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# Basic Income In The Era Of Automation

## A potential response to technological unemployment

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## Abstract

The term ”Basic Income” (BI) describes a multitude of policies, the common characteristics of which are their unconditionality and availability to everyone. Actively discussed and analyzed since the mid-20th century, the topic has gained traction recently in connection with rising automation and expected displacement of human labor, as a possible answer to corresponding social problems. The main question was whether automation could become the main source of funds for BI.

To answer that question, comparison was conducted between human worker and an industrial robot in Vartsila factory on three main activites - nitriding, nitro-carburizing and induction hardening, in a work cycle of 8 hours per day, 1500 work hours per year - to compare productivity and corresponding difference in revenue. Performance was analyzed for three main metrics: time per one piece, total work hours and total number of work pieces.

Under circumstances outlined above, the robot ended up consistently bringing approx. 40% more operating profit for the similar work hour allocation. Applied to overall profits from the segment, it produced an estimated €8m in spare profit just in the segment of General Industry and just for Bodycote.

Overall, given continuous improvement in technology and efficiency financing BI by taxing additional profits is entirely plausible. It should be considered by decision makers as an important measure to tackle many pitfalls of automation.

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# 1 Introduction

The concept of basic income is founded on the logic that all people across the globe are entitled to a basic minimum wage payable on a stipulated date without necessarily working for that pay. Most socialists and economists in recent times have increasingly voiced their concerns that the adoption of a universal basic income is the way to go amidst rising concerns of rampant automation in significant sectors of the economy (Van Parijs, 2013). Increasing technological development, use, and redevelopment of crucial IT creations and innovations have led to what other people perceive as "*the third Industrial Revolution."* Jeremy Rifkin initially popularized the term "third industrial revolution" in his attempt to describe the ever-increasing globalization characterized by massive automation of various industries and sectors of the economy (Rifkin, 2012).

The adoption of modern technologies to replace human skills dates back to the 1970s when the first robotic machines were built to supplement human labour in mega factories across Europe, as witnessed in automobile manufacturing, pharmaceuticals and related industries where mass production had begun gathering pace. The turn of the millennium saw more exceptional innovations of web-based technologies revolutionizing how corporate entities maximised advanced machine technology to simplify work, reduce operational costs and maintain product quality. The incorporation of artificial intelligence in robotics only enhanced the precision with which machines executed a myriad of tasks assigned to them through computer-programmed applications. As of 2011, more than 1.2 million units of robots had been sold to various organizations to aid in production, an indication that the world has started shifting its focus from labour-intensive productivity to machine-based production precision in quality and output.

Currently, new technological innovations and their subsequent incubations are made almost daily, as evidenced by the rise of AI, which has made robots possess incredibly advanced skills and capabilities to perform mundane tasks without human intervention. In tasks requiring greater precision, measurement accuracy, perfect quality and enhanced output, the use of robots has proven more than efficient in providing the much-anticipated quality. With the use of programmed computer applications, robots have become almost autonomous in fulfilling the obligations for which they are designed. From bank automated teller machines (ATMs), self-serve checkout lanes, to

automated dispensing systems, the use of technology to replace human involvement is becoming a reality in the modern consciousness. Yan (2017) highlights that the capabilities continue to go beyond imagination if it were to be put into perspective that a robot dentist successfully conducted the first implant surgery without the involvement of humans.

Besides intensive research and innovation for industrial robotics, AI has also become a growing niche of technological advancement, providing a hybrid between existing machines and computer-based applications. Thus, robotics has efficiently combined the use of AI to maximize their capabilities as evidenced by the current rise of automated self-driving cars by Tesla and other futuristic automakers in the expanding global market for electric cars. Importantly, neural networks have also become an exciting area of research with AI simplifying daily tasks such as calculations associated with big data analytics. Alternatively, specialized neural networks running on uniquely designed algorithms have been known to have the capabilities of writing software and tailoring them to accomplish specific tasks. In the gaming world, the high level of AI's sophistication can be witnessed in the optimization of interoperable interfaces connecting thousands of users worldwide. Similarly, the emergence of the Internet of Things has only intensified the automation efforts in industrial production while concepts such as 3D printing have replaced labour intensive manufacturing sector traditionally.

In light of these new developments, it is safe to admit that we are on the cusp of artificial intelligence revolution that will invariably alter the way humans live their lives, especially in ensuring that human labour becomes obsolete in many of its current application. The reverberating consequences of AI portend serious ramifications than what people already perceive, as suggested by a 2013 Oxford study, which concluded that 47% of all the jobs in the United States, for instance, will be at a higher risk to automation by 2030 (Stollery, 2019). The vast opportunities presented by robotics cannot, therefore, be understated in their ability to increase productivity, eliminating overheads and eliminating the human factor. In furtherance, the significant impact of machines replacing humans is aptly captured by McKinsey Global Research which suggests in their findings that soon, almost 45% of the job shall be fully automated (Manyika et al. 2019).

Mostly, the economy is quickly adapting to technological demands for improved efficiency, output and productivity with minimal costs; thus, it becomes more plausible to understand why most industries are currently pursuing the need to minimize costs and maximise profits in the face of increasing global economic fluctuations as witnessed in the US and several countries across Europe. In the US, for instance, the Trump administration has to contend with mega automakers moving their businesses from the country to Mexico where there is cheap labour since the cost of operations has become uncompetitive even for domestic markets. Despite these economic dynamics, the most significant one has become massive unemployment rates which form the basis of this research with a specific focus on universal basic income as a solution to manage widespread joblessness occasioned by global automation. While elucidating on the impact of automation on technical joblessness, the research thesis will explore whether the universal basic income is feasible as a remedy for technological unemployment or not. The paper will further delve into universal basic income financing, its implementation and the legal framework for its admissibility. Basic income as a potential replacement for social security systems already in place provides a unique research interest that this paper will explore and give recommendations on the applicability and practicality of UBI.

# 2 Basic Universal Income

## 2.1 Understanding UBI

Basic income, also referred to as universal basic income, is a conceptualization where every citizen is entitled to a monthly financial allocation regardless of their employment situation. Unlike existing social security funds monthly stipends, basic income is unconditional and given to everyone, thus can act as an alternative source of income to those working for wages or having a form of gainful employment. Basic income is also lauded for its universality as it is equal for everyone and is not granted on any predetermined set of conditions, thus making it more versatile compared to the current social security systems (Van Parijs, 2013).

Meanwhile, to understand UBI, it is essential to recognize its five core facets: UBI as an unconditional grant; as an automatic payment; as a non-withdrawal (constant); as a right bestowed on the citizenry; and remittances on an individual basis. The unconditional basic income is tagged on the age of the recipient but with no other pre-existing requirements for fulfilment. Thus every one of the same age groups would be entitled to receive an equal amount of basic income regardless of their gender, religion, employment status, sexual orientation, family structure, economic contribution to the society, culture or political affiliations.

Meanwhile, automatic basic income would be accrued to an individual regardless of their socioeconomic status and also remitted regularly into a bank account of their choosing. Additionally, the non-withdrawal basic income would be awarded without conducting a socioeconomic status screening such that regardless of a person's increase, decrease or same level salary does not affect or change the remittances accrued to them. While the individual basic income determines that people are paid individually as opposed to family or household, the basic income as a right provides a legal premise upon which financial allocations are made, subject to a minimum period of legal residency status (De Wispelaere and Stirton, 2004).

Another noteworthy aspect of basic income is that it can be implemented nationally, regionally, or locally depending on the jurisdiction, similar to existing social security funds. However, the difference between basic income and other social security funds is evident through the introduction of Full Basic Income and Negative Income Tax. Full

Basic Income is where allocations are granted unconditionally with the sole purpose of meeting a person's needs so that they can afford basic living standards above the poverty line. Meanwhile, the negative income tax is implemented through the allocation of funds to individuals earning salaries or wages below a set minimum and receives from the government a supplementary instead of paying taxes (Tondani, 2009). The implementation of Full Basic Income has been proposed to take different forms which include; the incremental approach and the D-Day approach. In the incremental approach, the implementation of Full Basic income is proposed to take a gradual transition with periodic increment, albeit in smaller portions over a specified time until the full transition is achieved. The D-Day approach, on the other hand, proposes that a single day be set aside where Full Basic Income would be implemented through sufficient pay for essentials.

Similarly, several existing social welfare schemes will be discontinued or extensively modified, including the discontinuation of personal income tax, while tax rates are simultaneously increased.

On the other hand, the negative income tax is suggested to be implemented through two different models; the flat-rate income and the universal citizen dividends. The implementation of the flat income tax model would focus on tax exemption for the lowly paid (*or those having no income at all*), based on a fixed rate recommended by the government payable every month. Correspondingly, the universal citizen's income tax operates more like the negative income tax but riding on an existing tax system as a revenue-neutral social insurance scheme by incorporating a proportion of the productive income (gross personal income and net corporate profits), which is then redistributed among the citizens.

## 2.2 Link Between Basic Income & Automation

Though it is undeniable that the clamour for basic income and automation are interlinked, the reality lies in the advanced technological capabilities of organizations to efficiently acquire and deploy machine technology to replace human labour. Koistinen and Perkiö (2014) contend that increasing automation has created a greater need for basic income as more jobs are lost daily.

Nevertheless, concerns on automation have jolted several high-tech industries to support the universal adoption of basic income to compensate people losing employment due to their business models. In the current reality of the consequences

of mass automation, more than 4 million manufacturing jobs have been lost in the US Midwest. Several economists, technologists and political aspirants in the US and the UK believe that technological unemployment will become a significant reason for joblessness in the coming years. Other studies on automation and jobs such as the one conducted by Inayatullah (2017) serve to validate the highlighted concerns with suggestions that an unskilled labourer earning less than $20 in a day's wages in 2010 has most likely lost their job with an 83% probability. The underlying reality, in this case, is that technology is quickly replacing traditional tasks leading to rising unemployment rates, more impoverished communities, and vulnerable populations globally.

Supporters of universal basic income aver that its adoption by governments would significantly reduce socioeconomic inequalities depicted by huge wage gaps, poor living conditions, and widespread lack of employment opportunities for the unskilled and semi-skilled labourers.

With the introduction of universal basic income, individuals who are victims of automation will have an opportunity to survive above the poverty line as they would afford basic living expenses as it has been confirmed in previous studies that basic income enhances the quality of social life with the once impoverished families being able to also acquire education for their families (Inayatullah, 2017). Basic income will soon become an urgent necessity to stabilize the economy as more multinational corporations are leaving for Asian markets where they are lured by the prospect of paying their employees lower wages compared to countries of origin such as the US or the UK. For instance, countries like Canada, the USA, and the UK have stringent measures for labour regulations and minimum wage requirements, which imply that workers will demand proper treatment and better remuneration making the cost of production go up and subsequently passed to the consumer hence intensification of automation to minimize overhead costs.

Although Van Parijs (2013) intimates that automation has been in existence before modern technological advancements, its impact on employment is recognizable chiefly because of the instability it creates. In addition to enhancing productivity, automation has dramatically led to the loss of job security in various firms where it has been deployed as it displaces workers who must have spent most of their lives learning new skills that are rendered obsolete by the arrival of technology that can do the work

more efficiently. Thus, the essence of UBI proposes to manage the transition from a manual system to a fully automated one. Stollery (2019) argues that UBI makes more economic sense because automation would render jobs to the mercies of demand and supply, where high unemployment drives wages down since more labourers would be struggling to work in few openings. Ultimately, the adoption and implementation of UBI would eliminate the desperation of skilled and semi-skilled workers to seek employment in excessively competitive environments and grant them the ability to turn down offers causing wages to increase.

# 3 Implementation of Basic Income

### 3.1.1 The Case of the United States

Initially, the concept of basic income was developed in 1797 by Thomas Paine to address the growing income inequalities of the time. By the 20th and 21st centuries, the idea had garnered massive support from several influential US citizens, such as the Louisiana governor Huey Long who advocated for the sharing of national wealth. The 1960s and 1970s witnessed a new wave of support from key stakeholders who endorsed the concept of a guaranteed income. After the turn of the millennium, the 2009 financial crisis awakened public consciousness on the need for basic income implemented across all the US states as influenced by the Namibian, Switzerland, and the European Union trials. One of the outstanding efforts made towards the realization of complete implementation of basic income has only been realized in Alaska dating back to 1976 when the first permanent fund was ratified by the state to ensure that every Alaskan got dividends based on their residency status as it only targeted genuine residents of Alaska. Thus, the fund currently serves a population of 650,000 people and has reached a massive pay-out level of $2069 per person since its inception.

### 3.1.2 The Case of the United Kingdom

The idea of basic income has also been widely discussed in the UK, but implementation was started in pilot phases starting with 1946 family allowances that were granted as an unconditional income accrued to every family targeting their second and subsequent children. The fund would later transition into a child benefit fund provided unconditionally for every child. However, politics has played a significant part in impeding mass rollout of universal basic income across the entire UK to replace the existing welfare system. Meanwhile, Guy Standing, the primary advocate for universal basic income, finds globalization as plunging more UK nationals into poverty and unemployment brought along by intensification of automation hence the need of the government to provide basic security income as a right for every citizen.

### 3.1.3 The Case of Canada (Canada Social Security Reform System)

The concept of UBI has different variations, but all possess the characteristics of traditional social welfare security schemes as exemplified by the Canada Social Security, the Guaranteed Annual Income and the Canada Pension Plan. The guaranteed annual income proposes that every Canadian citizen must receive an

allocation that promotes their wellbeing provided they fulfil certain requirements for eligibility. An individual's citizenship determines guaranteed Annual Income in most cases, their availability to participate in labour market and a willingness to engage in community services. The ultimate goal of Guaranteed Annual Income has similar objectives as other social security funds with poverty eradication its primary goal. In instances where citizenship is the only eligibility criteria, the Guaranteed Annual Income becomes UBI. Meanwhile, the Canadian Social Security was founded in 1984 between the US and Canada to help improve social security protection among workers of both countries. One of the importance of Canada Social Security was to benefit the people by upholding and protecting their rights based on their residency and accumulation of Canadian Social Security credits (Ssa.gov, 2019).

In the earlier stages, the Canadian Social Security system included a pension scheme that initially operated only in the Province of Quebec. Therefore, the agreement between Canada and the USA enabled many people to be eligible for monthly retirement benefits, disability benefits, and survivor benefits as stipulated under the terms of the social security taxes for both nations. Imperatively, Canada also has the Pension Plan (CPP) where the government allocates monthly stipends to the elderly, retirees, and disabled contributors. The Canadian Pension Plan, however, differs from UBI in that it provides social security to its elderly citizens after attaining the age of 65 years (Kagan, 2019).

The Canadian scenario has often supported Annual Guaranteed Income in the wake of rampant automation that has been going on in the country. Thus Canada has been at the forefront of advocacy for negative income tax (NIT), which is argued to ensure that all citizens receive monthly payments for both the people earning well and the lowly paid, jobless or the destitute. Alternatively, there have been widespread calls to have minimum wage allowance to eradicate income inequalities. Additionally, the universal income (universal demogrant) has also received support from both the conservatives and the liberals who believe that its eventual implementation would guarantee poverty eradication as the grant provided by the government regularly would be sufficient to enhance living conditions of all the citizenry. The implementation of the NIT and the UD are both influenced by the cost factor which is crucial to their success. However, the implementation of NIT has been seen as more cost-effective compared to UD because it targets mostly those who are below the poverty mark while UD focuses on everyone, which is more expensive.

## 3.2 Financial Aspect

Flassbeck (2017) highlights that financing UBI is difficult as viewed from several perspectives due to the various models espousing different cost estimations and calculations on the sustainable amount needed to facilitate the program. The primary concerns emanate from the criticism of UBI not conforming to the existing economic realities of modern times. In particular, the deregulatory tendencies associated with global economic development have led to the divestment of several finance institutions from the productive sector and therefore channelling much of their energies towards investing in speculative endeavours such as the UBI, which in essence eventually impact the real economy. Flassbeck (2017) further indicates that UBI can make a country incur huge interests on loans and an accumulating debt burden that could progress into recession if not put on check. Another point of concern regarding cost calculations of the UBI is that it rarely considers the political dimensions invariably linked to the proposals of increasing VAT and taxation of financial transactions-which is mostly against the will of the people and institutions targeted.

In the case of countries already known to have piloted the UBI, the feedback has often been limited in terms of long term feasibility and sustainability (Lavinas, 2018). Therefore, there is a need to consider the cost of not implementing any intervention against the economic and social costs implications leading to escalated inequalities. While UBI intends to create positive reforms, the reality is that the costs associated with subsequent implementation might render it unsustainable in the long run. Therefore, financing schemes that have been developed recently to evaluate basic income policies include European-wide tax on pollution from the use of energy which focuses on the cost of using energy and its environmental impacts; flat tax; land value tax; other sources of income (fares, export, others). In furtherance, the financing schemes are elaborated below.

### 3.2.1 European-Wide Tax on Pollution

Green movements across Europe continue to advocate for universal basic income to attain social justice and sustainability as resulting from taxes imposed on pollution, which is then redistributed. Environmentalists see the taxations as an avenue for productivity and prosperity by advancing the belief that ordinary gains belong to all and must be shared and safeguarded by the beneficiaries (Pinto and Howard, 2019). Basic income has often been supported by ecologists who argue that it enhances the

distribution of finances across the society and increasing the purchasing power of most of the populations. The considerations of basic income tax from an environmental perspective intimate that redistributing income from wealthy persons to the low-income groups will effectively enhance consumption.

Contrastingly, another school of thought avers that if consumption is associated with the introduction of basic income, then there is a high possibility of increasing carbon emissions. Alternatively, those against the ideology fault the mechanism of how basic income can be funded by those taxes imposed by environmental degradation. For instance, if the basic income were to be funded through the pollution taxes, then there is a high possibility that the incentives to eliminate carbon burning for renewable sources of energy would be counteracted by those driving increased consumption. Pinto and Howard (2019) further suggest that financing, though significant, would depend on taxation as an absolute necessity to fund basic income though this has its challenges as epitomized by the Alaskan scenario. In the Alaskan case, oil revenues are partially released into the Alaska Permanent Fund, where every citizen is entitled to an allocation in the form of annual dividends. Since funding of the Alaska Permanent Fund majorly relies on oil revenues, it becomes difficult to replace its usage with alternative energy sources due to a lack of incentives promoting renewable sources of energy. Thus, eventually, in such a case exemplified by the Alaskan government, making it challenging to fund basic income through taxation.

### 3.2.2 Flat Tax

According to Atkinson (1997) and Raventos (2007), the application of flat tax is deemed as a potential replacement of the existing personal tax systems. Atkinson provides several frameworks on how to achieve a flat tax through the calculation of the basic income on all individuals regardless of their employment status, whether working, retired, or sick (1997). Additionally, Atkinson outlines his concerns by suggesting that calculating affordable basic income as the tax rate times the tax base minus existing revenue from income tax and employee National Insurance Contributions (NIC) plus the cost of the present social security benefits should be abolished. The reasons for the abolition of the social security benefits include, firstly, the assumption of the tax base to be equivalent to the total personal income as measured in the British Book of Statistics, which appears to be too optimistic. The recommendations, for instance, suggest that the black economy earnings an untaxed

income would never be captured under the basic income schemes; the national figures for self-employment income would relate to the currently accruing income, whereas tax liabilities would arise from the previous accounting year; the item for occupational pensions in the national accounts would include the refund of contributions and other items sot subject to tax among other underlying factors.

Secondly, the use of hypothetical examples negates the essence of the inclusivity of taxable income sources, thereby ignoring several features crucial to the calculation of an individual's tax benefit position. According to Healy, the requirement for financing basic income is based on the case study of Ireland, which is pegged at a 45% flat tax rate on all personal income, a system that is proposed to replace the current income tax (2012). Another case study, by Charles Clark about the USA, provides a suggestion that the funding for basic income as well as those for the federal government, should be accomplished through flat tax incomes instead of the federal income tax currently in place. Thus, Clark (2019) intimates that the requisite flat tax needed to fund UBI and the rest of the federal government budget would be at a rate of 35.2%. As outlined in the above two scenarios of tax base and hypothetical examples, it is essential to understand that in both cases, calculations tend to idealise the flat tax rate and equalise it among different sources, thus ignoring the difference between them, excluding black economy earnings and untaxed income as well as not taking consideration of the tax-benefit position of the population.

### 3.2.3 Land Value Tax

Meanwhile, Farley (2017) argues that the Land Value Tax model is one of the more efficient ways of raising the revenues for financing the basic income, replacing the property tax. He states that under the current property tax system, an increase in income for residents will stimulate landowners to increase their rent, meaning that the additional income will be wasted, whereas, under LVT, it will still be available for current investments. Farley also identified the following reasons on why LVT and basic income are mutually supportive; the first scenario was that while one (LVT) raises the revenue, the other (basic income) distributes it once collected. Secondly, while one makes demands on land/homeowners, the other provides support. Thirdly, UBI improves the incomes of ordinary people, LVT makes sure landowners, and other rent-seekers do not misappropriate it. Lastly, each requires the other to remain fiscally, socially, and politically sustainable (Farley, 2017).

While LVT appears to be the *"perfect tax solution,"* it has the potential of discouraging people from investing in more land, thereby focusing instead on improving the existing property to its limit, as well as increased ownership and types of property that have harmful externality effects. However, UBI can be compensated by other taxes (taxes mentioned above on pollution). Apart from that, basic income can be implemented through sharing natural rent, or any other rent or income, acquired through public ownership. The certain monthly allowance in Alaska is financed entirely through the oil rent. This, in itself, serves as a demogrant (Pereira, 2016).

Finally, the savings, government public bonds, and other sources of revenue can be used towards financing basic income. According to Pereira, "welfare payments and their associated bureaucracies are eliminated, and numerous other related programmes are similarly streamlined into one more efficient, de-bureaucratized basic income. Publicly provided pensions, various child benefit programmes the state may have in place, food allowances or food stamps, special tax deductions for low-income households (and tax deductions for high-income households), social housing programmes and payments, charities to address national poverty issues, all can be viewed as partially or fully redundant with a basic income in place. Eliminating much of this complexity and cost can allow for a higher basic income payment than what individuals currently receive from various income support programmes" (2016).

# 4 Basic Income Critique

## 4.1 Critique Points

In the US, conservative proponents of UBI have often argued that its full implementation would invariably lead to the shrinking of various costly services including healthcare, food, and unemployment support (Nast, 2019). The realization of UBI would lead to the creation of inexpensive ways to let individuals rather than the government decide on what to spend their money on as associated with social welfare benefits schemes. Both the conservatives and liberals, however, do not agree all the time on the concept of UBI. The conservatives on their part, aver that the implementation of UBI will invariably lead to a worrying trend where incentives to work are greatly reduced and would cost too much to sustain in the long run due to the implausibility of the non-working population racking up bills to be offset by the employed individuals.

Meanwhile, sceptical liberals have mostly worried about the employers using UBI to pay lower wages and the politicians using it as an excuse to eliminate existing social programs and unwind institutions that offer social welfare support. Nast (2019), therefore, agrees that the issue of UBI continues to elicit bipartisan support from different stakeholders. The most vocal proponents of UBI have, however, been the Tech titans from Silicon Valley and established academics concerned that the robots and AI would rapidly replace humans in the modern workforce or push them to dead-end jobs with poor remuneration. While researchers maintain that the implementation of UBI would replace low-paying jobs that people are less interested in, other opponents of the UBI aver that it would only lead to people getting the worst of jobs available.

The argument on UBI cannot be complete without mentioning global trendsetters such as Elon Musk, Jeff Bezos, Jack Ma, or Mark Zuckerberg, all of whom have overseen the use of automation to replace human labour on a grand scale. Elon Musk on his part, contends that automation has become one of his scariest worries with no potential solution in sight. Musk and other like-minded entrepreneurs who have adopted intensive technology propose that UBI will be the best effort to cushion on the mass effect of technology while also buffering them from the cannibalistic tendencies of automation in rendering traditional job skills obsolete. Contrastingly, some people persist that the full implementation of UBI remains inadequate to provide lasting

solutions to income inequalities and job security in the current phase of rampant automation. Similar sentiments are shared by Luke Martinelli, a researcher at the University Of Bath Institute Of Policy Research who suggests that "*an affordable UBI is inadequate, and an adequate UBI is unaffordable." I believe that is roughly true"* (Nast, 2019).

Meanwhile, Raventos (2007) outlines the arguments advanced by various quarters on the implementation of UBI by highlighting the important concerns mostly perpetuated by the critics on UBI's feasibility, practicality, and implementation. The arguments are outlined below;

*Criticism 1: Basic Income Encouraging Parasitism*

Raventos argues that the advancing of UBI as a parasitic approach is somewhat multifarious regarding its precise form of implementation, depending on the bearer of the information. The examples of parasitism highlighted in this regard refer to beneficiaries of UBI as *"layabouts"* and *"workers were supporting loafers."* Raventos, however, highlights that people do a different kind of work and when the job does not result in direct remuneration, then it should not be called parasitism. Thus, he suggests three types of work; remunerated work, domestic work and voluntary work, all important but differing in their ability to generate income. Another argument advanced by Raventos is that despite remunerated work (where one earns much), there is a possibility that its social utility is non-existent. Thus, Raventos (2007) describes basic income parasitism as defined by Van Parijs (2003, p.207) which states, *"It is bad enough to be a free rider, that is, to benefit from a good while leaving others to bear the full costs of its production. But it is even worse to be a parasite, that is, to benefit from the good while thereby increasing the cost borne by those who produce it."* Hence, it would be implausible to perpetuate the parasitism tag because it is most associated with scaremongers vilifying the poor as layabouts, dropouts, and parasites, for which in essence there is little evidence.

*Criticism 2: UBI Not Putting an End to Sexual Division of Labour*

Raventos claims that the issue of UBI not ending the sexual division of labour is true but in a trivial sense. Furthermore, the sexual division of labour cannot also be ended by social housing loans, unemployment benefits, grants for students, spectator discounts, pension schemes, or annual festivals. Raventos reveals that UBI is likely to enhance a currently non-existent homogeneity in the award of allocations regardless of

gender. For a long time, the sexual division of labour has remained an undesirable element in the social setup whose only lasting solution would be a demogrant system promoting equality and it takes more than Basic Income to achieve it. Lastly, implementing UBI where women do not have to engage in remunerated work would ultimately end the problematic association of women with unemployment, masculinity, and citizenship. The view of UBI in this regard would be to empower women for their equal emancipation (Raventos, 2007)

*Criticism 3: UBI Leading to the Rejection of some Remunerated Jobs*

The argument that most of the people who are entitled to basic income would be avoiding remunerated jobs and that the remaining vacant slots would get filled by cheap labour in the form of immigrants does not make adequate sense. The argument in this case that citizens would shun doing the most difficult jobs and leave them for immigrants does not hold because prevailing regulations do not make immigration attracted to Basic Income in wealthy countries but due to other underlying factors such as political instability and economic strife in their home countries.

*Criticism 4: UBI Exacerbating the Dualisation of the Working Population*

Dualisation in the working population is described as the society being divided into large groups of workers, one section having well-paying and stable jobs while the other being composed of those living in destitution and those working earning very little that cannot sustain them and their families. The argument that UBI would promote the widening gap between these two sections of the population is anchored with reference to pre-existing labour legislation, massive unemployment, and automation. Nevertheless, to accept that UBI contributes to the exacerbation of dualisation are missing the point. UBI's main agenda is complemented by the social wellness of those that are greatly oppressed by the economy.

*Criticism 5: UBI an Idea Applying to Rich Countries or Zones*

From South America, the Middle East, and South Africa, middle to low-income countries have attempted to pilot UBI thereby delineating the notion that only rich nations can implement it. In the rich countries as well as in the developing countries, the intention to fully implement UBI is influenced by the notion that the distribution of wealth is the only way to achieve income inequality and reduce citizen overdependence on social security schemes and poverty alleviation and widespread unemployment.

*Criticism 6: UBI Becoming a Departure from the Idea of Paid Work*

The fact that UBI will be preventing people from enjoying the virtues of paid labour as money would be granted unconditionally hence discouraging people from looking for work in the first place is implausible. Raventos (2007) rejects this notion by quoting Claus Offe, stating, *"Different evolutionary facts and tendencies coincide in indicating that the domain of work cannot be subjectively contemplated by all waged workers as the key fact of their lives, the dominant factor from which their interests, conflicts, and relationships of social communication derive."* Since no one enjoys poverty, UBI will help alleviate people's misery extensively and it is almost difficult to imagine them complaining about the virtues of paid labour or social recognition that comes with salaried work.

*Criticism 7: UBI as an Inadequate Measure to End Injustices of Capital System*

Whether the UBI is implemented or not, the capitalist system of most democracies will never change due to the ingrained capitalist system of governance and economic administration by corporations. Accepting UBI as inadequate would be admitting disparagingly that it does not meet its objectives, which it is not designed to attain. Raventos thus hilariously opines that sneering at UBI for not containing injustices of the capital system is comparable to sneering at the Malaria vaccine for not combating infant mortality. Thus, UBI can only change situations that primarily constitute a significant portion of capitalist characteristics. Additionally, UBI would help the population to experience more freedom by empowering the workforce to have more powers to negotiate to agitate for fair remuneration.

*Criticism 8: Basic Income Involving Financing Costs making it Unworkable*

Based on how the financing of the UBI gets conducted, the redistribution of income which remains the primary mandate both for the people with higher income and those that poorly remunerated. The success of UBI thus is pegged on financing costs and whether the targeted by the government can meet those costs. Financing costs at or above the poverty threshold; hence income must be generated from legitimate sources to fund it.

*Criticism 9: UBI Constituting a Major Pull Factor for Immigrants*

Considering that immigrants are only motivated to seek *"greener pastures"* because UBI has created a gap in the workforce due to people shunning some jobs is

incomprehensible. Essentially, most immigrants are either fleeing from extreme instances of debilitating poverty, disease, and economic as well as political unrest. Thus, to generalise that they come to wealthy nations to exploit the benefits of UBI would be missing the reality. Majority of the immigrants do not benefit from host countries. In fact, due to lack of citizenship most migrants do not receive certain privileges like the UBI. For most migrants these policies are considered a threat for fear of being deported. According to Larchanche (2012), stigmatisation of the health policies, structured violence, and fear among the undocumented immigrants in France cost their well-being and health status in the foreign country.

*Criticism 10: UBI Not Fulfilling Many of Its Promises*

Other opponents of UBI have also long held to the theory that if it is not well funded, then it will be almost impossible to implement. Invariably, it must be realized that if revenue sources contribute insignificantly to the realization of UBI, then it is hard to imagine it having the envisioned impact on the lives of the people.

*Criticism 11: UBI Generating Unforeseeable Situations*

Compared to other social welfare systems, UBI can effectively realize the visions for which it is intended but based on its sustainability in the long run. Thence, UBI can effectively grant citizens the financial freedom they yearn for despite the inherent unpredictability of future consequences on the entire economy. Due to financial unpreparedness, for instance, UBI can result in recession for a struggling economy. And while Keynesian theory argues that UBI will help maintain demand at levels that support production, that is a double-edged sword: should UBI provide increase in levels of demand beyond an actual increase in supply - it will cause inflation, which will be more difficult to root out due to political controversy of changing the size of UBI grants. Besides, Criticism 1 in this section is heavily intertwined with this argument: free income might, in the end, lead people to avoid seeking jobs, and the option of working would be seen as unnecessary. Despite counter-arguments to this criticism, actual development is still hard to predict, thus falling into the line of unforeseeable situations. Other undesirable elements, especially regarding the poor, would be further financial distress in case UBI's implementation fails. Therefore, it is imperative to recognize that successful implementation is pegged on the adequacy of preparedness to combat emerging scenarios during the roll-out phase.

### 4.1 Analysis of the Critique on UBI

The highlighted points above are generally universal among opponents of the BI. Nevertheless, some of them need further elaboration and analysis. For instance, the claim of dualisation of the working population by UBI presents a scenario requiring a logical understanding of the economic forces contributing to income inequalities. In the modern world, dualisation exists between the workers that enjoy the benefits of secure and financially stable jobs and those forced to work for low-paying jobs on a regular and irregular basis. The resulting disparity between the two sets of the working population is the result of a combination of currently imposed labour legislation, unemployment, and technological development. However, Pereira does point out that basic income tends to favour people already with an alternative source of income by facilitating self-employment, training, and enhancing flexibility to workers on employment opportunities (2016). Therefore, prospective and existing employees are more leveraged to negotiate for better working and payment conditions, as unstable financial positions will no longer pressure them.

Similarly, automation will exacerbate such dualisation, for it will diminish the available pool of skills that will be required to get a job, and will thus favour only those workers, who possess skills that cannot be substituted by robots/AI. However, the introduction of Basic Income will allow beneficiaries to focus on self-employment and training for the rest, thereby potentially increasing the population's chance of securing job opportunities. Nonetheless, dualisation still provides an avenue for further debates.

Essentially, technological advances create a threat of taking away remunerated jobs, even from the migrants, so it makes points 2 and 8 outlined above irrelevant. Besides, if basic income is distributed only on the base of citizenship, then combined with technological unemployment, this will create a barrier for immigration. Although, point 2 raises an interesting question about the timing of the introduction of basic income.

Automation is not an instant process. Furthermore, for some non-prestigious low-paid jobs, managers might not see a reason to automate them as soon as possible. In this scenario, if basic income is introduced *"too early"* before the spread of automation and all the work delegated to robots, then the situation described in point might as well become a reality. Cheap labour will be actively attracted until the last possible moment, or else those entitled to BI will use their leverage to swing working contract

conditions in their favour, hence, potentially making those jobs unprofitable, although it might press employers to embrace automation faster.

Finally, concerns about the costs of administering basic income remain highly contentious, as observed by UBI's primary opponent, John Kay. In his 2017 essay, he argues, that "*The provision of a universal basic income at a level which would provide a serious alternative to low-paid employment is impossibly expensive"* (Kay, 2017). Kay's conclusion is based on the use of Tobin's formula for calculating basic income, that can be summarised as t = x + 25, where t is a tax rate, required to finance the necessary income level x, while 25% is the approximate figure for the share of GDP required to fund non-welfare related public expenditure (health, education, public administration, debt, military, and police expenditures).

Based on these calculations and data from France, Germany, UK, US, Finland, and Switzerland, he states the following: *"Any increase in the level of basic income as a proportion of median earnings above 18% would lead to a similar, though slightly smaller, increase in the required average tax rate. For example, basic income at 30% of median earnings would require an increase of ten percentage points, from 40% to 50%, in the implied average tax rate. To set a target of 40% of median earnings (still below most judgments of a reasonable minimum wage) would require all current tax rates to be increased by more than 20 percentage points (50%). These calculations assume behaviour would be unchanged. While this is unlikely, labour market responses would likely make the arithmetic worse, not better."*

Pereira, however, argues that financing costs, associated with basic income, are bearable. After all, this will replace some existing social security programmes that will save funds from administering over-complex social security systems (2016). Additionally, Kay does not seem to consider the option of shifting the primary attention of the tax system towards corporations. Ultimately, these points would need further consideration during the writing of the thesis, where they will be addressed critically. This would be a significant reversal of tax policy in recent years, where the high corporation taxes of the 1970s have been lowered with increasing vigour, to the extent there is a global competition between states to attract and keep corporations. Ireland is a prominent example of this kind of policy.

# 5 Problems and Potential Research Questions

Based on the information retrieved from the literature review, several problems have been identified, gaps mostly attributed to the previous research. Most of it was made at the time when robots were in their nascent stages of development with widespread adoption has not gathered momentum. As a consequence, many institutions providing employment opportunities do not have an account on the benefits and threats of automation, which makes them presume that employment will remain significant. As expected, most authors only see basic income as a way to alleviate poverty and as a potential replacement for the existing government social security system. The pursuit of UBI as an alternative for social security systems presents two problems. Firstly, BI is sometimes contrasted by universal employment, although the latter concept is becoming obsolete as the job transitions from responsibility to privilege.

Secondly, as exemplified by the Canadian SSR report, personal taxes are still considered as a viable option to finance BI in the future, while there is a threat that is likely to rise in the form of unemployment, it will make this option irrelevant (although, Flat and Land Value Tax proposals are devout of this problem). Thus, the use of income tax to fund UBI, though implausible, still creates a possibility for research over an interesting problem – increase in corporate taxation attempting to exploit ultra-profits by corporations as a way to finance UBI. One particular area of interest is how income taxation would change investing behaviour.

Additionally, there is a concern that tax evasion can become disruptive in the future by creating problems for the maintenance of the existing tax systems. Consequently, the pitfalls created by income tax for funding the UBI presents another major research problem: few works thus far viewed basic income as a way to maintain demand in the period of global unemployment.

Among the secondary research, issues are pensions and retirement benefits. Should they be replaced by basic income, maintained with slight changes, or kept entirely as they are now? Or do they need to be replaced by a demogrant? John Kay also points out the need to adjust basic income to different discrepancies, such as health, housing costs, and local purchasing power/inflation (2017). There is also the concern of BI influencing human behaviours and especially their consumer habits, but for this issue, the pilot program results are required. However, it is hard to predict the shift in behaviour, especially since behavioural patterns have changed over the years.

Still, the principal research question is whether or not automation can be used to finance UBI, thus negating, fully or partially, the negative impact of growing technological unemployment. This matter is not addressed particularly well – even the pilot program in Finland, while it did point out technological unemployment as the issue it was intended to solve, focused on economic and social effects of introducing UBI rather than harnessing the benefits of automation to empower the transition to a Basic Income scheme.

Finally, the concerns of potential escalation of inflation bring into light incomes policy and its synergy with UBI. As per Arestis (2013): "The role for income policy (in the inflation direction) comes from seeking to align wage and price increases particularly in the situation where there it a positive "output gap" so that the dispute over income shares, which arises, is not quickly translated into inflationary pressures". In essence, these policies aim at restraining growth of prices and wages in the scenario, where level of economic activity (output) grows beyond certain threshold, so called constant inflation level of output (CILO), and thus prevent the inflation from rising in a wage-price spiral.

To that end, when the positive wage growth can be artificially thwarted, effectively redistributing income in such a way, that it doesn't lead to further growth of "output gap" beyond the CILO. But then, Arestis argues, such distribution might not be equitable.

UBI then might be useful to address this distribution by providing a safe bed to compensate for wage loss in the event of triggering incomes policy. Additionally, since CILO depends on the current productive capacity of the economy, since UBI is also intended to generate demand and through this create an investment incentive, it might drive CILO to more socially acceptable levels. Finally, it will serve to align aggregate demand from redistribution with CILO. All of the following statements create a potential research question for the future.

# 6 Alternative Argument on UBI

Benanav (2019) offers a more contrasting view that automation and the use of robotics are overhyped based on their technical competencies compared to what humans contribute. He does, however, not underestimate the contributions of automation and rapid advances in artificial intelligence in simplifying human labour. Accordingly, there are several reasons to doubt the hype on automation because as much as machines are important in enhancing productivity, they still lack human intelligence to make critical decisions on quality output. Benanav cites that automation has led to the development of self-driving cars and computerized digital assistants, all of which must still rely on human intervention for precision. Similarly, in the food industry where automation is fast becoming a norm, it is normal to see human intervention in technologies such as smart screens when placing and dispensing customer orders.

According to Benanav, the automation discourse has mainly been perpetuated by the Silicon Valley-based tech giants who continue to advance the theory of automation superiority. Firstly, they argue that automation is already replacing workers at a high rate by more advanced machines leading to technical unemployment. Secondly, the continued displacement of employees is a sign that the world is on the verge of becoming fully automated. Thirdly, automation should entail humanity's collective liberation from toil. Lastly, UBI is the ultimate answer to mass unemployment occasioned by automation. Benanav, however, debunks the highlighted consequences of automation as elitist postulations that do not take into account other variant forms of capitalism that are never going to change as exemplified by the labour markets that mostly complement these automated technologies. Therefore, Benanav avers that automation in one industry does not necessarily lead to permanent unemployment because of the mobility element of human labour.

# 7 Methodology

## 7.1 Required Data

Both qualitative and quantitative data are required to answer the questions highlighted in this thesis. However, the primary focus will be placed on quantitative data. Calculating the costs of implementing basic income will require data from government bureaus on social welfare security reimbursements and data on the trends on taxation. Most importantly, to determine the need for UBI, the researcher would compare the cost of automation and human. The research will focus on the cost of automation and its impact on paid work with cost comparisons proving the case to either support or reject UBI's full implementation. The primary sources of data considered for the funding of UBI would be extracted from income tax data, data on land value or, for corporate taxation, data would be derived from corporate profits and expenditures.

The evaluation of qualitative and quantitative data required would also address concerns of basic income's influence on consumption behaviour among the targeted population for UBI implementation. Qualitative data on behavioural trends would be captured from population demographics such as the level of education, family welfare, sanitation, amongst other variables. Meanwhile, quantitative data would be used herein, to test the efficacy of UBI in driving demand among the target population, though this will require building a hypothesis. Importantly, it should be noted that the evaluation presented in this section is only preliminary since later research might reveal other significant data requirements.

## 7.2 Data Collection and Analysis

Data collection would focus majorly on primary sources such as government websites and other online databases acting as a repository for tax income data. The primary data sources will be supplemented with known case studies where basic income had been proven as a success, UBI pilot schemes, and the case for UBI in highly automated industries. Moreover, case studies will serve as an additional primary source of data and the basis upon which a hypothesis regarding basic income's influence on behaviour would be studied. These data sources will help in formulating and shaping cost projections for UBI implementation by identifying, studying and incorporating trends in further cost evaluations to enhance meaningful projections.

Besides, formulas of basic income determination will be used to derive meaningful tax level projections for every method of tax-centred basic income financing. Additionally,

information on corporate expenditures and profit margins, as well as the number of robots will be used to identify the connection between increases in the levels of automation and profit margins. This data will then serve as the basis for the hypothesis that corporate taxation is the main and the most optimal option of financing basic income. Finally, explanation building will also be used to test the feasibility of basic income as the main driver for aggregate demand.

## 7.3 Cost Analysis

### 7.3.1 Case Study: Bodycote

Founded in 1923, Bodycote is a globally recognized heat treatment, metal joining and hot isostatic pressing, coating services, and surface technology. The company has embraced the use of modern robotics to maintain its global production rate and meet its delivery obligations of all orders placed. As the world's leading treatment industry, the use of robots has been central to its continued rise. Bodycote, under its flagship company in Vaasa, Finland, operated as a thermal plant and became fully automated in 1999. After the automation, the company's market share increased while its sales volume and profits peaked at £2 million in 2012, and a further projection of 5% was expected in 2013 (Nyameke, 2013). The company has recognized the importance that automation has brought to the production processes as outlined in the subsequent parts of this section.

#### 7.3.1.1 Number of Work Pieces (Robots vs. Humans)

The analysis of the Bodycote robots was compared to the human effort and subsequently tested on three parameters; the total time one takes, the number of hours completed per year, and the number of work-pieces accomplished. Similarly, to achieve non-biased results and homogeneity, the use of robots was tested on three industrial activities which are; nitriding, nitro-carburising and induction hardening, tagged as A, B and C respectively. On average, when robots were used, the estimated number of hours taken by the induction machine was 1500 per year. In all the highlighted three categories, the cost of service delivery was €105/hour (Nyameke, 2013). The variable cost of production between humans and robots is estimated at 20% of sales. Both the robot and the human are designed to work for 8 hours per day. The robot, being an inanimate object, will not lose working hours due to recess for tea or lunch, which applies to the human. Therefore, when the time taken for breaks is

taken into consideration, humans work for $6^1/_2$ hours. The comparisons between the time taken and the amount of work done are summarized in the tables below.

**Table 1: Nitriding (Task A)**

| Variables | Robots | Humans |
|---|---|---|
| Total Time | 45 seconds | 45 seconds |
| Number of hours per year | 500 hours | 500 hours |
| Number of tasks accomplished | 40,000 pieces | 32,500 pieces |

The summary in Table 1 indicates that within the year, a robot accomplished 40,000 tasks compared to 32500 completed by a human operator, regardless of both taking equal time to execute a single work process. The total time one takes for each task and the total number of hours completed per year also remained the same, indicating that the introduction of automation greatly enhanced efficiency compared to human labour.

**Table 2: Nitro-carburising (Task B)**

| Variables | Robots | Humans |
|---|---|---|
| Total Time | 60 seconds | 60 seconds |
| Number of hours per year | 500 hours | 500 hours |
| Number of tasks accomplished | 30,000 pieces | 23,375 pieces |

In Table 2 above, once more, robots have a higher output compared to human labour, indicting their efficiency in production.

**Table 3: Induction Hardening (Task C) (Source: Nyameke, 2013)**

| Variables | Robots | Humans |
|---|---|---|
| Total Time | 90 seconds | 90 seconds |
| Number of hours per year | 500 hours | 500 hours |
| Number of tasks accomplished | 20,000 pieces | 16,250 pieces |

In induction hardening, the total time and number of working hours per year remained the same, but the output when robots were used exceeded that of humans, as is summarized in Table 3 above.

7.3.1.2 Cost of Robot Deployment vs. Outsourcing Human Labour

Bodycote uses various robotic equipment, each with its unique features to fulfill production tasks (nitriding, nitro-carburising, and induction hardening). The average cost of a standard industrial robot is €15,000 and comes with specialized parts shown in table 4 below. The total cost of deploying a fully functional robot by the company would add to € 36,000, with annual operational costs of € 4,700.

**Table 4: Features of the Robot and Associated Costs**

| Feature of the Robot | Total Cost (€) |
|---|---|
| Cost of purchase a robot | 15,000 |
| Grippers or Tools | 4,000 |
| Tables and Crates | 5,000 |
| Programmed Installation | 2,000 |
| Maintenance Costs | 1,000 |
| Cost of Labour | 9,000 |
| Total Costs | 36,000 |

(Source: Nyameke, 2013)

The use of humans regularly to fulfil industrial obligations tends to cost more depending on: the amount of work to be completed, remuneration per hour and the complexity of the work done. The average fixed cost of employing humans peaks at € 47,000. Nevertheless, again, this depends on the amount of work that is available, the number of employees required and the wage rate agreed upon the employer and the employees. The operational costs and cumulative costs of using humans and robots are summarized in table 5 and 6 below, with €1,75 as a baseline for sales figures.

**Table 5: Cost Analysis by Human Labour (Source: Nyameke, 2013)**

| **Work** | **Work** | **Sales** | **Variable** | **Fixed** | **Total** | **Income** |
|---|---|---|---|---|---|---|

| Pieces | Hours | | Cost | Cost | Cost | |
|---|---|---|---|---|---|---|
| 0 | 0 | € 0 | € 0 | € 47 000 | € 47 000 | - € 47 000 |
| 15000 | 308 | € 26 250 | € 5 250 | € 47 000 | € 52 250 | - € 26 000 |
| 30000 | 615 | € 52 500 | € 10 500 | € 47 000 | € 57 500 | - € 5 000 |
| 45000 | 923 | € 78 750 | € 15 750 | € 47 000 | € 62 750 | € 16 000 |
| 60000 | 1231 | € 105 000 | € 21 000 | € 47 000 | € 68 000 | € 37 000 |
| 75000 | 1538 | € 131 250 | € 26 250 | € 47 000 | € 73 250 | € 58 000 |
| 90000 | 1846 | € 157 500 | € 31 500 | € 47 000 | € 78 500 | € 79 000 |
| 105000 | 2154 | € 183 750 | € 36 750 | € 47 000 | € 83 750 | € 100 000 |
| 120000 | 2462 | € 210 000 | € 42 000 | € 47 000 | € 89 000 | € 121 000 |

**Table 6: Cost Analysis of Using Robots (Source: Nyameke, 2013)**

| Work Pieces | Work hours | Sales | Variable Cost | Fixed Cost | Total Cost | Income |
|---|---|---|---|---|---|---|
| 0 | 0 | € 0 | € 0 | € 36 000 | € 36 000 | - € 36 000 |
| 15000 | 250 | € 26 250 | € 5 250 | € 36 000 | € 41 250 | - € 15 000 |
| 30000 | 500 | € 52 500 | € 10 500 | € 36 000 | € 46 500 | € 6 000 |
| 45000 | 750 | € 78 750 | € 15 750 | € 36 000 | € 51 750 | € 27 000 |
| 60000 | 1000 | € 105 000 | € 21 000 | € 36 000 | € 57 000 | € 48 000 |
| 75000 | 1250 | € 131 250 | € 26 250 | € 36 000 | € 62 250 | € 69 000 |
| 90000 | 1500 | € 157 500 | € 31 500 | € 36 000 | € 67 500 | € 90 000 |
| 105000 | 1750 | € 183 750 | € 36 750 | € 36 000 | € 72 750 | € 110 000 |
| 120000 | 2000 | € 210 000 | € 42 000 | € 36 000 | € 78 000 | € 132 000 |

In a full 1500 work hours per year, the robot produced a grand total of 90000 pieces, whereas it would take 1846 work hours to produce the same number of work pieces with human labour. Instead, in 1500 hours human labour produces a total of 73125

pieces, that with all the variable and fixed costs will bring a total of (73125 * 1,75) * 0,8 - 47000 = €55375 profit, an increase of roughly 38% - 39% from just 1 robot. Adding to this vacation days, as well as other force majeure, the difference in productivity is even higher.

It is reasonable to assume that overall automation of heat treating facilities of Bodycote will increase operational profit in general industrial sector, although the scope is unclear. Taking into account additional factors like economies of scale (more productivity directly translates into more possible throughput, and as such – more material sourcing and lower prices from suppliers through buying in bulk), slight reduction in administrative expenses, further decrease in fixed costs due to advancement of technology, and other unaccounted expences, it is reasonable to assume a 20% increase in operating profit in segment of General Industries once the segment is automated up to full capacity. In 2019 profit in this segment accounted for €38m. (Bodycote Interim report 2019). It would increase to €46m, thus potentially creating an additional €8m, possible non-accounted savings notwithstanding.

# 8 Conclusion of Analysis

Innovation and widespread, accelerating integration of technology in industries continue to displace human effort in production, thus underlining the importance of UBI. The full implementation of UBI would become more of a necessity to bridge income and other social inequalities in years to come because technology is continually growing and its impact on human labour equally devastating. Therefore, if the creation of advanced machines is regularly replacing human labour, then the pertinent question asked is, how will people earn a living to support themselves and their families? Regardless of the opposition that UBI has received from its opponents, many governments will need to live with the reality that it's the only way to empower and emancipate the citizenry by allocating them a stipulated amount of money to help them sort their problems. As already seen in the analysis section, automation makes work easier by enhancing unit production and sales for the company that has adopted it in its entirety. While machines are not hindered by fatigue and other human impediments, their maintenance and acquisition cost a lot in the initial phase of their deployment as illustrated in the analysis section but the returns are almost guaranteed to in the long run. Thus when automation becomes a primary interest for several traditional industries, millions of workers will be rendered jobless and losing income in the process which consequently leads to widespread poverty. Therefore, as more companies will be turning to automation, UBI's implementation would be alleviating the poverty burden of people left unemployed due to the replacement of their jobs with machines.

Though the UBI, all members of the society would be guaranteed a source of livelihood regardless of their employment status, thereby relieving the financial burden on families since UBI ensures an economic anchor, especially among the jobless. Though automation makes the society richer in some sense, though in a disproportionate way as exemplified by modern corporate greed, UBI would provide a ground for a more sustainable social safety net for the affected individuals. Therefore, it would be plausible to suggest that UBI is the most elaborate economic tool to be deployed in a hypothetically jobless future. The consequences of automation on industrial employment and what it portends for the future cannot be undermined due to the negative effects it brings along. Thus, people will have to find a way of survival in the current circumstances of job replacement through automation. Though concerns have been raised on the sustainability of UBI regarding its funding, the Alaskan story should

act as a blueprint to governments that are still sceptical about how to approach it. For the Alaskan case scenario, the government has been implementing it since 1982 as already highlighted in the previous sections of this paper, through its hugely successful Permanent Fund Dividend, derived from earnings on investment of the Alaska Permanent Fund. Through the implementation of UBI, there has been a noticeable increase in the purchasing power of the citizens, poverty rate reduction, and enhancing savings. With automation on the verge of replacing traditional semi-skilled opportunities in the production industries, the affected workers thus stand to benefit more.

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