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PAMUN XVII RESEARCH REPORT— THE QUESTION OF AUTOMATION AND ITS IMPACT ON EMPLOYMENT AND ECONOMIC DISENFRANCHISEMENT

Introduction of Topic

Technology is everywhere, including the labour market, and many people are concerned. The automation of the workforce is taking place as we speak. Our reliance on technology, which has been building since the industrial revolution, continues to grow. Technology permeates every aspect of our lives causing many to worry about future job security for themselves and the future generation. Robots took part in approximately 570.000 surgeries in 2015 and Associated Press currently has an automated system that allows it to write stories without needing an author. Medicine and Journalism aren't the only fields turning to technology. An Oxford study predicted that around 47% of employment in the United States could be a risk and the World Economic Forum predicted that approximately 5 million jobs from 15 of the world's largest economies could be lost as a result of what they called the 'Fourth Industrial Revolution' by 2020.

Of course, this fatalist, pessimistic perspective on automation isn't shared by everyone. Some cite the first industrial revolution as an example of a technological revolution that people thought would result in mass economic disenfranchisement and unemployment, but didn't. They say that the displacement of labour from agriculture to more urban settings goes to show the adaptability of the labour force to the demands of the labour market. They opine that since mass unemployment didn't occur during the industrial revolution, the same will happen: the market and the labour adjust to meet the new demands of the economy. On the other hand, some would still argue that the scope of the automation and industrialization as well as the rate at which it occurs is unprecedented and, therefore, comparisons to past industrial revolutions cannot result in an accurate forecast of the labour situation.

The conflict in opinions stems from the fact that those who think this wave of technological advancement will pass simply as those before it, believe that the labour will be able to adapt to the new demand of the labour market organically, as was previously the case. Those with a less positive outlook, instead, believe that even if the labour force manages to adapt at the same rate as it did in the past, the rate at which new technology is developed is much greater; this means that the labour force will simply not be able to keep up with technology.

Definition of Key Terms

Automation

This term refers to the systematic process in which actions that were performed by humans are being programmed and relegated to machines or computers who can do it as efficiently, if not more. Since it could be more profitable to pay maintenance costs rather than to pay the salaries of the equivalent amount of people required to do the same thing, people fear that their jobs will be taken by machines or computers.

Economic Disenfranchisement

This refers to the exclusion of certain people, or certain groups of people, from the economy, labour market etc. In the context of this research report, this refers to the people whose places in the labour market have been taken by automated machinery and they therefore can no longer find employment and find themselves excluded from said labour market. This problem generally has a larger impact on people from lower socio-economic backgrounds who are less skilled because their occupations are easier to program. Skilled laborers are at less risk of economic disenfranchisement because the new openings in the labour market because of technology will allow them to remain employable due to their skill set.

Employment

Employment is an agreement between one person and an entity that says that the person will receive some compensation, usually monetary in nature, in return for performing some action or providing some service. This agreement usually takes the form of a contract and acts as a guarantee for both parties that each will receive what they agreed to.

Labour Market

The labour market is like a real market in that it operates by the laws of supply and demand, competition, and other economic theories. However, no rather than goods or services changing hands, it is employment that is obtained or lost in the labour market. It entails all the interactions between the employed, the unemployed, and the employers. The state of the labour market is usually related to the state of the overall economy.

Skills Instability

This term refers to the idea that the skills required for certain occupations will change for those same occupations due to progress in technology and automation changing the requirements of those occupations. An example of a sector that has had significant skills instability is the medical one. The skills a doctor needed a century ago wouldn't be applicable anymore, because now doctors must be familiar with the operation of new technology such as Magnetic Resonance Imaging (MRI) or the robots that are now being used to operate on patients. It can be used as a marker by which to measure the stability of a nation's labour market. According to the World

Economic Forum the member states of the Association of Southeast Asian Nations (ASEAN) will have relatively low skills instability compared to some European nations due to automation.

Technological Unemployment

This term was coined by John Maynard Keynes in the 1940s and refers to the loss of employment due to automation and other similar technological advances. This has been a source of concern since the industrial revolution and is relevant, now more than ever, due to astounding rate at which innovation and technological advancement has been occurring in recent years. This problem concerns every nation and must be addressed. The term was coined by John Maynard Keynes in the 1940s.

Unemployment

Unemployment refers to a situation wherein someone who is actively seeking employment but is unable to obtain it. Unemployment, usually in the form of a statistic like unemployment rate, is one of the standards by which we measure the growth and health of an economy. Unemployment is particularly dangerous in the long-term as it can result in economic disenfranchisement as the person is unable to get the resources to participate and be active in the economy.

Background Information

There are generally considered to have been three major industrial revolutions: the first introduced to us the locomotive with the advent of steam and water powered machinery, the second introduced the car with the advent of electricity and the assembly line, and the third introduced to us Information Technology, with the advent of the computer. Some consider that we are about to experience a fourth Industrial Revolution, otherwise known as Industry 4.0, in which the internet is combined with all previous stages of technology to create new automation. This means robots and artificial intelligence are being designed and created. This is particularly relevant in the fields of manufacturing and other routine physical occupations. Robots can be easily programmed to work on an assembly line and repeat the same action ad nauseam without sleep breaks or toilet breaks, making them much more efficient than their human counterparts. Of course, one could argue that in fact, all industrial revolutions have threatened, and sometimes even wiped out, certain occupations, but that eventually those people were able to find employment in other related fields that grew out of the very technology that displacement, which begs the question: what's different about this one?

One difference between the current revolution and the past is that laborers in previous times were able to lose a job in a certain area of routine physical, or manual, labour but then find a similar job in some other sort of physical or manual labour elsewhere. Nowadays, the risk of automation is such that low skilled workers are in danger of not having any routine physical jobs available to switch too as they, too, will have been automated. Another difference is that previous revolutions have occurred over

decades, but today new can be robots are created and programmed in the span of a few months, meaning the labour market has much less time to adapt to the shifting employment landscape. People are being rendered redundant by machines which means one of two things can happen: they can become underemployed, or they can become unemployed. If they are unemployed and they do not adapt their skills they will remain unemployable and likely undergo economic disenfranchisement. If they are underemployed then they will be in a situation where they're employed in an occupation that they are either over-qualified with respect to the job they have, meaning they're receiving lower wages than their qualifications should demand, or they're employment doesn't provide them with the financial compensation they need to survive. Either way if people don't adapt their skills, they will not be able to keep satisfactory employment, if they can keep employment at all.

Although this topic will impact everybody in some way, there are certain groups more at risk of economic disenfranchisement than others. The previously mentioned Oxford study found that there was a negative relationship between the salary of a labourer and their level of education they'd attained and their likelihood of being displaced by automation. In other words, the lower your wages, and the lower your education level, the more likely your job is to be replaced by automation. The general consensus is that lower skilled people are at greater risk of displacement due to automation. The high skills instability puts them at most risk. This means lower skilled people, generally people of lower socio-economic standing are at the greatest risk of losing their employment. To top this all off, a study conducted by the economics department of MIT concluded that robots had a depressing effect on, not only the percent of employment, but also the wages of employers; they found that the addition of one robot per thousand workers would result in a decrease of employment relative to population of between 0.18% and 0.34% and could result in a decrease in wages of between 0.25% and 0.5%.

An ILO report about automation in ASEAN came to the same conclusions as the Oxford study regarding education and skill levels likely to be impacted and furthermore found that women were another group that would be disproportionately affected by automation. There is a reason for this. Although this research report has cited numbers in terms of net employment loss, there's another side to it. Although certain jobs would be lost due to technology, technology is also creating new occupations and employment thereby cancelling out some of the losses. The new fields of employment created, unsurprisingly, tend to be in the Science, Technology, Engineering, and Math (STEM) areas, since technology is increasingly important and due to the research into green energies taking place as climate change concerns become more severe. These areas are areas in which women are notoriously underrepresented. That means that for every one job created for women by technology, five jobs are lost, whereas men lose three jobs per job gained. Although men certainly do not come out victorious, there is a disparity that should be addressed.

Relevant Reports On the Matter

- [Digital Dividends, World Bank 2016 World Development Report](#)
- [ASEAN in transformation: The future of jobs at risk of automation - , ILO Bureau for Employers' Activities \(ACT/EMP\), July 2016](#)
- [ASEAN in transformation: How technology is changing jobs and enterprises, ILO Bureau for Employers' Activities \(ACT/EMP\), July 2016](#)
- [Robots and industrialization in developing countries, UNCTAD Policy Brief, October 2016](#)
- [World Development Report: Digital Dividends, World Bank Report 2016](#)
- [A future that works: automation, employment, and productivity, McKinsey Global Institute \(MGI\) Report, January 2017](#)
- [The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis, OECD Social, Employment and Migration Working Papers, June 2016](#)

Main Issues

The rate at which technology advances, is truly astonishing. Although having such fast progress is beneficial for us in fields such as medicine, where saving lives is safer and more efficient, or scientific research, where new equipment can allow us to find more accurate and precise results, in terms of employment, speed is not a friend. The period for which a certain piece of technology is relevant is quickly diminishing as the speed at which improvements and new models come increases. This means that laborers might find themselves training for a job which quickly becomes irrelevant due to the rapid improvement of whatever piece of technology is relevant. This means that the time where you only needed to get a certain set of skills before you could be safe in the labour market is past. As new occupations and opportunities open and then quickly shut due to the ever-changing nature of technology, people must be ready to also become ever-changing in their skill sets.

People already in the labour force who are seeing their fields of employment become obsolete, or different due to technology. Technology is changing both the jobs available but also what those jobs entail. The people already participating in the labour market need to be addressed as they are the ones with the most imminent threat to their job security. The problem is that many people's skill sets are too static compared to the evolving demands of the market; as the market changes, people need to be able to improve themselves and acquire new skills to avoid economic disenfranchisement. Since the skillset of the current labour market is not evolving as it should, many people will find themselves without the

skills that will be necessary for employment in the sectors that will experience growth. Therefore, preparations must be made for the mass technological unemployment, and therefore economic disenfranchisement, that could occur.

Technological unemployment is a problem with the potential to affect many people, however, some less advantaged groups of people are at higher risk of economic disenfranchisement due to technological unemployment. There are a lot of accessible resources and data that support the conclusion that there is an imminent crisis for many workers who risk losing their employment. These people tend to represent the underprivileged groups of society. People of low education and wages are at greatest risk of economic disenfranchisement due to their precarious position at the bottom of the labour force. This is because many of those people's occupations involve physical labour that is routine and can, therefore, be easily programmed into a machine. These people tend to represent minorities or groups of low socio-economic status. Women are in a similar position due to the disparity between the employment of women and men in STEM, the field which is most likely to see growth in the labour market as a result of automation. These two groups of people occupy sectors of the labour market most likely to suffer from technological unemployment. These groups already represent the groups with the lowest income. Subjecting them to not only unemployment but lack of employability due to their underrepresentation in STEM fields puts them in a dangerous situation given the future of the labour market. If things stay the same, these vulnerable groups will only see their income decrease and the wealthy, who are able to profit off of automation, will only see their income increase in such a way that wage disparity will exacerbate economic inequality to a considerable extent. Clearly the future of the labour market is very different from the labour market we see now and that change is could be very dangerous to those groups of people. The people who currently are a part of the labour market, particularly the aforementioned people at risk are in a tough spot.

In this same vein, the education systems need to be reformed. They produce a significantly higher amount of men who go into STEM fields than women which will significantly reduce the employability of women in the long-run. The education system also contributes to the commonly held view that you study one thing, get one skillset and are set for life. Unfortunately, with the advent of new technology and automation, skills instability is a more relevant issue than ever, and the education systems of the world should reflect that. Education systems, both primary and secondary, must instil in the youth the ability to adapt their skillset and acquire new knowledge and education as time goes on. The static nature of the skillsets of the workers in today's labour market reflect how education has not been able to catch up to the speed at which the world evolves. In order to give the future members of the labour force a chance to be successful, education must be reformed now.

Previous And Current Attempts to solve the Issue

There have been few attempts to address automation and it's potential to disenfranchise certain groups. There have been few attempts at policy-making or legislation undertaken by governments. The

United States White House, communicated its commitment to implementing certain policy changes, but nothing has happened yet. South Korea, the country with the highest robot-to-worker ratio, has only just implemented a robot tax in 2017, however, as this is a very modern and contemporary issue there is no way of knowing if anything currently taking place will be successful in helping the workforce adapt.

Possible Solutions

The first set of issues that need to be address regard the imminent problems that need to be addressed. Ways must be found of providing skills and training to people already in labour market in order to allow them to keep their employability. Preparing for widespread technological unemployment could take the form of suggesting welfare measure improvements and guidelines to allow the newly unemployed to have access still to the economy, or healthcare, or employment. An example of a possible preparation is a concept known as the Basic Income, or Universal Income, which would take the place of the unemployment benefit and would be a certain amount paid to unemployed people every month, enough to cover their basic needs in life. It has become increasingly possible in recent years, to the point where a sample of 2.000 unemployed Finnish people were selected by the government to test it out. While considering these solutions, it's important to keep in mind the fact that the most affected are people of low socio-economic status and women and they need to be helped.

The second part of this issue can be seen as investment into the future labour force. This could include:

- Encouraging women and people of lower socio-economic classes to pursue STEM subjects while in secondary education
- Instilling in the youth the idea that education can no longer be seen as something that is invested once and is then good forever
- And reforming or improving the education systems of member nations in order to encourage a new perspective on education and learning as well as a new mindset on skills and skill acquisition; this will help future generations adapt their skill sets to fit the market the way the current generation is struggling to

The first part of the issue can be regarded as addressing it in the short-term, so that current members of the labour force are able to be secure in their employment and lives, and the second part of the issue as addressing it in the long-term, so that future members of the labour force are able to approach employment the way that will be necessary given the evolution of technology and the market.

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