

The Effectiveness of the Universal Basic Income as a Solution to Large-Scale Displacement of Labour Due To Automation

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Abstract—This paper analyses the economic challenges presented due to the large-scale displacement of labour due to automation in the coming years and discusses the effectiveness of the Universal Basic Income as a policy mechanism.

Index Terms— Technology, Automation, Universal Basic Income

I. INTRODUCTION: NATURE OF THE PROBLEM

The imminent structural change due to the adoption of automation and technology is a process of creative destruction [1], as it will change the nature of work as we know it today and disrupt the labour market. 3.6 million British jobs [2] and 400 - 800 million jobs worldwide [3] are likely to be displaced by 2030 due to automation. In the near future, we will see the large-scale displacement of labour, but we will also see the emergence of new sectors and occupations as a direct result of an increase in automation and technology. The net impact of this drastic change on labour – net creation or elimination of jobs [4] (Fig 1.0) - will depend on the relative importance of the productivity effect, displacement effect and other spill-over effects such as increased globalisation.

Moreover, the extent of disruption to the employment levels and occupational patterns will vary between countries, depending on a variety of factors such as economic and social development, demographic trends, labour migration, level of education and the nature of the occupation and sector itself. (Fig 1.1)

II. POLICY IMPLICATIONS: BENEFITS, DRAWBACKS AND OTHER POLICY CONSIDERATIONS

As the future of work remains uncertain due to increased automation, it is crucial that governments across the world employ appropriate policies and income support mechanisms with underlying principles of equality and inclusiveness to ensure overall welfare of their citizens.

One of these policies is the Universal Basic Income (UBI). Over the course of the last two centuries, the concept of UBI has been debated globally under many different names: ‘demogrant’, ‘citizen’s wage’, ‘universal benefit’, ‘social dividend’ and ‘basic income’. UBI refers to a cash payment guaranteed to every individual in society periodically and

unconditionally, without a work requirement or any means testing.

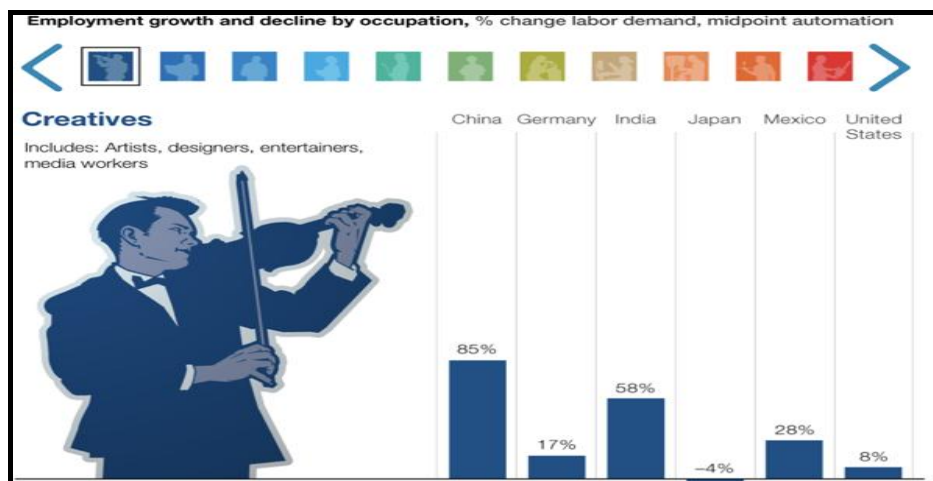
Advocates of the UBI claim that it can serve as a remedy to the critical issues of income inequality, unemployment and poverty. In summary [5] - ‘to cope with the inevitable clashes between three economic objectives: first, citizens’ freedom of choice in markets for jobs and for the satisfaction of their wants (**Liberty**); second, avoidance of any resulting intolerable contrast of poverty side by side with great riches (**Equality**); and, third, the use of available resources in ways which will produce the technically highest possible average standard of living (**Efficiency**)’. Other potential benefits include:

- **Adaptation to automation and new job opportunities** may be facilitated as workers may have the confidence, due to the unconditional safety net, to pursue new, creative areas bolstering innovation.
- **Reducing poverty and income inequality** is a key aspect of the UBI. According to the joint MIT and Give Directly program in Kenya [6], the impact of an unconditional income was that for every \$1,000 disbursed, there was a \$270 increase in earnings, a \$430 increase in assets, and a \$330 increase in nutrition spending, with a 0% effect on alcohol or tobacco spending. Furthermore, the scheme aims to reduce dependency of disadvantaged on the government by giving them the means to train and progress in society. In addition, if financed from proportional or progressive taxation, UBI can contribute to a redistribution of income in the economy.
- **The welfare trap can be eliminated** by avoiding loss of welfare benefits as earned income increases.
- **Transparency and administrative efficiency** can be achieved as a result of less bureaucracy and decreased corruption, due to the lack of means test, as eligibility no longer has to be determined by the government.
- **Overcoming the other challenges due to means-tested programs** such as poor performance of targeting mechanisms and social stigma, UBI may prove more effective at alleviating poverty and reducing income inequality.

Predicted Jobs Automation Will Create and Destroy				
When	Where	Jobs Destroyed	Jobs Created	Predictor
2016	worldwide		900,000 to 1,500,000	<u>Metra Martech</u>
2018	US jobs	13,852,530*	3,078,340*	<u>Forrester</u>
2020	worldwide		1,000,000-2,000,000	<u>Metra Martech</u>
2020	worldwide	1,800,000	2,300,000	<u>Gartner</u>
2020	sampling of 15 countries	7,100,000	2,000,000	<u>World Economic Forum (WEF)</u>
2021	worldwide		1,900,000-3,500,000	<u>The International Federation of Robotics</u>
2021	US jobs	9,108,900*		<u>Forrester</u>
2022	worldwide	1,000,000,000		<u>Thomas Frey</u>
2025	US jobs	24,186,240*	13,604,760*	<u>Forrester</u>
2025	US jobs	3,400,000		<u>ScienceAlert</u>
2027	US jobs	24,700,000	14,900,000	<u>Forrester</u>
2030	worldwide	2,000,000,000		<u>Thomas Frey</u>
2030	worldwide	400,000,000-800,000,000	555,000,000-890,000,000	<u>McKinsey</u>
2030	US jobs	58,164,320*		<u>PWC</u>
2035	US jobs	80,000,000		<u>Bank of England</u>
2035	UK jobs	15,000,000		<u>Bank of England</u>
No Date	US jobs	13,594,320*		<u>OECD</u>
No Date	UK jobs	13,700,000		<u>IPPR</u>

*This value is Technology Review's extrapolation based on a percentage of jobs lost or gained given in the report. The percentage was converted to number based on the number of jobs in the US when the prediction was made according to the BLS.

(Fig 1.0)



There is a lack of evidence of the effectiveness of UBI, due to the absence of a uniform assessment methodology [7]. However, there are currently a variety of experiments being conducted around the world from Kenya to India. While we await the conclusions of such studies, we can use the state of Alaska's example to demonstrate the effects of UBI. Alaska implemented UBI in 1982, distributing \$1000 to \$2000 to every resident in Alaska, including children. A working paper [8] shows that the 'dividend had no effect on employment and increased part-time work by 17 percent.' Furthermore, the authors noted that 'receiving this basic income tends to increase education among the most disadvantaged youth.'

While predicting the success of a policy, we must not only focus on its likely benefits, but also on the possible negative consequences in context of the following:

- i) What are the fiscal and opportunity costs of the solution?
- ii) How sustainable is the policy?

Critics of the UBI stress upon the immense financial burden of the UBI on the government. For example, it would cost the US federal government \$2 to \$4 trillion a year, amounting to a 50% increase in current federal outlays or more than 10% of last year's GDP [9]. High opportunity costs may result due to lack of federal funds available for other necessary social and economic policy objectives, for example investment in education and infrastructure. Financing the UBI may result in a large burden on taxpayers and a significant budget deficit. These two events can have negative consequences on the economy such as disincentivised labour and lower productivity, higher unemployment, increased government borrowing, higher debt interest payments for the government and crowding out.

To determine the sustainability of UBI, a discussion of the source of funds and the solution's long run consequences is imperative. Opponents assert that UBI is not a financially sustainable policy. They argue that funding UBI through taxes will distort incentives and discourage labour market participation; they also state that there can be major economic challenges in the long-run. These include reduced economic growth potential due to lack of investment and high government debt. In addition, moral hazard is a key concern as citizens may substitute leisure for work and may also spend the money received on unproductive goods with negative externalities, such as alcohol. However, on the other hand, proponents submit that in the long-run the economy will enjoy lower inequality and poverty. Advocates suggest that workers will not be resistant to higher tax rates if they understand that they will receive benefits as cash transfers. An alternative suggestion is to increase taxes, such as a carbon tax, that will generate external benefits to finance UBI.

Other policies that facilitate overall welfare include:

- 1. **Unemployment insurance (UI)**– People who are unemployed for no fault of their own are temporarily guaranteed benefits, provided they meet the eligibility criteria. Proponents highlight the

effectiveness of the policy in ensuring welfare and uplifting living standards for those in need by supporting them through the difficult transition phase. However, the key concerns of moral hazard and administrative costs undermine the usefulness of such policies.

- 2. **Negative income tax** – Taxpayers with income below the threshold would receive cash transfers equal to the difference. As Lady Rhys-Williams and Friedman saw it, this policy would simplify the system, reduce administrative costs by providing targeted cash transfers rather than an array of welfare benefits, and alleviate poverty. However, critics question the practicality, and monetary and opportunity costs of such a solution, as well as highlight the possible work disincentive effects.
- 3. **Targeted welfare policies** - Advocates of such policies believe that given the scarcity of resources, funds and factors of production should be allocated specifically to those in need, such as the elderly and children, in order to encourage efficiency and overall welfare. On the other hand, opponents state that obstacles such as administrative inefficiency, inclusion and exclusion errors and social stigma prevent such policies from creating effective welfare gain for citizens.

III. CONCLUSION: IS THE UNIVERSAL BASIC INCOME THE BEST SOLUTION?

UBI may be the best solution for some countries, but ineffective in others depending on the circumstances. For example, in some developing countries, UBI may not be feasible due to fiscal constraints caused by smaller tax bases and hence larger burden on taxpayers, along with higher opportunity costs of UBI which may include investment in infrastructure and education. The welfare gains may not be worth the cost, and therefore these countries may prefer adopting targeted welfare schemes. On the other hand, in developed countries UBI may be financially viable and implementable due to wider tax bases and lower opportunity costs, allowing them to take advantage of UBI's many benefits. Therefore, contrary to developing nations, in developed countries UBI would be the best solution to the large-scale displacement of labour due to automation in the coming years.

REFERENCES

- [1] (Schumpeter, 1942)
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- [3] (McKinsey Global Institute: Jobs lost, jobs gained: What the future of work will mean for jobs, skills, and wages, 2017)
- [4] (Winick, MIT Technology Review: Every study we could find on what automation will do to jobs, in one chart, 2018)
- [5] (Meade, 1993)
- [6] (Haushofer & Shapiro, 2016)
- [7] (Francese & Prady, 2018)
- [8] (Jones & Marinescu, 2018)
- [9] (Ezrati, 2019)