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João Abreu – Avoiding the “useless masses”: global
governance to keep humans relevant

Avoiding the “useless masses”: Global governance to keep humans relevant

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João Abreu holds a Bachelor in Economics from the University of São Paulo, Brazil, and studied Public Administration for two years at Fundação Getulio Vargas, Brazil, before joining SP Negócios, the PPP unit of São Paulo City Hall. João participated in the design of several public-private partnerships, from the world’s largest public lightning PPP to the regulation of e-hailing apps like Uber in São Paulo - considered the most innovative solution by the World Bank. He also led the adoption of transportation apps by the local government itself, saving USD 100 million/year and increasing accountability and data availability; the project was later replicated at state and federal levels. João is currently pursuing a Master in Public Administration and International Development (MPA/ID) at the Harvard Kennedy School. In the future, João plans to go back to Brazil and work in development-related activities, most likely in the public sector.

The Human-Machine Cost Gap

Last month I got home to Cambridge, MA to find that my roommate had bought us a cleaning robot. It was a pleasant surprise: U.S. wages prevented us from having what in our original country, Brazil, was common-place for middle and high-income households: someone to clean your place once a week. The robot, unheard of in Brazil, would be a great substitute for that.

As I plan to be a policymaker in Brazil – a creativity-intensive job – it would probably be safe to say that even the projected advances in AI research will not threaten my job with full automatization in the foreseeable future (Ford, 2015); although, as late as 2005, some would say that truck drivers had no reason to worry either (Levy and Murnane, 2007).

However, as a policymaker I will be part of a group of people responsible for designing and implementing solutions for the inevitable changes in the labor mar-

ket. Changes that will likely lead to even higher economic inequality and its (now well-known) political consequences. As highlighted by Piketty (2014), as capital income from previously accumulated wealth grows consistently faster than labor income, the gap between rich and poor increases, especially in the developed world. Even more worrying is the fact that capital income might skyrocket when compared to labor income, for reasons barely mentioned by the French economist – namely, the expected technological advances on AI and automation. Robot producers and owners would get an ever-increasing share of the pie, as automation drives wages and employment down.

Why do I have to explain to my friends in Brazil what my new cleaning robot is about? The reason lies on the relative cost of labor: since it’s much cheaper in Brazil than in the U.S., no one there would even consider buying a cleaning robot. It’s just

not that expensive to have a human to do the same job (actually, a substantially better job, at current technological levels, as I’ve witnessed recently).

This highlights that, when it comes to automation, the pace of innovations is driven by the *gap between the cost of labor and the expected automated solution*. Technology companies will only invest heavily on research, and other companies and consumers will only buy their products, if labor is relatively expensive, so that it makes economic sense to replace it with an automated solution.

Therefore, the key aspect to understand how – and, crucially, *how fast* – fully-automated, labor-saving products will truly invade factories, stores, and households is to consider the dynamics of a scenario in which robots compete with humans in the economic sense of the word, as proposed by recent work of Acemoglu and Restrepo (2017).

Under that framework, recently-re-

leased numbers point to disaster: 47% of jobs could be automated in the U.S. (Frey, 2017) and more in China (77%), India (69%), and Ethiopia (85%) (Frey et. al, 2016). However, it's important to highlight not only that these predictions are inherently hard, as history shows, but also that these numbers *do not* consider the economic feasibility of automation: rather, only the technical possibility of doing the same job with machines is considered. This is crucial: just like my cleaning robot won't reach Brazil's market anytime soon, automation is less of a concern to developing nations than it is for richer countries. Ethiopia has a higher share of predictable, automatable jobs than Norway; but robots will be on average more expensive than Ethiopian workers long after they're cheaper than Scandinavians.

That is how relevant the human-robot cost gap is: where humans have a clear cost-advantage is also where automation is less of a concern. And this suggests how we can act in developed countries, where the gap is shrinking: increase it.

The Future of Labor International Organization

How can any effort to avoid or postpone technological unemployment be implemented? To achieve the needed global-level scale, a global solution must be created; let it be called "Future of Labor International Organization" (FLIO) for illustration purposes. Every interested country would be a member of the Organization, that could be under the United Nations system. Crucially, however, civil society organizations and private companies, especially developers and customers of digital tools and robots, should be granted opportunity to interact and contribute in the dialogue, as their information and perspectives for technological development would be key to achieve the goal of minimizing automation's negative impacts on the labor market.

There are, from the framework above, three possible approaches if FLIO is to avoid or postpone technological unemployment: i) increasing the private cost of fully-automated, labor-saving technologies; ii) reducing the private cost of human labor, and iii) incentivizing human/machines complementarity rather than competition or substitution. For each goal, one policy instrument is proposed below - the political implications are considered in sequence.

Instrument 1: Global Robot Taxation

To increase the private cost of fully-automated, labor-saving technologies, Bill Gates famously proposed a "robot tax"; South Korea recently announced that it will adopt it. The main idea would be for countries, especially OECD members, to agree on a global tax on the use of fully-automated robots, designed to replace labor particularly in industrial settings. The theoretical support would come from the understanding that human labor has an intrinsic public social value that is not considered when companies design or adopt robots. The tax would adjust incentives as to internalize this negative externality of labor-saving robots or tools. The global-scale is needed to avoid simply outsourcing production and importing the final product; the coordination challenge is a key reason why the organization would probably need to be supranational, similarly to the global wealth tax advocated by Piketty. Here, it would also be necessary to minimize distortions by designing it as to avoid taxing robots that, rather than replace humans, can enhance their productivity (e.g. robots for surgical purposes, directly and individually controlled by a human) or execute tasks that humans cannot perform (e.g. physically dangerous activities). Since this line can be blurred in many situations (e.g. is a cleaning robot replacing

a professional cleaning human or simply saving time for the household owner?), it might be necessary to adapt it to each country's specific case; even then, it won't be free of controversies. However, simply by opting for a tax instead of a quantity-restriction of any kind it is already possible to allow for extremely-efficient technologies that, even considering the effects on the labor market, would result in a positive net benefit for society. This framework can be used to calibrate the tax.

Instrument 2: Low-skilled working visas in developed countries

To reduce the private cost of human labor, one can build on the already mentioned wage gap between developing and developed countries. Simply, interested citizens from non-OECD nations could apply for working visas in richer countries, following OECD's private sector demand for low-skilled positions – in other words, partly relaxing the artificial international labor market restrictions. Clemens et. al (2013) highlights the huge expected welfare gains for even small quantities of foreign workers (+3% of OECD labor force), since the same job in poor and rich countries pay drastically different wages. Beyond the benefit for affected individuals, that solution would also help to make the human-labor alternative more competitive in the countries and activities that are most likely to suffer from technological unemployment soon, by making it relatively less profitable to develop and adopt fully-automated solutions.

Instrument 3: Enhancing human-machine complementarity

Finally, efforts should be made to educate and train the labor force as to increase the number of workers qualified for jobs that require interaction with machines, robots and digital tools, as to

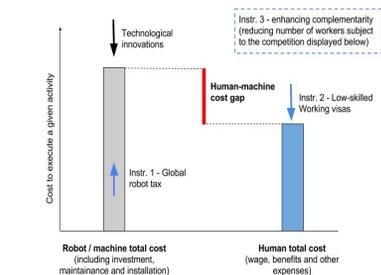
avoid losing the “race between technology and education” mentioned in recent World Bank report, “Digital Dividends”. This instrument, while easier said than done, would greatly benefit from an international forum combining government, civil society and private sector knowledge like FLIO. The task of redesigning the educational system to fit the needs and skills of the twentieth century and the automation trends can only be achieved by the interaction of these multiple actors, since demand and supply requirements are spread across different agents: the market knows best what they value, academics and educators know best how to teach it, and democratic leadership is necessary to protect public interest. The resources to fund the education centers, projects and initiatives under this strategy could benefit from the revenue of the “robot tax” (instrument 1) in each country.

The above-mentioned instruments comprise a set of strategies that can be pursued, and are more likely to succeed if applied simultaneously. It’s necessary, however, to allow for constant adjustments and improvements on the tools and instruments to be adopted, following learnings from experience and the evolution of technologies in the following years. A phenomenon as dynamic as labor automation challenges even short-term predictions; it can only be tackled with an equally dynamic and adaptive set of institutions and instruments. Here, again, multiple agent’s knowledge would be key in constantly redesigning the available tools.

Back to real life: Can any of these really happen?

Why would countries be willing to coordinate and jointly use the instruments above?

This is a non-trivial question; it’s useful to consider how different actors are ex-



Theoretical illustration: The human-machine cost gap and the effect of each instrument

pected to be affected by the strategy above. First, the enhancement of human-machines complementarity through training and education (instrument 3) would directly benefit all the individuals attending the service, while it is unlikely to negatively affect any relevant stakeholder in the short run. Therefore, most of the (positive and negative) political pressures are expected to come from the efforts to sustain the human-machine cost gap in favor of humans (instruments 1 and 2).

First, concerning the global robot tax, the biggest challenge is to coordinate it on international level, since countries (especially industrialized ones) would have incentives not to adopt it - as to boost its domestic industry by lowering the relative price of fully-automated activities. However, to resist adopting the tax would hurt government’s budget and threaten its more-easily-replaceable workers, such that the net political incentives are not obvious. Civil society’s advocacy efforts to emphasize the global nature of the automation threat would help incentivize nations to join FLIO and use this instrument.

Concerning instrument 2, working visas for low-skilled workers would hugely benefit the developing countries citizens that are hired, along with their relatives (Pritchett, 2006), and, to a lesser extent, the companies that hire them – benefiting from not having to acquire more ex-

pensive, automated solutions. The “sending country”, therefore, has the incentives in place to support this initiative. One relevant challenge is how to engage the hosting countries on this strategy: they would likely be pressed against it by low-skilled workers of their own country and by domestic, technologically leading companies, responsible for cutting-edge research (if they exist, as in the U.S.). Following Pritchett, even as this is perhaps the hardest political obstacle, the situation is identical to the economics of liberalizing trade: economic theory tell us that the winners gain more than the losers lose. With positive net benefits, it’s all a matter of adequately compensation. Politically, the international trade case shows that we can develop institutions to make it happen. No one has to lose if working visas for low-skilled workers are issued.

Overall, the higher the political relevance of the automation problem, the more attractive FLIO and the instruments above become, which makes it a solution that will, inevitably, be politically feasible if the threat is perceived as sufficiently big.

The race between innovation and institutions

FLIO and the instruments above would have sizable effects in the world. It would, on one hand, mean sacrificing higher efficiency – as is the case of the global robot tax. But it would also increase efficiency by relaxing the labor market artificial restrictions, and by better preparing current and future workers for a complementary interaction with machines. Most importantly, it would slow down the pace of innovation to a speed that institutions can handle, by getting together the best minds from politics, private sector, academics and civil society to think under democratically-legitimized leaders. It would mean a huge step to

wards building a future in which the technological frontier makes the lives of the many better, not worse.

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