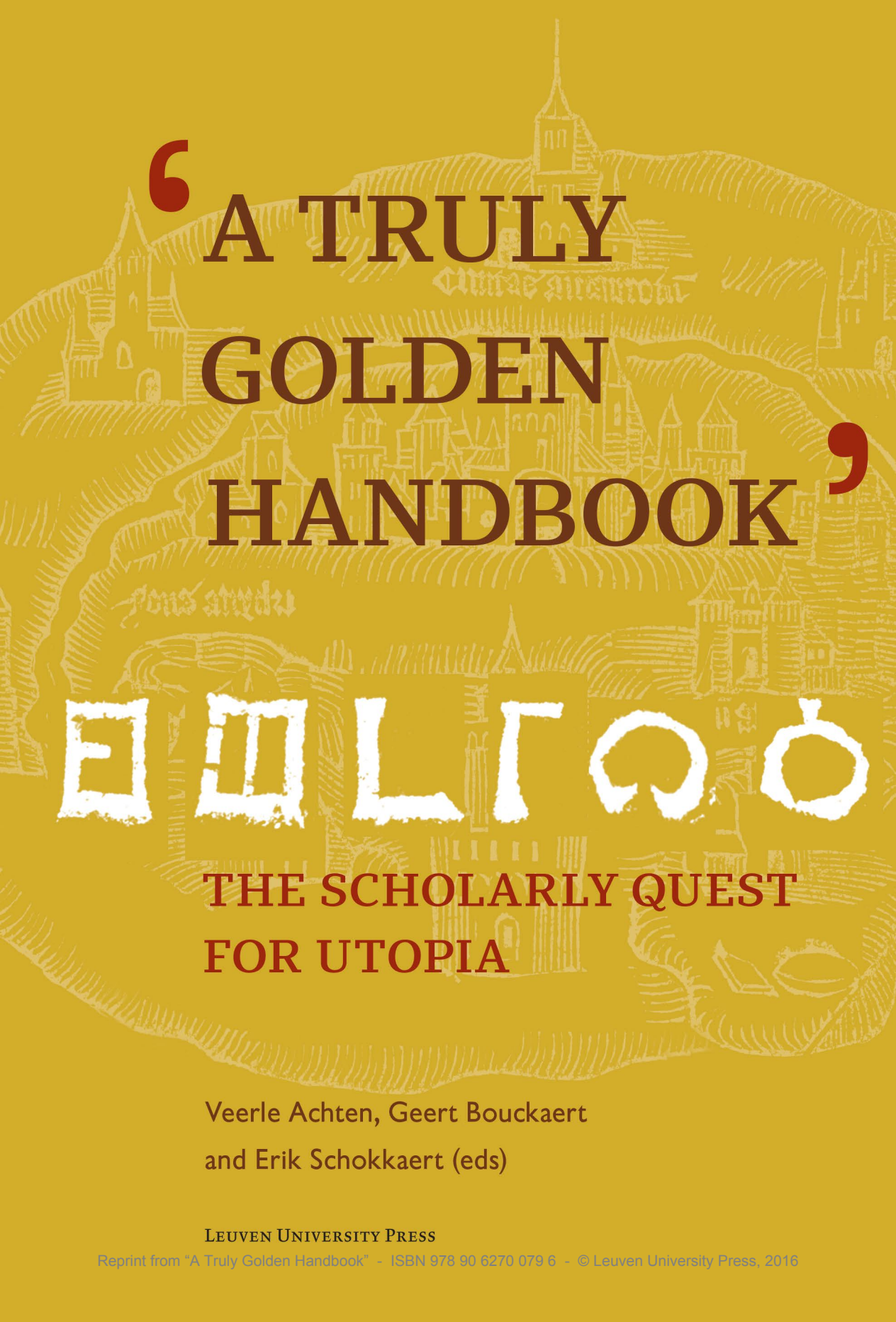

‘A TRULY GOLDEN HANDBOOK’

THE SCHOLARLY QUEST FOR UTOPIA

Veerle Achten, Geert Bouckaert
and Erik Schokkaert (eds)

Leuven University Press

'A TRULY GOLDEN HANDBOOK'
THE SCHOLARLY QUEST FOR UTOPIA

'A Truly Golden Handbook,
No Less Instructive than Delightful,
by the Most Learned and Distinguished Professors
of the Renowned University of Leuven.'

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The Scholarly Quest for Utopia

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Wage without Work

Marten Ovaere, Kenneth Van den Bergh and Arne van Stiphout,
Energy Economics and Energy Engineering

The year is 2050. A spectacular automation revolution has taken place. Tremendous advancements have given society the knowledge and technology to produce all its basic goods and services with little human intervention. Thanks to decisive policy-making, the gains of this incredible technological progress have been used to set up a universal basic income scheme. This has given every member of society the ability to freely choose what to do with their lives. As a result people devote their time to those things that bring them fulfilment, and those activities that truly hold meaning for them and for society. What might life be like in such a world? Let us start by taking a glimpse at it through the eyes of one of its inhabitants.

A Day in the Life

Say hello to Frank. Frank is a man in his fifties living in a typical mid-sized city in Western Europe. Over the past 30 years Frank's life has changed drastically. He used to work as a process engineer, before automation left him and most of his colleagues without a job little over a decade ago. Luckily for him, a couple of years prior to that the government had started setting up a number of local basic income programs, and Frank was selected for one of them. Like previous welfare programs, the income of this program made sure that he could provide for his livelihood. But unlike previous welfare programs, he was not expected to do anything in return, leaving it entirely up to him to decide what it was that he wanted to do with his time. Frank thought things through thoroughly, meanwhile spending a lot of time working in his community, and even going back to university for a year. Around 2 years after his dismissal, he came up with an idea. Ever since he was a child, Frank spent most of his free time designing things in 3D on his computer. He decided that he wanted to organize different classes on digital design, but not in the way you might expect. His idea was that

instead of coming to him, his students would sign in from home into a fully immersive virtual reality classroom. This would allow him to set his classes in vivid, inspiring sceneries. Frank himself was no real expert in programming, but after following some online courses and finding most of the software he needed on open source platforms, he succeeded at setting up his virtual classrooms. Eventually Frank even started his own company, finally having the means and a financial security net thanks to his basic income; and over the past 10 years things worked out quite brilliantly.

Frank's day starts a little earlier than that of most, since a lot of his students follow a session right after their breakfasts. At 8:00 in the morning the blinds of his bedroom windows slowly open. Frank is greeted by his house assistant, the operating system that runs the entire practical side of his household. As he gets ready to leave, he is informed about his schedule for the day and the latest local and international news. A small, flickering light in the top left corner of his eye reminds him that his transportation is about to arrive. He walks down the stairs, and grabs his breakfast from the counter as he walks out the front door. Usually Frank likes to prepare his own meals, but breakfast is something he leaves to his house assistant. Just as he gets to the sidewalk, his car pulls up – one of the many fully automatic cars of the city's public transportation system. Frank gets in and greets the two other passengers whose commute apparently partly overlaps with his. Sitting in the driverless vehicle, he goes over his notes for his first session. Over the past decade Frank's company has grown quite a lot. As the local basic income programs developed into nation-wide universal basic income programs, self-actualization became a central aspect of everyone's daily life. Frank expanded and diversified his company's range of courses to meet his clients' demands. He and his employees now give all sorts of trainings, ranging from sports to philosophy, set in even more astounding virtual environments, be it a fully packed stadium or an old Greek amphitheatre.

Most days Frank leaves his company right after lunchtime, as he likes to have the afternoons off. He spends a great deal of these afternoons with his father, who – despite his old age – still lives independently, thanks to the great on-site care he gets. A couple of years ago, when his father became really ill, Frank decided to cut back on company time to look after his father himself. Ever since the two spend a lot of their time together. At the end of the day they usually pick up Frank's daughter from school. Education has also changed a lot since Frank was a child. Back in his day it was mostly aimed at preparing students as thoroughly as possible for functioning as an efficient part of the working population. But over time, not only did the number of jobs in the traditional sectors decrease; society also let go of its narrow definition of work, which excluded many valuable activities that actually contribute greatly to society's

well-being and sense of community, such as caregiving, commitments in the cultural sector, or community work. Education has evolved on all levels to reflect those changes. Now, a lot of time in schools is devoted to identifying people's distinctive talents and skills, and to determine how these could lead to fulfilling activities that are meaningful for them and for society. Students are pushed to develop these skills. They are also taught how to think critically, analyze the ideas of others, and construct their own. They are encouraged to be an active member of their community and participate in political debate. Frank's daughter, for example, is a member of the city's youth council. Next year, when she finishes school, she is going on one of the many exchange programs that the government has set up to broaden young people's view of reality by bringing them into contact with different cultures, all the while showing them hands-on the results of the work of the different global institutions.

The Dawn of the Second Machine Age

So, how did we get here? How were we able to grant everyone the liberty to set up their lives in a way that is truly meaningful to them and to society? It is because we took advantage of the astonishing technological progress and productivity growth of the Second Machine Age. In contrast to the First Machine Age, in which man's physical activities were automated, the Second Machine Age is the age in which technology assisted in and took over part of man's cognitive tasks. While Watt's steam engine lightened heavy physical work, the information and communication technology that characterizes the Second Machine Age increasingly facilitated our mental tasks. Over the next few pages we will look back on how through the just redistribution of the gains of the Second Machine Age via a universal basic income we were able to arrive at this society.

The seeds of the Second Machine Age were sown shortly after World War II, with the invention of the first programmable computer. In 1953, IBM – a company that 100 years later would be famous for its quantum dots solar cells and its contribution to the 'Internet of Things' – introduced the 701, its first commercial computer. From that moment on, computing power grew very quickly. In 1960 the Intel 4004 microprocessor was able to calculate an impressive 92 000 instructions per second; in 1980 the 8035 raised this to a spectacular 6 million instructions per second; by 2000, the Pentium III calculated an astonishing 2054 million instructions per second; and in 2015 an Intel i7 reached a dazzling 240 billion instructions per second![1] In the first decades after its invention a computer was a large and expensive machine. It wasn't until the beginning of the 1980s that computers became sufficiently small and affordable to start appearing in companies and households. The take-off of the introduction of

computers in everyday life was highlighted by *Time Magazine*, which declared personal computers the "Machine of the Year" in 1982. From then on digital technologies gradually became ubiquitous, due to the combination of growing computer calculating power, increasing access to information infrastructure, decreasing costs of electronic devices, and improving user friendliness. However, it wasn't until the turn of the millennium that computer and information technologies started having a profound effect on our daily lives and started transforming our workplaces.

These technological advances led to accelerated growth in productivity. Between 1995 and 2012 productivity grew with 2.5% yearly, compared to an average 2 percent rate over the prior 110 years[2] – all of this despite such events as the collapse of the dotcom bubble, a financial crisis and a large recession. This meant that in 2015 it would take an average worker only 27 hours a week to produce as much as he or she could in 40 hours back in 1995; or, that a worker produced 50% more in 40 hours in 2015 than he or she did in 1995. Similarly, energy intensity, the ratio between gross energy consumption and GDP, decreased. According to the European Commission, between 1990 and 2010 energy intensity decreased by 25%. This meant that on average 25% less energy was needed to produce goods with the same value as in 1990. This productivity growth led to more of everything: an increase in volume, variety, and quality of tangible goods, digital products and services, at ever lower prices, requiring fewer inputs of raw materials, capital, and labor.

The Double-Edged Sword of the Second Machine Age

By 2015, the consequences of these developments had started to fully manifest themselves. Already at that point, technology pervaded nearly every aspect of daily life and business. People were able to stay in touch with friends and family regardless of the physical distance. Information was at their disposal in abundance, accessible even in the most remote parts of the earth, making it easier to get a good education. Transport had become cheaper and faster than ever, allowing people to travel and to discover and enjoy different cultures and wonders of nature. A myriad of internet platforms made it possible to sell handmade items, rent rooms, find a partner, order a taxi or get crowdfunding for all kinds of projects. Surveys at the time indicated that being a tech entrepreneur was the dream job of most children. Everyone with good ideas was going to Silicon Valley.

In addition, many less ordinary technological advances were having a profound impact on society. Mankind succeeded in restoring hearing to the deaf, returning sight to the blind, and making the lame walk again, computers

helped doctors to diagnose diseases, cars drove automatically, satellites allowed accurate weather predictions, radio-frequency identification chips followed all international freight transport, we were able to bring extinct species back to life and print organs for transplantation. At the same time, many products and services saw an astonishing cost decrease. Over forty years airline ticket prices fell by 50%, the cost of solar energy fell by 99.5% and the cost of hard drives fell by 99.99999%. These technological advances had an astounding impact on mankind. Over a period of merely 25 years they helped extreme poverty to fall from 43 to below 20%,[3] life expectancy to increase from 64 to 70 years, the number of malnourished people to decrease by a third, an additional 2.1 billion people to gain access to drinkable water, tuberculosis fatalities to reduce by half, measles fatalities to decrease by a factor four, and polio fatalities to decrease by 99%.[4]

Despite this immense progress, there was an undercurrent of discontent. After the Financial Crisis of 2007-2008 and the Great Recession of 2008-2009, the world economy remained in a state of semi-crisis, called a 'Structural Recession' by some commentators. The belief in limitless progress that prevailed in various parts of the world in the last decades was undermined. For the first time in years many of the people living in those parts feared that their children would actually be worse off than they themselves. Man was perceived to be at the service of progress, rather than progress being at the service of man, as many people did not perceive an improvement in their well-being resulting from this growth in welfare. Unemployment remained high in many countries, with certain political parties increasingly taking advantage of people's unrest to push more radical agendas.

One of the main causes of this pessimism was the growing inequality. While Pope Francis I called inequality "the root of social evil", president Obama was noted saying that "income inequality is [the] defining challenge of our time". According to an Oxfam study, the share of the world's wealth owned by the richest 1% was 48% in 2014, up from 44% in 2009. Emmanuel Saez[5] calculated that the top 1% incomes in the US captured slightly more than half of the overall economic growth over the period 1993-2008, and more than two thirds of income growth over the period 2002-2007. Brynjolfsson and McAfee[6] noted that, adjusted for inflation, the combined net worth on Forbes' billionaire list more than quintupled between 2000 and 2015, but that the income of the median household in America actually fell in that same time period. Similarly, the French economist Thomas Piketty made headlines with his book *Capital in the Twenty-First Century*, saying that inequality could lead to social unrest: "I am afraid that if you don't find peaceful domestic solutions to our inequality and social problems, then it's always tempting to find other people responsible for our problems."

The Need to Rethink Redistribution

This increase in inequality was driven by several elements, a very important one being the lowered marginal tax rates on top earners. However, it was also an inherent negative side effect of the shaping forces of the Second Machine Age. Brynjolfsson and McAfee noted in 2014 that "the main driver [of inequality] is exponential, digital, and combinatorial change in the technology that undergirds our economic system". Similarly, Martin Ford stated in *Rise of the Robots: Technology and the Threat of a Jobless Future* that "potentially unlimited output can be achieved by systems of machines which will require little cooperation from human beings. The result would be massive unemployment [and] soaring inequality". This evolution was already recognized much earlier by some great thinkers of the 20th century. In 1983 Nobel Prize winner Wassily Leontief noted that "the role of humans as the most important factor of production is bound to diminish in the same way that the role of horses in agricultural production was first diminished and then eliminated by the introduction of tractors". Similarly, Keynes predicted in 1930 that in the future "we will be inflicted by the new disease of technological unemployment".[7] That is, unemployment due to technological innovations that render human labor obsolete faster than they can provide new jobs.

At first this only affected less specialized jobs. A typical example was that of large supermarket chains, which started replacing their cashiers by self-checkouts. Thousands of cashiers were replaced by machines, with just a handful of computer engineers and highly skilled technicians taking their place. This in turn put pressure on the wages of other less specialized jobs, as there was an oversupply of less skilled workers in search of jobs. But as we moved from 2015 to 2050, this also started affecting more specialized jobs. Many professions once deemed untouchable by the effects of automation started seeing a decrease in the number of jobs on offer. For example, medical diagnostics software reduced the need for doctors, while case analysis software reduced the need for lawyers and magistrates. In both cases human intervention was deemed far too crucial to allow for full automation, but as many of the tasks at hand did not require such intervention, and were repetitive of nature, they were automated, resulting in a significantly lower demand for such skilled labor. Moreover, in contrast to what happened in the aftermath of previous technological revolutions, the new types of consumption that these technological advances fostered, were creating much less jobs than they were making disappear. The companies built on the old industry logic, like car manufacturer Volvo (which in 2015 was worth USD 0.7 billion and employed 23 000 people), were increasingly replaced by companies following the new industry logic, like

computer game Minecraft (which in that same year was worth USD 1.4 billion and employed 40 people).

And so, over the next decades inequality dramatically increased, leading to social and political unrest. As unemployment rates soared, so did the number of new billionaires. These new billionaires were part of the happy few who reaped the financial fruits of the Second Machine Age, typically tech entrepreneurs who built billion dollar companies in less than a decade. Inequality increased to such an extent that it began affecting economic growth itself, as consumers increasingly lacked the purchasing power necessary to buy goods and services. As such, it became clear to everyone that we needed to rethink our redistribution policies. Our social welfare system, which was designed to transfer welfare from a large group of people with income to a smaller group of people without income, no longer worked in a society where a small group of people had a large income and a large group of people had little income. The challenge no longer was the creation of welfare, but the fair distribution of this welfare among all members of society; not producing prosperity, but distributing prosperity.[8] Confronted with this paradigm shift, society opted for a redistribution mechanism that allowed all of its members to profit in a very profound way from its progress.

Universal Basic Income

A universal basic income is an income paid by the government to every member of society. A universal basic income is sufficient, secure, and unconditional. 'Sufficient' means that the basic income is high enough to live a decent life, without the need for additional sources of income (although it is still allowed to have other sources of income). 'Secure' means that the government guarantees to pay the basic income every month of a person's life time. 'Unconditional' means that everyone receives the basic income, regardless of whether he or she wishes to engage in wage labor, is rich or poor, has any other sources of income, or shares his or her household with others.

The concept of a universal basic income was not new. Actually, it is surprisingly old. The roots of the idea can even be traced back to Thomas More's *Utopia*. Already during the first decades of the 21st century the idea had been discussed in several countries, and variations of it had been implemented or experimented with in a number of places, e.g. in Alaska (the Alaska Permanent Fund's dividend), Brazil ('Bolsa Familia'), and Namibia ('Basic Income Grant').[9] One of the older experiments in Western society took place in Canada. From 1974 to 1978, the Canadian government handed out monthly payments to one third of the poorest families in a small rural town called Dauphin. The Dauphin

experiment differed from standard welfare in that the monthly checks were only slightly reduced if a family's income increased. As a result Dauphin's citizens stayed in school longer, the number of hospitalizations decreased and mental health indicators improved. And while people receiving a basic income worked less, this fall in working hours proved limited. Moreover, whatever time became available was spent on education and family.[10] A more recent experiment was conducted in Cherokee (USA). Cherokee is a small town in North Carolina with a very profitable casino. This casino is owned by a Native American tribe, who decided in 1996 to split half of the casino's profit evenly among its members. By 2015 this meant that each member of the tribe received around USD 10 000 per year. Researchers studied the effect of these payments over the course of 20 years, comparing children who received the basic income payment to local children who did not. The results were impressive. The poorest children who received the payments were one grade year ahead in school by the age of 21, compared to those who did not. Children who were lifted out of poverty by the payments saw behavioral problems decrease by 40%, and the odds that children would commit minor crimes by their late teenage years reduced by 22%.[11] Encouraged by these results, politicians and academics pushed for new experiments. At first, such experiments focused on alleviating poverty. Soon, however, they focused on society as a whole.

Still, even though the results of these experiments were very promising, a lot of skepticism continued to exist towards a universal basic income. Questions were raised on whether we would be able to finance a universal basic income, how it would complement our current welfare system, how it would impact global immigration, and to what extent people would be able to deal with the increase in spare time. Given this skepticism and the huge impact a universal basic income has on the way society is organized, it was not introduced overnight, but implemented step-by-step. This process started with small-scale basic income programs (such as the one launched by the city of Utrecht in the Netherlands in 2016), which steadily expanded to include more people and larger areas. Initially, governments handed out an income that was insufficient, insecure and conditional. But as time moved on, the basic income schemes became more sufficient and secure, and less conditional, moving our society not by revolution, but by evolution from the social welfare state it used to know to the full implementation of a universal basic income.

Universal Basic Income in Effect

Which brings us back to 2050. A universal basic income has been in place already for a couple of years now, and today its impact has become visible and

tangible. As the basic income is sufficiently high to live a decent life, many people have re-evaluated the importance of having a job, which nowadays refers to any activity for which they receive an additional income on top of their basic income. Some people were forcibly left without a job, as it was taken over by computers and robots. Others simply quit their jobs not to look for a new one. However, a lot of people still have jobs, as they find fulfilment in them, although they typically work fewer and more flexible hours. On top of that, as the basic income offers financial security, now more than ever people dare to undertake, innovate and pursue their ambitions. And while, as a consequence, society is innovating and changing at a pace rarely seen before, people simply benefit from these evolutions, as the basic income provides them with the stability needed for a good life. There are also plenty of people going back to school, doing non-profit work, engaging in politics, etc. The introduction of a basic income has also changed salaries. Certain salaries have increased, like those for jobs with high societal value, such as teachers and care-givers. Moreover, some of the jobs that technically could have been fully automated were only automated to a lesser extent, as society truly valued the element of human interaction. Other salaries tumbled, as automation took over, or as the jobs themselves were no longer valued by society. The unconditional nature of the basic income also relieved society from its division between those with a paid job and those without. Today, people who do not have a paid job are not stigmatized in any way.

The questions that were raised when governments started to introduce universal basic income programs, some 30 years ago, have also been solved today. Tackling the financing issue was facilitated tremendously by the Second Machine Age itself. With today's technology, all goods and services that we need are manufactured and supplied in a sustainable way with very little human labor. Taxation of capital income, profits of highly automated processes and wealth, and ecological taxation (such as a carbon tax) provide governments with the means to fund the universal basic income programs. Sufficient prosperity is produced, and it is distributed justly. The basic income was also implemented in such a way that it incorporates social corrections. Those who need more support than others, like disabled and sick persons, receive additional support on top of their basic income, while welfare programs for unemployment and retirement have been fully replaced by the universal basic income.

The issues related to immigration proved slightly harder to deal with. The fear that implementing a basic income in Europe would trigger additional immigration flows from poorer countries towards Europe turned out to be partially legitimate. However, these flows, which were already going on before the implementation of basic income, have been decreasing steadily. The main incentive for people to migrate has been addressed through a number of global policies aimed

at tackling global income inequality: intellectual property is shared with more people worldwide,[12] often under an open access agreement, allowing everyone to benefit from the newly acquired knowledge and technology; national borders are more open, making the world more equal;[13] etc. Finally, any concerns on how people would use their additional spare time proved to be unfounded. With an educational system tailored to help people discover and develop their distinctive skills, and promoting social engagement, society is prospering. Where a lot of people were afraid that others would waste their free time, this turned out to be anything but true. As already indicated by the basic income experiments, people now spend their spare time on many valuable activities, from non-profit work to caring for family members. Maybe ask yourself this question: would you waste your spare time? If you would not, then why would others?

Society Flourishes in the Second Machine Age

And so here we are. The quest initiated by our ancestors many hundreds of thousands of years ago, when they first started picking up sticks and rocks in search of tools to lighten their work, seems to have come to an end, or at least to have kicked in a whole other gear. The Second Machine Age brought automation into almost every aspect of our lives. However, this technological revolution and the additional welfare it generated in themselves would not have sufficed. Machines and computers, as intelligent as they might be, were not and might never be able to solve our societal challenges for us, something that became quite evident in the first decades of the 21st century. If governments had not intervened, the gains of the automation revolution would have been distributed increasingly unevenly over society. However, governments did intervene, redistributing the gains of our progress to the benefit of all, and they did so via the universal basic income.

Today, the unconditional right to an income is as self-evident as the rights to health care and education were perceived to be at the turn of the millennium. We realized that the yield of our technological progress cannot belong exclusively to those who have the means to buy the machines, nor entirely to those whose great minds made this progress possible. After all, is the progress of our generation not the result of incremental growth over many generations brought about by society as a whole, each step only made possible by the ones taken before? How then could the gains of these last steps in our progress belong exclusively to a few? Most importantly, we realized that everyone, no matter who they are or where they are from, has a right to well-being, meaning "the possibility of living like human beings, and of bringing up children to be members of a society better than ours".[14] And so we decided that it is only

self-evident that everyone can share in the yield, and the knowledge and technology of our automated society.

Universal basic income has granted people the liberty to shape their lives themselves. And they have grasped this opportunity with both hands to deal with perhaps the most challenging responsibility they face as members of modern society: to use their freedom to find and realize an orientation for their life, an authentic identity, that brings them fulfilment and meaning.[15] Consequently, people devote their time to activities that allow them to self-actualize, and that bring them esteem and a sense of love and belonging. For some this still includes a paid job, as they find fulfilment in their work, or as the additional income allows them to achieve other ambitions. For most this includes activities that fall outside the realm of jobs, such as raising children or community work. For all this includes the diverse enterprises that people undertake during their drastically increased spare time. While once feared as a path to boredom and frustration, it has shown the potential to be yet another source of meaning in our lives, not only through active leisure or relaxation, but also through the deeper satisfaction that comes from invention and exploration, from creativity and building, and from love, friendship, and community.[16]

Notes

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