These are a broad set of jobs based on text and image recognition. We find examples of these tasks in many fields, like legal services, medicine, accounting, and auditing (Ernst, Merola, & Samaan, 2019).

The same applies to jobs involving tasks matching supply with demand (Ernst, Merola, & Samaan, 2019), a typical feature of jobs belonging to the marketing function, another field where AI is revealing to be better than humans in performing operations related to market identification or advertising (Geisel, 2018).

The study by Zhou (Zhou, Chu, Li, & Meng, 2020) also analyzes the risks of automation in relation to workers' personal characteristics, such as age, gender, income, and education. With regard to age, the study shows that younger workers (20-29 years old) are less likely to be replaced; they are usually better able to use new technological means. In contrast, older workers are more vulnerable, unless they acquire new customers skills and their knowledge is usually obsolete. The study conducted by Chen and Lee (2019) shows that women interviewed have a more negative perception of the impact of AI on careers.

The idea that the usefulness of most current education systems should be questioned is a frequent one in the literature (Levy, 2018). For example, make general suggestions, and propose reforming educational institutions to help students acquire the skills needed to present them to the world of work. On this topic, the view and proposals (Bruun & Duka, 2018) are certainly the most drastic.

### **Artificial Intelligence**

The definition of artificial intelligence is not alone in the literature. It was coined by John McCarthy, an American computer scientist, in 1956. In his idea, artificial intelligence

... is the science and engineering of making intelligent machines, especially intelligent computer programs. It's related to the similar task of using computers to understand human intelligence, but artificial intelligence does not have to confine itself to methods that are biologically observable. (McCarthy, n.d., p. 2)

The modern definition by the *Cambridge Dictionary*, instead, goes beyond and reveals to be more precisely, by defining artificial intelligence as: "The study of how machines that possess are produced. Some qualities possessed by the human mind, such as the ability to understand language, image recognition, problem solving and learning".

Artificial intelligence, the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings, is frequently applied to the project of developing systems endowed with the intellectual processes of characteristic of humans, such as the ability to reason, discover meaning, generalize, or learn from past experience.

Since the development of the digital computer in the 1940s, it has been demonstrated that computers can be programmed to perform very complex tasks—for example, figuring out proofs for mathematical theories or playing chess—with great mastery. However, despite continuous advances in computer processing speed and memory capacity, there are still no programs that can match human flexibility in broader areas or in tasks that require a lot of everyday knowledge. On the other hand, some programs have achieved the levels of performance of human experts and professionals in performing certain specific tasks, so that artificial intelligence in this limited sense is found in applications as diverse as medical diagnostics, computer search engines, voice or handwriting recognition.

Psychologists generally do not characterize human intelligence by just one trait but by the combination of many diverse abilities; there are a number of different forms of learning applied to artificial intelligence. The simplest is learning by trial and error. For example, a simple computer program to solve chess problems might attempt a mate in one to move randomly until the mate is found. The program may then store the solution with the position so that the next time the computer encounters the same position, it will invoke the solution (Mayer, Roberts, & Barsade, 2008).

Many diverse problems have been solved by artificial intelligence programs. Some examples are finding the winning move (or sequence of moves) in a board game, devising mathematical proofs, and manipulating “virtual objects” in a computer-generated world.

### **The Four Types of Artificial Intelligence**

- Interactive machines: able to perceive and interact with the world in front of them because they perform limited tasks.
- Limited memory: able to store past data and predictions to inform predictions of what might happen next.
- Theory of mind: able to make decisions based on their perceptions of how others feel and make decisions.
- Self-awareness: able to act consciously on a human level and understand its existence.

This is what occupies the world now, after the revolution of artificial intelligence and the acquisition of some human jobs by robots, where the expectations of the World Economic Forum revealed that the percentage of dependence on humans for production devices is 71%, compared to 29%, reaching 50% in 2025, especially in administrative, muscular, arithmetic, and data function (Cann, 2018).

On the other hand, humans created modern jobs to confront the robot and keep pace with this development, which prompted governments to establish universities, colleges, and departments that keep pace with the era of artificial intelligence. There are many jobs that will flourish during the next three years, like all jobs related to artificial intelligence, such as analysis specialist, and there are other jobs that will disappear, such as project manager, bank jobs, insurance companies, tax preparers, and mathematics technicians.

Employing technology should serve the workforce and not replace it. Managers are making efforts to raise the productivity of their industrial operations. This prompts them to employ robots to perform repetitive and physically demanding tasks. Although automation is an important factor in raising the level of productivity, human labor is distinguished by its ability to see and study products by understanding the requirements of

customers. Therefore, we believe in the importance of the human element and its role in improving the quality of our products (Brougham & Haar, 2018).

When it comes to AI, we always try to design solutions in a way that employees can benefit from. For example, when artificial intelligence is employed to detect errors and improve work quality, smart solutions are designed in such a way that employees can operate and manage them.

That human-machine business model will lead to the emergence of new roles in smart manufacturing. It is a phenomenon that is likely to witness further spread due to the epidemic. We'll start to see companies benefit from digital solutions in a completely different way. There is no doubt that industrial companies will continue to explore innovative ways to employ advanced technology to increase efficiency and productivity. Enhancing the role of the human element is an essential part of the industrial process.

Digital transformation in industrial companies will take time, and it cannot happen very quickly. Many industrial companies do not have extensive experience in automation, robotics, and artificial intelligence. Therefore, it has to search in a completely new field for it, unlike the industrial companies that made this transformation in the past, which, in turn, was able to quickly adapt to the new reality, and sometimes even use it to its advantage (Schweer & Sahl, 2017).

### **The Impact of Artificial Intelligence Tax on the Unemployment Problem**

The classicists paid great attention to the social and political dimensions in analyzing the economic phenomenon, connecting in their analysis of the unemployment problem to the demographic problem, capital accumulation, and economic growth. With the production capacity of the national economy, the most important thing for the classicists is the problem of distribution and profit. It affects the accumulation of capital.

Keynes asserted that there is a certain level of correlation between levels of use and income, at every level of income there is employment corresponding to it, and they are all levels of equilibrium, which are not necessarily equilibriums at the level of full employment assumed by the classical theory.

The treatment of unemployment according to the monetary school does not require an effect on the aggregate demand; as Keynes sees, it requires working to encourage investors to increase investment and thus increase production.

Reducing taxes imposed on income and wealth and launching market mechanisms, coupled with combating government control over wages and prices.

Taxes play an important role in the economies of all countries as an instrument of fiscal policy in influencing production, consumption, saving and achieving economic stability. Taxes may normally be levied on an individual's income or capital. The taxpayer may bear the impact of that tax directly or by transferring the burden of that tax to others.

Whether it is borne by the financier or his burden is transferred; it has economic effects on the consumption and savings of the individual. Producers are often influenced by consumers. And this effect extends not only to the producers, but also to the distribution and the general level of prices.

Among the solutions that the state has taken to reduce the spread of unemployment among young people is that the state expands the financing of emerging projects, small, medium, and micro projects, and that banks facilitate the conditions for obtaining loans for young people and facilitate payment methods, in addition to the efforts of the legislative institution in issuing many legislations that would attract more investments and encourage and support medium, small, and micro enterprises.

One of the most important solutions to solve the problem of unemployment is the expansion of the establishment of labor-intensive factories and projects by granting these labor-intensive factories and projects a package of exemptions and tax benefits, which are considered an important catalyst for undertaking such projects.

If the objective of imposing the tax is to achieve the public interest, its economic and social effects are many, and may even be the opposite of its objective. Taxes may be one of the causes of social discontent that pushes them to commit social crimes and popular revolutions. Taxes may be economically counterproductive when they are imposed at high rates. It affects the volume of foreign investments that flee to other countries, with less severe tax rates.

However, higher taxes lead to a decrease in the tendency to consume and an increase in the tendency to save, which negatively affects the economic security of the country. There are two types of taxes: direct taxes and indirect taxes. Direct taxes are directed to those with high incomes, and therefore consumption is not significantly affected, while indirect taxes are directed to people with low incomes, and their impact on consumption is great because the tendency to consume for this class is large (Wołowiec, Skica, & Gercheva, 2014).

It must be taken into account that increasing taxes on projects that adopt artificial intelligence leads to an increase in the tax burden for them; thus, it reduces the amount of profits achieved after taxes.

The impact of taxes on industrial projects is directly proportional to the amount of artificial intelligence used in these projects, that is, the larger the size of the artificial intelligence in the project, the greater the effect of the tax increase on income. In general, taxes work to achieve economic stability by addressing the problem of unemployment. In the case of labor-intensive projects, a package of incentives and tax exemptions are granted to reduce the tax burden on these projects and vice versa.

### **Conclusion**

- The motivation for the study is that artificial intelligence is increasingly seen as a part of our daily lives, with its applications involving a wide range of actions: from simple online searches to self-driving cars. The goal of this aims to deepen the problem of technological unemployment revolving around the widespread use of artificial intelligence at the industrial level.

- Unemployment is a deadly disease that affects the body of the economies of most countries, whether they are developed or developing. Societies must confront this dangerous disease because it has political, social, and cultural repercussions and a painful crisis, and affects human dignity and livelihood; accordingly, it is necessary to search for all effective treatments at all levels, whether economic, financial, or even educational.

- Egypt is considered one of the young countries with a high population growth rate for the countries of the region, which means that Egypt has large numbers of the working-age population.

- On the other hand, Egypt does not have the right amount of job opportunities that would guarantee work for most of the population.

- Those who are guaranteed to live in dignity like other residents of most countries in the region and the world.

- Weak public revenue causes a continuous deficit in the public budget due to weakness tax revenue resulting from administrative and financial corruption and tax evasion.

- The tax has a major role in addressing unemployment through many tax legislations; the research question for this study is: Does taxing AI projects reduce unemployment in the sense that workers are replaced by machines?

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### Recommendations

- Directing public spending to the most efficient sectors that play a prominent role in creating opportunities work.
- Adopting a tax policy that works to stimulate the demand for employment by the private sector and not to rely entirely on the public sector for career expansion events.
- Giving more tax incentives to projects that use labor intensively, that is, that has flexibility in absorbing numbers of the unemployed.
- Activating the tax policy in a way that makes it effective in addressing economic and social problems.

### Future Research

There are many areas that can be searched to complement this research paper, which opens a wide field for researchers, which is to delve deeper into the comparison between more than one tax policy and its impact on the problem of unemployment. Are work-intensive projects granted incentives and tax exemptions, or are additional taxes applied to projects with artificial intelligence with low labor intensity?

Does the state have the tools that can make the private sector contribute positively and significantly to solving the problem of unemployment, such as providing industrial land and infrastructure for labor-intensive projects at low symbolic prices compared to other projects?

How can the informal economy be stimulated to engage in the formal economy and participate in solving the problem of unemployment?

### References

- Al-Mamouri, A. A. K. (2011). *The history of economic ideas*. Amman, Jordan: Dar Al-Hamid for Publishing and Distribution.
- Brougham, D., & Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms (STARA): Employees' perceptions of our future workplace. *Journal of Management & Organization*, 24(2), 239-257.
- Bruun, E. P. G. G., & Duka, A. (2018). Artificial intelligence, jobs and the future of work: Racing with the machines. *Basic Income Studies*, 13(2), 1-15. doi:10.1515/bis-2018-0018
- Cann, O. (2018, September). Machines will do more tasks than humans by 2025 but robot revolution will still create 58 million net new jobs in next five years. *World Economic Forum*. Retrieved from <https://www.weforum.org/press/2018/09/machines-will-do-more-tasks-than-humans-by-2025-but-robot-revolution-will-still-create-58-million-net-new-jobs-in-next-five-years>
- Chen, S. Y., & Lee, C. (2019). Perceptions of the impact of high-level-machine-intelligence from university students in Taiwan: The case for human professions, autonomous vehicles, and smart homes. *Sustainability (Switzerland)*, 11(21), 6133. doi:10.3390/su11216133
- Ernst, E., Merola, R., & Samaan, D. (2019). Economics of artificial intelligence: Implications for the future of work. *IZA Journal of Labor Policy*, 9(1), 1-35. doi:10.2478/izajolp-2019-0004

- Geisel, A. (2018). The current and future impact of artificial intelligence on business. *International Journal of Scientific and Technology Research*, 7(5), 116-122. Retrieved from <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85059866079&partnerID=40&md5=71b52518a5eff5f10a3d215dc6341178>
- Jarrahi, M. H. (2018). Artificial intelligence and the future of work: Human-AI symbiosis in organizational decision making. *Business Horizons*, 61(4), 577-586. doi:10.1016/j.bushor.2018.03.007
- Levy, F. (2018). Computers and populism: Artificial intelligence, jobs, and politics in the near term. *Oxford Review of Economic Policy*, 34(3), 393-417. doi:10.1093/oxrep/gry004
- Mayer, J. D., Roberts, R. D., & Barsade, S. G. (2008). Human abilities: Emotional intelligence. *Annual Review of Psychology*, 59(1), 507-536.
- Mccarthy, J. (n.d.). What is artificial intelligence?
- Schweer, D., & Sahl, J. C. (2017). The digital transformation of industry—The benefit for Germany. In *The drivers of digital transformation* (pp. 23-31). Cham: Springer.
- Wołowiec, T., Skica, T., & Gercheva, G. (2014). Income taxes, public fiscal policy and economic growth. *Finansowy Kwartalnik Internetowy e-Finanse*, 10(3), 52-64.
- World Bank. (2021). *World development report 2021: Data for better lives*. Retrieved from <https://doi.org/10.1596/978-1-4648-1600-0>
- Zhou, G. S., Chu, G. S., Li, L. X., & Meng, L. S. (2020). The effect of artificial intelligence on China's labor market. *China Economic Journal*, 13(1), 24-41. doi:10.1080/17538963.2019.1681201