Automation, Basic Income and Merit

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work * UBI * unemployment * AI * leisure * market competition * economic growth * distributive justice * utopia

Abstract

A recent wave of academic and popular publications say that utopia is within reach: Automation will progress to such an extent and include

so many high-skill tasks that much human work will soon become superfluous. The gains from this highly automated economy, authors suggest, could be used to fund a universal basic income (UBI). Today's employees would live off the robots' products and spend their days on intrinsically valuable pursuits.

I argue that this prediction is unlikely to come true. Historical precedent speaks against it, but the main problem is that the prediction fundamentally misunderstands how capitalism works—its incentives to increase or decrease production, its principles of income allocation, and the underlying conception of merit.

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Part I

A World without Work?

1 The UBI-After-Work Argument

The following argument is popular in current literature on artificial intelligence (AI) and the future of work:

P1 Automation will progress to such an extent that most human work will become superfluous.

P2 Superfluous workers should be supported.

C Some of the gains from the highly automated economy should be used to fund a universal basic income (UBI).

Call this the "UBI-after-work argument." It frequently appears in newspaper headlines and tech blogs, but also in academic writings (for example, Bruun and Duka, 2018; Ford, 2015; Mann, 2018; Srnicek and Williams, 2016). Recently, the fear of automation has prompted policy documents (for example, European Parliament, 2017; Executive Office of the President, 2016).

My paper evaluates the UBI-after-work argument. I shall reject P1 (sections 5–8) and thereby P2, which simply expresses a consequence of P1; that is, I argue that the argument is not sound. My objection to P1 says that, within a competitive market, automation provides an incentive to expand production rather than an incentive to lay off workers, and indeed that has been the result of previous waves of automation (such as the spread of engines or of computers). As a last step, I analyze a central presupposition of the UBI-after-work argument (section 9): that income in contemporary economies is merited. Contrary to what its proponents claim, this argument hence does not advocate substantial economic change. The highly-automated production facilities would continue to be privately owned; all we would do is to abolish the means-test for welfare recipients.

Please note that my chapter only evaluates the UBI-after-work argument, not UBI more generally. While I reject the argument, this does not exclude that there are other, sound arguments for UBI. To follow my discussion, an understanding of "UBI" (section 2) and some familiarity with the empirical findings on UBI (sections 3–4) are helpful. If you already possess both, please proceed to section 5.

2 What Is "UBI"?

We can define UBI as follows:

UBI = a payment that is *unconditional* & *sufficient* & *regular*.

The three adjectives, "unconditional," "sufficient" and "regular" capture the three definitional features.

1. If the payment is based on a preceding evaluation of the recipient's needs, then it is not "universal." A *universal* basic income is paid to absolutely everybody (BIEN, 2019).

2. If the payment is not sufficient to cover the recipient's basic needs, then it is not a *basic* income but a top-up of an income from another source, such as employment income or pensions, capital gains, alimony, welfare payments or the like. (Confusingly, some authors call such a top-up a "partial basic income" and oppose this to a "full basic income," see BIEN, 2019). There is disagreement about what basic needs are. It could be mere survival, or a certain minimal quality of life—examples would be defenses of UBI from basic human needs, such as Murray's (2008). We could also take the ability to preserve what characterizes you as a person as our measure (Radin, 1993a,b) or basic capabilities (Nussbaum, 2006) or some type of equality or of freedom (Parijs, 1995)—to name just a few options. Whatever we regard as basic, however, has to be covered by this income.

3. If the payment is not regular, then it is, by definition, not an *income*. There are alternative proposals, such as that of a universal basic capital, which is a lump sum paid to everyone upon reaching adulthood (often traced back to Thomas Paine, made popular by Ackerman and Alstott (1999) and more recently defended by Anderson (2017)).

3 UBI Still Untested

What would a society with UBI be like? You might be surprised to hear that we don't know. Very few of the many past and current basic income experiments have implemented all three definitional features. The vast majority violate feature 1 and many additionally violate feature 2. Payments are usually made only to the poorest and often in insufficient amounts, even if we define "sufficient" as 'enabling bare survival'. Italy's "citizen's income" (Giuffrida, 2019), the "basic income" of the Canadian province of Ontario (Government of Ontario, 2017) and Finland's "basic income" (Henley, 2018) all required a means test. Italy's payments also imposed further conditions that standardly come with welfare payments, such as a requirement to enroll in job training. Finland's experiment was the only one that did not halt payments if participants obtained additional employment. The Finnish payments, however, were below the poverty line. A recent experiment in rural India finally implemented all three features and even included payments to children (Standing, 2013). The results were encouraging, but they are probably not informative for the main question regarding UBI: Would UBI be better than the social security systems already in place in more affluent countries? (The researchers paid USD 7.5 per month, which is the poverty line for rural India, to people who had had no public security net before.)

Why are there so few proper implementations? The main reasons are a lack of funding and of sustained political support (Winick, 2018). In addition, the operationalization of UBI's three definitional features

poses certain principled difficulties, such as an artificially limited time horizon. Participants of an experiment know that their income is temporary; often they even know when exactly it will stop. Similarly, citizens of a government that implements UBI know that this policy can be abolished again with a change of government. Such knowledge probably influences behavior—few participants would quit their job, for example, for a time-limited UBI.

4 Would UBI Bring Utopia or Dystopia?

Since UBI remains to be properly tested, predictions about what a society with UBI would be like are speculative. They extrapolate, either from incomplete implementations or from more general findings in behavioral economics. As a result, these predictions vary widely.

The context of automation introduces a further unknown variable, given that the respective technologies themselves are merely predicted: We cannot oberve their effects on a real society, and often we don't even know whether they will in fact be developed. There are at least four regularly proposed scenarios for automation combined with UBI:

Utopia: Leisure for everyone.

If we introduced UBI today, people would begin to spend more of their time on intrinsically valuable or on socially necessary pursuits (such as raising children). Once automation spreads extensively, this process will culminate in *Fully Automated Luxury Communism* (Bastani, 2017), a world in which all production facilities are publicly owned and staffed only with robots, so that all products are available to all without work.

Dystopia 1: A class of the superfluous.

Since automation does nothing to change the ownership of the production facilities, the robots will still be privately owned and so will be the products they make (Dinerstein

and Pitts, 2018). People whose jobs have been automated will form a tech lumpenproletariat, surviving on UBI as scraps from the table, paid for by their former employers as well as those fellow citizens who still work.

Dystopia 2: A world of alcoholics.

This scenario comes in two versions. The first is a consequence of *Dystopia 1*, the second of *Utopia*. The first version says that the poverty and endless amount of freetime resulting from massive technological unemployment will lead to an erosion of society in the long run. The class of UBI dependents will develop the same ails as the unemployed in deindustrialized regions today; they will be poor, unhealthy, socially isolated and angry. The second version says that the material abundance and endless amount of freetime resulting from fully automated luxury communism will cause "a nervous breakdown of the sort which is already common enough in England and the United States amongst the wives of the well-to-do classes, unfortunate women, many of them, who have been deprived by their wealth of their traditional tasks and occupations" (Keynes (2010, p. 327), echoing Wollstonecraft (1989, chapter 4) as well as numerous derisive comments on the degraded character of non-working class women and the nobility that Adam Smith makes across his works).

Dystopia 3: Economic breakdown.

Experiments in behavioral economics regularly demonstrate that the majority of human beings is not altruistic enough for UBI. Too many would stop working once they received UBI. Until we actually reach a level of automation that renders *most* human work superfluous, we hence cannot fund UBI (Enste, 2019).

Part II
Does Technology Eliminate Jobs?

5 Forget Experiments, Consider Mechanisms

Given how difficult it is to test the empirical hypotheses involved in the discussion of automation and UBI and how speculative, as a result, any prediction is that we base on such tests, I suggest a different strategy. Rather than analyze the insufficient data, I want to step back and consider some underlying economic mechanisms.

To evaluate the UBI-after-work argument, we must answer the following question: *Is an increase in automation likely to cause a significant and permanent decrease in the overall number of jobs or work hours and, thus, likely to create the need for UBI (or another political response)?*

My answer will be that (i) historical evidence speaks against the prediction of permanent technological unemployment (section 6), as (ii) do certain mechanisms of competitive markets (section 7). In the past, technological progress in production resulted in new occupations and more products, whereas more leisure was the result of political decisions. If you consider how markets function, you immediately see why. It is hence unlikely that there will ever be a technology-induced need for UBI. In the future, UBI will likely be as necessary or as unnecessary as it is today.

6 Past Predictions and Past Outcomes

Let's begin by looking at historical precedents. There regularly are predictions that machines will make human labor redundant, some of which offer concrete lists of tasks or even calculations of the hours to be saved.

In 1891, for example, Oscar Wilde ("The Soul of Man under Socialism") predicts that future machines would render wage-slavery su-

perfluous:

> All unintellectual labour, all monotonous, dull labour, all labour that deals with dreadful things, and involves unpleasant conditions, must be done by machinery. Machinery must work for us in coal mines, and do all sanitary services, and be the stoker of steamers, and clean the streets, and run messages on wet days, and do anything that is tedious or distressing. At present machinery competes against man. Under proper conditions machinery will serve man. There is no doubt at all that this is the future of machinery [...]. The fact is, that civilisation requires slaves. [...] Human slavery is wrong, insecure, and demoralising. On mechanical slavery, on the slavery of the machine, the future of the world depends. (2007, p. 1180)

In 1930, John Maynard Keynes ("Economic Possibilities for Our Grandchildren") famously classifies the ongoing Great Depresssion as a temporary bump in humanity's road to "*solving its economic problem*" (2010, p. 325, emphasis in original). Based on the better understanding of economic growth and on empirical tools for measuring it, which recent developments in economics afforded, he argues that:

> There is evidence that the revolutionary technical changes, which have so far chiefly affected industry, may soon be attacking agriculture. We may be on the eve of improvements in the efficiency of food production as great as those which have already taken place in mining, manufacture, and transport. In quite a few years—in our own lifetimes I mean—we may be able to perform all the operations of agriculture, mining, and manufacture with a quarter of the human effort to which we have been accustomed. (p. 325)

Given this rate of productivity increase, by 2030, humanity's biggest problem would become "how to occupy the leisure" (p. 328). Indeed, Keynes worries so much about this last point that he suggests we

"make what work there is still to be done to be as widely shared as possible" and thereby ease the transition (p. 329).

In 1980, André Gorz (*Farewell to the Working Class*) predicts similar productivity increases for the rest of the 20th century. Additionally, he worries about the elimination of "jobs by the million" during the impending "micro-electronic revolution" (1982, p. 135). He suggests to use these technological advances to progressively reduce workloads:

> Imagine that society were to distribute yearly productivity gains in the following way: a third in the form of greater purchasing power and two thirds in the form of additional free time. With an annual increase in productivity of five per cent—easily achieved in the past—the length of the working week would fall from 40 to 35 hours over a period of four years. After four more years it would stand at no more than 30.5 hours, and after a total of 12 years would amount to 26 hours 40 minutes. A 20-hour week could be achieved in 20 years, by the year 2001. (p. 135)

None of these Utopian predictions has come true. This is surprising, given that the first half of each is largely correct: Many of the imagined inventions were made, and productivity rose even more than predicted. As Figure 1 on page 11 (from Sprague, 2014, p. 3) illustrates, the average contemporary US worker is five times as productive as their grandparent.

Paradoxically, work hours did not decline during the same time. Most employees today report to still work forty or more hours per week, as Figure 2 on page 11 (from Saad, 2014) illustrates.

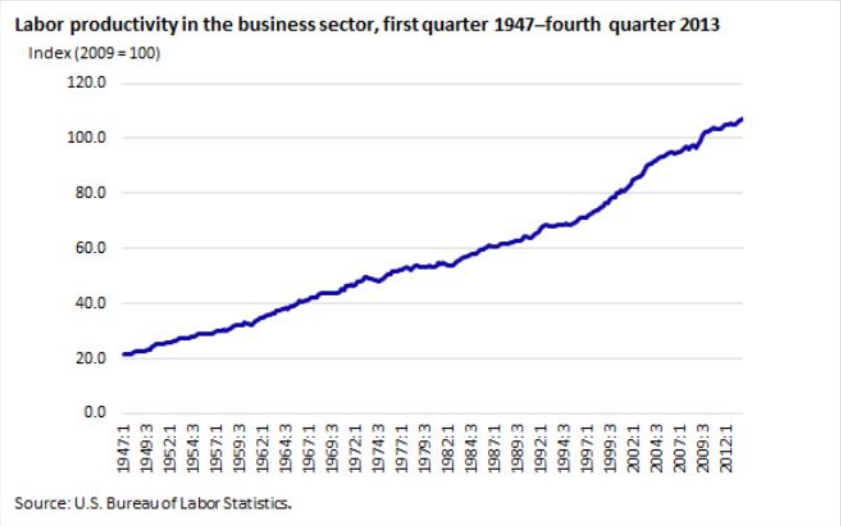

Figure 1: Productivity increase since 1947

Average Hours Worked by Full-Time U.S. Workers, Aged 18+

In a typical week, how many hours do you work?

	Employed full-time
	%
60+ hours	18
50 to 59 hours	21
41 to 49 hours	11
40 hours	42
Less than 40 hours	8

Based on Gallup data from the 2013 and 2014 Work and Education polls, conducted in August of each year

GALLUP

Figure 2: Work hours today

Calculated over a lifetime, work hours were even raised. As Figure 3 on page 12 (from Prins and Kalf, 2015, p. 4) illustrates, almost all European countries have implemented reforms in recent years that aim to raise the retirement age.

	Effective retirement age (2012)		Reforms 2012 -2014			amount of reform
	men	women	increase pension age	restrict early retirement	Incentives	
Iceland	68.2	67.2				
Portugal	68.4	66.4		X	X	
Sweden	66.1	64.2			X	
Switzerland	66.1	63.9				
Norway	64.8	64.3				
Ireland	64.6	62.6	X			
United Kingdom	63.7	63.2				
Turkey	62.8	63.6				
Estonia	63.6	62.6				
Netherlands	63.6	62.3	X		X	
Spain	62.3	63.2	X	X		
Denmark	63.4	61.9		X		
Germany	62.1	61.6				
Finland	61.8	61.9		X		
Slovenia	62.9	60.6	X			
Czech Republic	63.1	59.8				
Poland	62.3	60.2	X	X		
Greece	61.9	60.3	X			
Italy	61.1	60.5	X		X	
Austria	61.9	59.4		X		
Hungary	60.9	59.6	X	X		
France	59.7	60	X			
Slovak Republic	60.9	58.7				
Belgium	59.6	58.7	X	X		
Luxembourg	57.6	59.6	X			

Source: OECD, Rabobank

Figure 3: Recent retirement age reforms

Some readers might object that this increase is simply proportional to longer lifespans and lower birthrates. If a retirement scheme requires that all participants work *n* per cent of their life-time, then *n* will mean a longer number of years if people live longer, and similarly if the ratio of contributing to receiving participants sinks. As the earlier Figure 1 illustrates, however, workers' productivity multiplied by five. Hence we should be able to live five times as long as our grandparents before an additional hour of work becomes necessary, or we could have only one fifth of the number of children that they had, or a mixture of both.

In sum, the technological advances of the last decades significantly increased workers' productivity but not their free-time. How can this be? If I am five times as productive as my grandmother, then why can't I leave my desk after one-and-a-half hours of work each day rather than eight hours? Or, alternatively, why can't I retire after an eight-year, eight-hour work-life rather than a forty-year, eight-hour work-life? Why did neither the combustion engine nor the computer nor the internet nor any other technological advance ever reduce average

lifetime work hours?

Before we proceed to answering this question (section 7), there is a problem with the above futuristic predictions that I want to flag here, just to put it aside. The type of scenario that Keynes describes, for example, seems to be this: If we had a time machine to transport the technology available in 2012 back to production facilities in 1947, then, as Figure 1 suggests, we could quintuple their output. Imagine a shoe factory in 1947 suddenly being equipped with robot arms that stitch pieces of leather together, with a sales department that receives orders through the internet and has them packed onto GPS-assisted trucks, et cetera. It is questionable, however, whether the technologies involved—the personal computer, the internet, satellites et cetera—would have been invented and would have spread to the extent reached in 2012, had we continuously reduced work hours to one fifth since 1947. Keynes (2010, p. 325) argues that "[i]f capital increases, say, two per cent per annum, [then] the capital equipment of the world will have increased by a half in twenty years, and seven and a half times in a hundred years." This compounding, however, cannot happen if we progressively reduce the rate of capital increase and hence reduce the amount that compounds. The problem that Keynes' scenario faces strikes me as similar to the "grandfather paradox" of time travel: If you had a time machine and used it to travel back so as to change a past event, then that event would never have happened; hence you would never have travelled back to change it. Similarly, the compounding effects of technological inventions have made us five times as productive as we were in 1947, but this compounding would not have occurred had we reduced work hours with each invention since 1947 to always stay at the productivity level of 1947. I mention this here just to flag that it is questionable whether the imagined scenario is even coherent.

7 Automation in a Competitive Market

Back now to our question as to why technology does not reduce work-hours. The answer is that, in a competitive market—and by competitive market, I mean a market that is open for all to enter and exit and that is transparent—productivity increases usually result in more products rather than in more free time or higher wages. This point is already contained in various passages in Marx's works, which Gerald Cohen (2000, chapter 11) synthesizes. Cohen concludes: "The economic form most able to relieve toil is least disposed to do so. [...] It brings society to the threshold of abundance and locks the door" (pp. 306–7). As I shall argue, the only way to distribute productivity increases in the form of more time rather than more products is to legally force all market participants to do so.

Let's take the example of a shoe factory again. In 2017, the US shoe manufacturer Keen and the robotics company House of Design presented UneekBot: a robot that stitches a complete sneaker upper onto a rubber sole from a spindle of yarn in only six minutes. This is "half the time it would take a human," even though the robot "still relies on humans for the final touches" (Nikolov, 2017). Imagine you own a shoe factory. You have 100 workers, in 8-hour shifts, each stitching a new shoe every 12 minutes, that is, 20 pairs per worker per shift. That's 20 x 100 = 2,000 pairs per day. At a trade show, you come across UneekBot and consider purchasing some of these robots. Let's assume that the "final touches" take a worker 6 minutes, so that during the time in which 1 robot stitches 1 new shoe, 1 worker can carry out all final touches on the previous shoe. In this scenario, a purchase could halve production time. Here are three choices you could make:

Utopia: Purchase 100 robots, keep your 100 workers, halve the shift to 4 hours while keeping the pay the same (once the robots are paid off), and continue to produce 2,000 pairs per day.

Dystopia: Purchase 50 robots, halve the workforce to 50 workers, keep the 8-hour shift, and continue to produce 2,000 pairs per

day.

More Shoes: Purchase 100 robots, keep your 100 workers, keep the 8-hour shift, and double your production to 4,000 pairs per day.

Which do you choose? From your perspective as the owner, *Dystopia* clearly wins over *Utopia*. You only need to pay half the number of wages in comparison. So *Utopia* will not be realized if the choice is yours. Which of the remaining scenarios would an owner prefer? Your profit = (sales price - production cost) x number of pairs. The first two variables are the same in both scenarios, but the third variable doubles in *More Shoes* compared to *Dystopia* and hence so does your profit. Therefore, an owner's preferred choice is *More Shoes*. *Dystopia*, too, will not be realized.

I am brushing over a number of details here that can lead to a different outcome. For instance, the shoe market could already be saturated. If there aren't enough buyers for 4,000 pairs per day, then you will prefer *Dystopia* to *More Shoes*. Another important detail is that there will be a difference between your short- and long-term position in the market. In the above scenario, you are a pioneer: As one of the first producers who install the new technology, you make twice as many products as your competitors in the same time and hence earn twice as much. Once your competitors start buying UneekBots, you all produce twice as much in the same time, which usually means that product prices are cut in half. Your doubled profit is hence temporary.

For our current question, we can put these details aside and focus on the underlying principle: In an open and transparent market, where the means of production are privately owned—that is, in an idealized capitalism—automation neither leads to *Utopia* nor to *Dystopia*. It does not lead to *Utopia* because the owner of the means of production has no egoistic incentive to give the workers paid time off. It is important to see, however, that even an altruistic owner or a worker-owned factory could not do this. The members of a cooperative might collectively decide that they would prefer more free-time

to more profit. In the long run, however, their cooperative would not be competitive anymore. Once all factories have UneekBots, the 4h work-day cooperative would produce at double the wage cost of every other factory and would therefore go out of business. Product price competition eliminates wages that are higher than average in a given sector as "inefficiencies." The workers would have to live off half their wage, in order to permanently halve their workday. That, however, is an option they already had before UneekBot. From the perspective of a worker-owned cooperative, the situation is a "prisoner's dilemma." All workers would profit if the workday were reduced, but unless a central authority (in this case the state) forces all producers to reduce it, none of them can reduce it individually.

Let me stress here that my claim that *Utopia* will not come as the consequence of new technology does not mean it is not achievable. The obvious (and perhaps only) means of achieving it is legal prescription: a conscious choice of more time over more products, implemented by force for all market participants. We could have had the 30-hour, the 25-hour the 20-hour work week et cetera a long time ago. It is down to political decisions that we do not.

As argued, automation in a competitive market does not lead to *Dystopia* either. The owner has no incentive to lay off workers until, in Douglas Adams' words, we reach the "shoe event horizon" (Adams, 2005, CD 3, track 10). In a competitive market, automation does not result in either more time or fewer jobs; automation in a competitive market results in *More Shoes*.

In conclusion, I answer our original question in the negative: Automation, including AI, is unlikely to permanently decrease the overall number of jobs or work hours. Historical precedent speaks against this; none of the predicted declines in workhours materialized even though the productivity increases that were supposed to enable them did. (For some concrete examples of tasks and professions, please see section 8.) More importantly, however, this can be axiomatically deduced from certain general features of a competitive market. Unless we deliberately require market participants to disburse a productivity

increase in the form of more time rather than more products, all will produce more rather than take time off.

As a consequence, I reject P1 of the The UBI-After-Work Argument. To reject P1 means to also reject P2, which is a consequence of P1. C hence has no support.

Part III

Objections and Implications

8 Objections

Let me now address some common objections to my arguments.

First, haven't we seen an enormous decrease in work hours in a longer historical perspective? Admittedly, there was no decrease over the last three generations, but before WWI, the average work-day was twelve or more hours long (Roser, 2019b, Table: Weekly work hours). Why not think that this decrease was the result of the technological advances we call the "industrial revolution"?

Second, ecological problems might, at some point, put a hold to further increases in production. For Gorz, for example, ecological considerations are at least as important as social considerations in justifying his progressive workload reduction scheme. If the next wave of automation should push us to the long predicted *Limits to Growth* (Meadows et al., 1972), then two scenarios are conceivable: Either humanity goes beyond these limits and destroys itself with its economies or we halt productivity by finally reducing workhours for each invention made after the sustainable productivity maximum is reached.

Third, the shoe factory example only models the reduction of workhours per task but not of complete professions. The workers are still required for the task of making shoes, they just have a better tool. (In essence, UneekBot is an upgraded sewing needle.) In the near future, however, the work-floor will be completely taken over by machines,

rendering all low-skilled workers superfluous. In the medium to long term, management will suffer the same fate because they can be replaced by AI. There already are contemporary examples of this: "legal tech" companies, where contracts or legal communications are written and examined by algorithms rather than lawyers, or medical centers, where internet-based diagnoses replace doctors (Susskind and Susskind, 2015).

To the first objection, I reply that these historical decreases in work-hours are best explained as the result of political measures, which in turn are the result of political struggles. The eight-hour workday, the free Saturday, paid vacations, no child labor and reduced hours for teenagers: All of these decreases in work hours are the result of workers' rights movements, workers' parties, unions, the spreading of democracy et cetera The eight-hour workday in the US, for example, was largely achieved through strikes (Brooks, 1956; Whaples, 1990). Work hours did not decline as a happy, unintended consequence of the steam engine or the moving assembly line.

My reply to the second objection is similar. Granted that we will reach the limits of ecologically sustainable productivity, it would be a political decision to let productivity stagnate at that level by reducing work hours proportionally to the productivity increase generated by any invention made afterwards. Political measures implementing this decision would likely be the result of political struggles by environmentalist movements, green parties, an increasingly environmentally conscious public et cetera. Productivity-increasing technology itself does not result in productivity stagnation at a sustainable level; it results in ecological collapse, since no individual producer in a competitive market can reduce work hours unless all others do (compare section 7).

The third objection needs to be addressed in multiple steps. The initial step is to actually look at the facts. The endlessly repeated claim that automation is currently reducing the overall number of low-skill jobs is probably false. While the media regularly remind us of taxi drivers who might soon be replaced by self-driven cars, sociologists

point out (for example, Standing, 2018; Wajcman, 2017, pp. 124–25) that the digital revolution has so far created a shockingly large number of low-skill jobs—often recruited through websites with names like "Mechanical Turk." Consider Youtube's digital cleaners, who live in poor countries and spend their days deleting violent videos, or Amazon's warehouse workers, who are not even allowed to take a bathroom break. Taxi drivers themselves are actually an example of this: Unionized and insured professionals are today threatened by services like Uber (Huws, 2014; Standing, 2011).

It also is false to claim that the replacement of complete professions is a new phenomenon. By 1800, for example, 60 per cent of France's population worked in the agricultural sector; today it's three per cent (Roser, 2019a, Table: 1300 to today). The industrial revolution destroyed professions on a massive scale, without creating permanent technological unemployment. The milker, the coachman, the weaver and the glassblower have all vanished, but the train conductor, the electrician and factory workers of all kinds took their place. Some economists hence refer to this concern as the "Luddite fallacy"—after the "Luddites," 19th-century English textile craftspersons who stormed factories that had installed the then newly invented automatic loom.

Those who make the objection usually reply that this time, things will be different. The industrial revolution is no guide to the coming, post-digital revolution because AI will also destroy high-skill professions (Ford, 2015; Susskind and Susskind, 2015).

In and of itself, this reply is hard to evaluate because it is unclear why the skill level should make a difference to the general point that technological progress rarely leads to permanent technological unemployment. The assumption made by Ford and the Susskinds has to be this: AI is so versatile that it can replace workers in any profession, even the newly evolved ones. With the spread of personal computers, for example, the profession of typist has largely vanished, but the profession of web designer was created. In the future, however, such a new profession would immediately be taken over by AI again. Or, rather, no profession would ever develop because one would immedi-

ately use a machine for the task.

Readers might not be aware of how speculative this scenario of an AI takeover is. Among AI researchers, a consensus seems to have evolved in recent years that AI—understood as trained, artificial neural networks—will be limited in its applications to tasks that are narrow and highly repetitive (Waldrop, 2019). It hence is a bold assumption by the above authors that AI will be able to carry out all and any tasks that a human worker can perform.

Even if we concede this bold assumption, the case looks dubious. First, it moves us to an entirely different discussion because it raises entirely new questions. One is: If our robots are so developed that they can carry out any task a human being can, might this not require that we assign them similar rights? Wouldn't they, for example, have to be paid for their work? Another question is: Wouldn't this also be the end of the market rather than just the end of work? As regards the latter question, there appear to be two ways to spell out the implications of the bold assumption:

1. In the first scenario, the material resources and the robots are privately owned. As owner of the shoe factory, you used to possess yarn and needles and pay workers. Now you possess yarn and robots and have laid off all workers, and the same is true for all other factory owners. In this scenario, there would be no paying consumers anymore for the shoes that your factory produces (apart from the few other factory owners). According to some, this is precisely why future societies will need UBI (Duchâtelet, 2016). Mathematically, this makes no sense: If you and other factory owners are the only ones who still possess wealth, you will have to fully finance the UBI with which your former workers then buy your shoes. You might just as well give away your shoes for free directly.

2. In the second scenario, the material resources and the robots are publicly owned. In this version, everyone receives all robot products for free. Why, then, should we lament the vanishing of all

occupations? This is Utopia—finally!

9 Income Allocation under Capitalism

I have already rejected the UBI-after-work argument. As a last step, I want to discuss a presupposition that this argument makes (and that is not necessarily shared by other arguments for UBI or by advocates of UBI generally). This presupposition says that income in today's economies is merited.

The UBI-after-work argument appears radical and emancipatory. It hence is worth pointing out that this argument does not challenge the following two assumptions:

1. That those who own the means of production (now robots) are entitled to all income from these.

2. That those who don't own such means have to be unable to work if they are still to receive income.

The argument hence accepts capitalist principles of income allocation, as well as the underlying conception of merit. Let me expand on this point.

In contemporary, capitalist economies, there are three main sources of income: work, capital gains and governmental payments. In the first case, you live off your own work. In the second and third case, you live off the work of others.

Public attitudes toward the second and third option are very different (Bamfield and Horton, 2009; Bartels, 2016; Guardino, 2019; Svallfors, 2012); a fact already lamented by Adam Smith (1976, part 1, section 3). Most people (though not necessarily most scholars) believe that the third option is permissible only for those with no other option, the justification being that it would otherwise be a form of free-riding and impossible to fund. In contrast, those who live off others' work in the second way are not generally publicly perceived as doing so, and

even where they are, they tend to elicit admiration rather than contempt. In the rare case that wide-spread public criticism arises, such as after the 2008 global banking crisis (Bennett and Kottasz, 2012), it is often not sustained enough to force significant legal changes (Cihak et al., 2013; Griffith-Jones et al., 2010), even though there recently is some evidence of a more sustained change in public attitudes (Piston, 2018). These strinkingly different attitudes toward the second and third option seem best explained by the fact that the second income is often seen as merited, while the third is seen as donated. The second is based on a property right, while the third is based on the charity of others.

Now, this system of property allocation might be justified, as would then be the dominant public attitude toward it. My point is that the UBI-after-work argument presupposes that it is.

P2 justifies UBI through the former workers' need. It describes UBI as something that the community—or perhaps their former employers—offer in support, not as something to which these former workers have a property right. All property rights, as C implies, still lie with the owners of the (now automated) production facilities. Consider the shoe factory example again: I tacitly presupposed that you, as owner, are entitled to all of the additional gains. In the scenario *More Shoes*, for example, you doubled your profit whereas the wages stayed the same. It is not obvious that this is just: If a group of human beings become more productive through the acquisition of a new tool, one could think that those who work with the tool also deserve a share of this increase, not just the person who bought the tool—as a long line of intellectuals from Hobson (1931) to Brecht (1988) has pointed out. One could furthermore think that there is something wrong with a community in which some members can monopolize the tools. The UBI-after-work argument, however, presupposes that this arrangement is just, or at least leaves it uninterrogated. In the scenario it forecasts, the highly automated production facilities have the same owners as before. The newly unemployed live off transfer payments justified through their needs, just as today's welfare payments are. Admittedly,

means tests have been abolished—otherwise the measure would not qualify as UBI—, but this is not because we have changed our ideas on who merits what. The tests simply became superfluous because in a highly automated economy with private and highly concentrated ownership in means of production almost everyone is in need. The argument suggests an egalitarian scenario, where all members of society profit from technological progress. In order to translate the additional capital gains into public wealth, however, the same constraints and strategies as always apply: We would have either to tax or mutualize these facilities. How highly automated a facility is makes no difference here.

I have not argued against the presuppositions of the UBI-after-work argument. These might not be problematic, and then what I point out in this section might be no reason to reject the argument. It is important to see, however, that the UBI-after-work argument does not demand that we switch to a new economic system. It fully subscribes to the capitalist conception of merit and does not question its principles of income allocation.

10 Conclusion

I conclude that the Utopian and the Dystopian predictions regarding automation and basic income are equally wrong. Widespread technological unemployment will not come to pass, and even if it did *and* UBI were introduced to ameliorate these effects, our conceptions of merit and our principles of income allocation would not be challenged by this measure because the payments are made to people based on their inability to work, just as today's welfare payments are. Political decisions, not technological progress in production, leads to more leisure and a more egalitarian distribution of incomes. If these are our aims, then other political reactions to technological progress are probably preferable to UBI. This result does not entail that UBI might not be worth introducing for other reasons, only that technological progress

is no reason to introduce UBI.

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