


# The Inefficient and Unjust Global Distribution of COVID-19 Vaccines: From a Perspective of Critical Global Justice

INQUIRY: The Journal of Health Care Organization, Provision, and Financing  
Volume 58: 1–8  
© The Author(s) 2021  
Article reuse guidelines:  
[sagepub.com/journals-permissions](https://sagepub.com/journals-permissions)  
DOI: 10.1177/00469580211060992  
[journals.sagepub.com/home/inq](https://journals.sagepub.com/home/inq)  


Zhehan Li, PhD<sup>1</sup>, Jiajun Lu, PhD<sup>1</sup> , and Jiamin Lv, PhD<sup>1</sup>

## Abstract

The coronavirus disease 2019 (COVID-19) pandemic has caused huge losses and massive damage to socio-economic development around the globe, which might even potentially evolve into a humanitarian crisis as it continues to spread. In response to the further resulting public threats, collaborative research, rapid production, and efficient and just distribution of vaccines have been given a top priority. However, there exists a serious inefficiency and injustice in the distribution of COVID-19 vaccines among different countries, regions, and social classes currently. Richer countries and regions have acquired far more vaccines than needed, further exacerbating the severity of the epidemic in underdeveloped and marginalized countries and regions. From a perspective of critical global justice, we explore the causes of the inefficient and unjust global distribution of vaccines and comprehensively examine the shortcomings of the current distribution frameworks, such as COVID-19 Vaccines Global Access Facility (COVAX). Then, under the framework of critical global justice, we propose a multi-phase fair priority model that improves the existing proportional distribution mechanism. This solution to the global injustice reoptimizes the cross-border and domestic vaccine distribution and aims to resolve the pandemic more efficiently. The proposed framework and methodology of vaccine distribution could be taken as an opportunity to consistently promote the development of the global socio-economic structure towards global justice more broadly and systematically.

## Keywords

COVID-19 vaccines, health policy, inequitable distribution, critical global justice, public policy

### (1) What do we already know about this topic?

We already know that there exists a severe global injustice that reflects in the inefficient distribution of COVID-19 vaccines among different countries, regions, and social classes. However, the current mechanisms of the global distribution of COVID-19 vaccines, for example, COVAX and proportional allocation scheme, unfortunately, leave out the existing structural injustice across countries or regions and thus exist certain shortcomings and limitations in the execution process.

### (2) How does your research contribute to the field?

Under the methodological framework of critical global justice, our research comprehensively analyzes the root cause, that is, the inevitability and historical reasons, for the unjust global distribution of the COVID-19 vaccines. Our work also advances the understanding of critical global justice by proposing a methodology that improves the existing distribution mechanism of COVID-19 vaccines.

### (3) What are your research's implications towards theory, practice, or policy?

The proposed methodology and applications under the framework of critical global justice are more in line with statistical facts and thus are of direct policy relevance to how we could stop the spread of the COVID-19 pandemic.

<sup>1</sup>Zhejiang University, China

## Corresponding Author:

Jiajun Lu, Assistant Professor, International Business School, Zhejiang University, China.

Email: [jjjunlu@intl.zju.edu.cn](mailto:jjjunlu@intl.zju.edu.cn)



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and

Open Access pages (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

## Introduction

As the COVID-19 pandemic continues to spread, there has been a larger population infected, which caused immeasurable losses to the global society and economy, and it could even potentially evolve into a humanitarian crisis. It has become the top priority of governments and various international organizations to slow down and end the global spread of the COVID-19 virus. Although some interventions, including masks, extensive testing, social distancing, and psychological assistance, could partially help ameliorate the serious problem created by the pandemic, only large-scale vaccination can fundamentally resolve its threat to human health. As an important approach to ending the public health crisis, massive production, efficient and just distribution, and full vaccination have become one of the few effective methods to achieve this goal.

As of now, multiple candidate vaccines have been invented and vaccinated in some groups of people. Most countries or regions are currently working hard to ensure that access to effective vaccines can be given to most residents. However, the producing capacity of the COVID-19 vaccine is far below what is desired to slow its spread. According to the statistics by Dr. Fauci and World Health Organization (WHO), as an attempt to stop the person-to-person infection and ultimately achieve “herd immunity,” nearly 80% of the entire global population needs to be vaccinated.<sup>1</sup> A recent report issued jointly by DHL, the international logistics giant, and McKinsey & Company shows that, since some COVID-19 vaccines require 2 or 3 shots, the global demand for the vaccines is expected to exceed 10 billion.<sup>2</sup> Compared to the low producing capacity of vaccines, the inefficient and unjust distribution is much more serious.

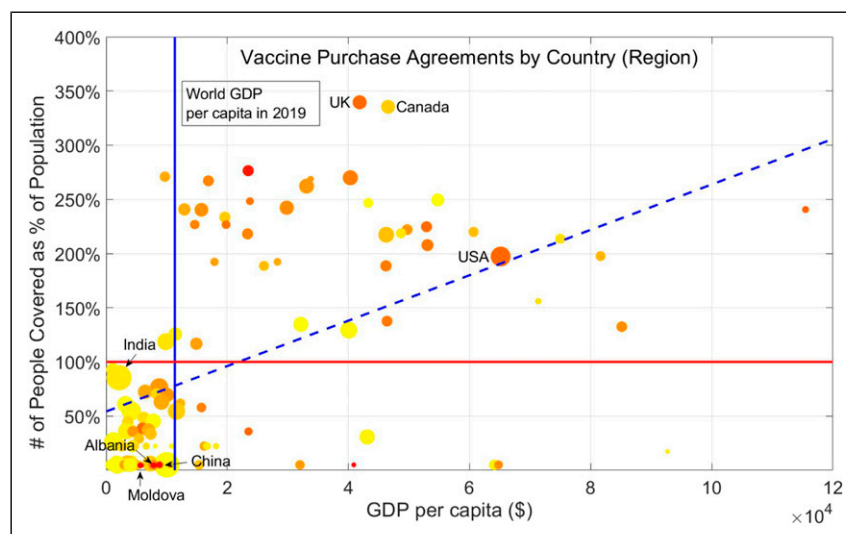
The outbreak of the COVID-19 pandemic and its impact on society and the economy is considered to be global and beyond the existing state boundaries. To more effectively control the pandemic through vaccines, various countries and regions, and international organizations have initiated some collaboration by establishing a global distribution mechanism for the COVID-19 vaccines. One typical example of the global cooperation is the Access to COVID-19 tools Accelerator (ACT), organized by the World Health Organization (WHO), the European Commission, and France, that aims to expedite the development, production, and efficient and just access to COVID-19 tests, vaccines, and therapies.<sup>2</sup> Subsequently, the Epidemic Preparedness Innovations (CEPI) and the World Health Organization (WHO) launched the COVID-19 Vaccines Global Access Facility (COVAX) in order to help all countries or regions around the world obtain sufficient COVID-19 doses through the allocation of vaccine contracts.<sup>3</sup> This initiative pays special attention to countries and regions in the world that are relatively underdeveloped, lacking medical resources, and thus unable to produce vaccines domestically.

Theoretically, the global distribution mechanism of vaccines under the guidance of COVAX seems to be effective, just, and feasible. However, the distribution cannot be effectively carried out to fully guarantee efficiency and justice in reality. The current distribution of vaccines is seriously inefficient and unjust across countries and regions, and social classes. A study as early as September last year shows that developed countries or regions representing 13% of the population have purchased and hoarded more than 51% of the global vaccine supply.<sup>4</sup> Some developed countries, such as the United Kingdom and Canada, have received vaccines that are more than 4 times their actual population at the beginning of the vaccine distribution in November 2020.<sup>5</sup> Some other countries or regions where the pandemic is not severe have also obtained relatively too many vaccines. On the contrary, too few vaccines have been distributed to some states with a large infected population. Moreover, some groups such as medical workers and the elderly in these countries or regions become vulnerable due to the lack of medical supplies and vaccines. According to data from the World Health Organization on April 21st, 2021, out of the more than 700 million doses of Covid-19 vaccine injected globally, more than 87% went to richer countries or regions, while lower-income countries or regions have received only 0.2% of vaccines produced so far.<sup>6</sup> According to Xinhua News Agency, Dr. Tedros, the Director-General of the World Health Organization (WHO), said on March 22nd, 2021, that the world has done surprisingly little to resolve the unjust distribution of the Covid-19 vaccines so far, and the world is on the brink of a catastrophic moral failure.<sup>7</sup> From a perspective of critical global justice, this paper reconsiders what criteria should be used to set as priorities for efficient and just distribution among groups of potential vaccine recipients, taking into account some factors, such as socio-economic injustice.

## Evaluating the Current Situation and Mechanism for Vaccines Distribution

### *COVID-19 Vaccines Procurements by Country or Region*

During the pandemic, all countries or regions are eager to reach vaccine purchase agreements and ensure access to those life-saving vaccines so as to survive the most serious pandemic since the Spanish flu that broke out nearly one century ago. According to statistics by Bloomberg News, as of March 1st, 2021, nearly 9.6 billion vaccine doses have been purchased worldwide.<sup>8</sup> Thus, if most vaccines are effective only with 2 shots, it is enough to vaccinate more than half of the world’s population under equitable distribution. However, very unjust distribution of the COVID-19 vaccines took place recently. Some developed countries or regions utilized their economic and political advantages to obtain a large number of vaccines from themselves and other countries or regions. Instead, others probably have to wait until 2022 or later to get a full supply of vaccines. It is presented that there exists significant inefficiency and injustice



**Figure 1.** Vaccine purchased by country (region) as of 2021/07/01. Note: The color represents the relative number of confirmed cases in a country or region, while the size of the circle represents the population. Data Source: Bloomberg and World Bank data.

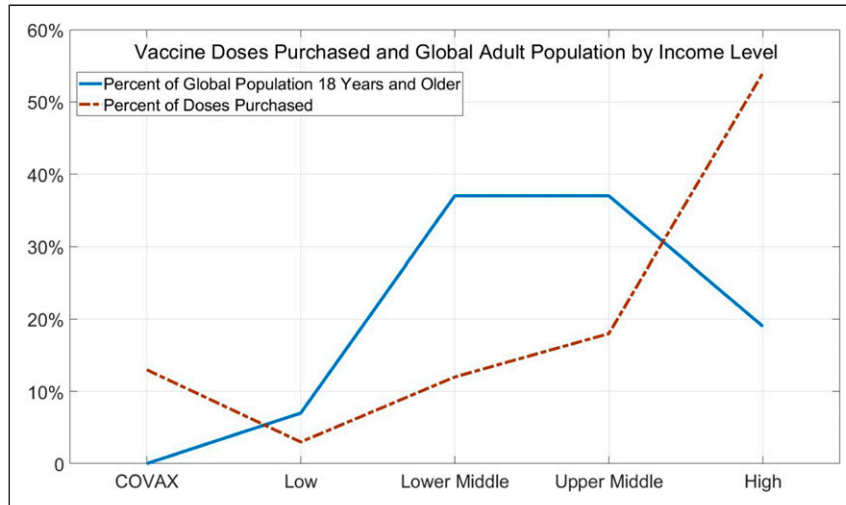
in the numbers of COVID-19 vaccines already purchased across countries or regions (Figure 1). The color represents the relative number of confirmed cases in a country or region, while the size of the circle represents the population. It shows that (1) countries or regions with a higher per-capita income purchase more vaccines than their own population; (2) most middle- and high-income countries or regions have secured vaccines more than 150% of their populations; and (3) the vaccines purchased by lower-income countries or regions generally are not enough to meet their needs. For instance, in addition to domestically produced vaccines, the United States has purchased more than 1.2 billion vaccines from external sources, which could cover even more than twice the population of the nation. In addition, the United Kingdom and Canada have also obtained more than 3 times as much as their populations. As opposed to these richer countries, some countries or regions with underdeveloped economies, such as Moldova and Albania, which are unable to develop and produce domestic vaccines by themselves, have only purchased vaccines covering about 5% of their populations from other countries or regions.

### Vaccines Procurements by Income Level

Similar to serious injustice in the distribution among countries or regions, the high-income groups in various countries or regions are hoarding a large number of vaccines, while the low-income class that suffers more from the serious pandemic cannot access enough vaccines. It illustrates the vaccine doses purchased by income level and the relevant shares of the global adult population (Figure 2). According to the latest data on vaccine procurement provided by Duke Global Health Innovation Center Launch and Scale Speedometer, there exist huge differences in the number of vaccines purchased between different social classes based on income.<sup>9</sup>

Although COVAX has purchased 13% of the doses, alleviating the unjust distribution of vaccines, the high-income class, which accounts for only one-fifth (19%) of the global adult population, has so far purchased more than half (54%) of the global vaccine doses. Oppositely, the low- and middle-income classes, accounting for 81% of the global adult population, purchased approximately 33% of the total vaccine doses. Admittedly, the inequality in statistics from the public dataset might still be understated since most of them are posted by the authorities in developed countries, which further proves the global injustice given the limited transparency. Furthermore, the rich class can escape from the harder-hit areas of the pandemic relatively easily given the privilege and wealth, while the poor class who are less mobile are forced to bear the raging pandemic. It is being observed in India now where rich families are escaping to other developed countries or regions with the less serious COVID-19 pandemic or more medical resources. Similarly, many high-income groups also fled China when the COVID-19 virus spread quickly in China last spring. To a large extent, the escape of the rich class takes away too many capitals, which not only deepens the injustice and poverty of society but also slows down the socio-economic recovery in some countries or regions in the post-pandemic era.

Compared to the rich population, due to the poor living and working environment, the poor who lack medical resources need more protection from vaccines. The unjust demand for vaccines between the poor and rich conforms to the “insurance paradox.”<sup>5</sup> Due to the economic disadvantage, low-income households need insurance more but are typically less aware of the necessity of insurance purchase, on the one hand. On the other hand, richer households in the upper-middle and high classes usually have a stronger awareness of buying insurance, even if they are relatively immune to financial hardship caused by some crises. This sort of social psychology reflects the unjust



**Figure 2.** Vaccine doses purchased by income level with the share of the global adult population. Data source: Duke Launch and Scale Speedometer, World Bank PNG, as of March 15th, 2021.

social and economic structure.<sup>6</sup> Meanwhile, during the COVID-19 pandemic, the differences in races, genders, and religious beliefs are manifested in a way that exacerbates the structural injustice in the society and economy in many directions.

### *Evaluating the Existing Vaccine-Distribution Mechanism*

Among the existing international cooperation programs or mechanisms for the global distribution of COVID-19 vaccines, the Global Access Facility for COVID-19 Vaccines (COVAX), jointly led by Epidemic Preparedness Innovations (CEPI), GAVI, and the World Health Organization (WHO), has received the most widespread attention and been given a very high expectation. Its purpose is to ensure that vaccines can be distributed justly and efficiently to contain and end the pandemic as soon as possible. As of January 2021, a total of 190 countries and regions have agreed to cooperate with COVAX. As suggested by the WHO, it takes as a key point the proportional allocation scheme (PAS), aimed at allocating enough vaccines to the same proportion, that is, 20%, of the total population in each country or region. After vaccinating 20% of the population in all countries and regions, vaccines are given priority to vulnerable groups based on the health status and demands for medical supplies.<sup>7</sup> Given that the hoarding of vaccines in some developed countries or regions is not conducive to containing the pandemic in less developed countries or regions, the plan made by COVAX mainly focuses on global justice and attempts to oppose the existing vaccine nationalism.

However, although the starting point of the COVAX reflects the justice and efficiency of the global distribution of vaccines, it, unfortunately, leaves out the existing structural injustice across countries or regions, that is, the global injustice. Therefore, there still exist certain shortcomings and limitations in the execution process, such as the PAS based on

formal equality rather than efficiency and justice, which needs to be further improved.<sup>2</sup> Furthermore, though jointly initiated by multiple international organizations, the COVAX has no sufficient enforcement power to make the governments or authorities take collective binding actions, making it more like a political slogan or an initiative, rather than a feasible resolution to fight against the COVID-19 pandemic.<sup>8</sup>

At present, the global landscape is still similar to the law of the jungle, where various countries or regions act for their interests, making international organizations powerless. Therefore, the noncooperation chosen by some countries or regions has become a major obstacle and challenge for the global provision of public goods, such as vaccines, in response to some global crisis. In addition, the weak governance capabilities of some countries or regions lead to inefficient administrative organizations and rampant corruption, which has caused great problems in the distribution of vaccines and vaccination among different social classes.

### **Analysis from a Perspective of Critical Global Justice**

#### *Root Cause Analysis of Inefficient and Unjust Distribution of COVID-19 Vaccines*

The literal meaning of global justice is to achieve normative justice given the socio-economic structure of factual injustice on a global scale, with the main focus on economic and ecological issues. The public health issues, especially the vaccine distribution, are, in fact, consistent with economic and ecological issues in the context of global justice. Putting aside the normative arguments or foundations in the ontological sense of human rights or human dignity that are popular in contemporary mainstream global justice theories, it implied the existence of the factual injustice in the current global socio-



economic structure, as well as a historical origin.<sup>10</sup> This scenario also conforms to the “Matthew Effect,” in which the strong typically get stronger, while the weaker have to be even weaker. Developed countries or regions utilize their advantages from history to monopolize capital, technology, and manpower, incorporating, either intentionally or unintentionally, underdeveloped countries or regions into the midstream or downstream of their industrial chains. These behaviors substantially exploit the developing or underdeveloped countries or regions, which keeps the developed countries or regions in a dominant position. Similar dominance and exploitation also existed in a series of activities in sub-Saharan Africa by some European countries since the 15th century.<sup>9</sup>

The contemporary mainstream theories of global justice are developed based on the Kantian model of a deontological theory, which is a weak proposition that stays within an ethical framework. It relies on a transcendental idea to help those in need out of a sense of general duty. On the contrary, the idea of critical global justice is based on the theory of obligation and self-interest, which is a strong proposition under the political and philosophical framework. The idea of critical global justice, which aims to mutually benefit human beings, requests developed countries or regions to compensate underdeveloped countries or regions for the existing unjust global socio-economic structure.<sup>10</sup> The former can be regarded as a bias towards idealism, while the latter is biased towards realism. To distinguish it from contemporary mainstream theories of global justice, we think of the latter as an idea of critical global justice, which is a kind of global justice more in line with facts and can make more powerful normative claims. From the idea of critical global justice, this article will analyze the inevitability and historical reasons for the unjust global distribution of the COVID-19 vaccines.

Several public health incidents and the unjust distribution of related drugs and medical resources have reflected the continuation and further deterioration of global injustice in the socio-economic structure in recent years. For example, during the H1N1 and H5N1 pandemics in 2004–2009, most high-income countries bought out medicine inventories in pharmaceutical companies, making low- and middle-income countries or regions unable to afford the necessary medical supplies.<sup>11</sup> Similarly, utilizing the advantage of capital and technology, developed countries or regions obtained vaccines far more than necessary, further aggravating the severity of the pandemic in other less developed countries or regions. This is not only a manifestation of the existing global injustice in the socio-economic structure but also the major reason for its further solidification and deterioration. Some scholars have pointed out that it is plausible for some countries or regions to voluntarily cooperate, generating a Global Public Good (GPG) that conforms to the theory of global justice.<sup>12</sup> Since every country or group has multiple identities that produce “multiple affiliations,” each may still care about others, even if each actor is supposed to consider itself first

because of the basic needs of the competition. Subjectively speaking, these multiple identities, including “humanity,” have become the potential driving force for international cooperation under the guidance of global justice. From the idea of critical global justice, however, there are two more reasons for countries or regions with producing capacity to help others: First, the compensation for the unjust global socio-economic structure caused by colonization and exploitation in history and second, the global pandemic has made it impossible for any country or region to be alone and separate from the remaining countries or regions in the world. Since the COVID-19 virus has no borders, to defeat it, all human beings must rely on the most powerful weapon, that is, the power of science and rationality, the spirit of humanitarianism, and solidarity and cooperation. Moreover, the longer the COVID-19 pandemic persists, the more likely virus strains would mutate, which implies that the vaccine currently being injected might be less effective.

As long as the virus continues to spread, global trade and travel remain disrupted, further slowing down the global economic recovery. The COVID-19 pandemic is something that all mankind has to face together. Some countries or regions racing to vaccinate their population but ignoring other countries or regions now may have a short-term sense of security. Yet, this security is invalid since the domestic spread of the virus might resume as long as it exists in other areas. Moreover, helping other countries or regions against the pandemic can boost global markets and stabilize governments, strengthening the economic recovery and national security interests of wealthy countries or regions as well. Therefore, only by giving up on being selfish and short-sighted, we can completely contain the global pandemic together, which is a principle of efficiency in line with the framework and goal of the idea of critical global justice.

### *Optimizing the Global Distribution Mechanism of COVID-19 Vaccines*

The global efficient and just distribution of the scarce resources, the COVID-19 vaccines, has become the focal point of this article. The global socio-economic structure is inherently unjust, and the existing market mechanism here only intensifies rather than improves or changes the global injustice, leading to further injustice in the distribution of resources. For example, the establishment of the COVAX itself is designed to improve or eliminate global injustice. However, there are still some problems that make it impossible to fully distribute the COVID-19 vaccines efficiently and justly. From the perspective of critical global justice, this paper illustrates the shortcomings of existing distribution mechanisms, such as COVAX, and the resulting inefficiency and injustice in the global distribution of COVID-19 vaccines. In this paper, we introduce innovations and contribute to the existing literature in the following aspects:

- (1) Based on the perspective of critical global justice, we systematically elaborate on the inevitable injustice in the global distribution of the COVID-19 vaccines.
- (2) Under the framework of critical global justice, we put forward a just priority model that conforms to the political and philosophical principle and improves the existing proportional distribution mechanism. And this model also could realize the efficiency.
- (3) Based upon the perspective of critical global justice, we propose both theoretical and practical frameworks that can be adopted in response to global public events, such as the COVID-19 pandemic and global climate change.

As mentioned above, the existing distribution mechanism, including COVAX, cannot be efficiently and justly executed due to the inherent injustice in the global socio-economic structure. Even so, international distribution and cross-border cooperation are still what the international community must strive for. To this end, the United Nations and the World Health Organization need to have some substantive power and intervention. The relevant underlying driving force is the plausible unity of low-income and various disadvantaged groups that can claim and exercise their right through the existing international organizations under the framework of global justice.

From a perspective of critical global justice, we aim to improve the existing global COVID-19 vaccine distribution mechanism and provide suggestions on the decision-making process of medical resource allocations to cope with future global health events. As the PAS strategy proposed by WHO and COVAX, the fair priority model (FPM) can supplement COVAX's deficiency in the global distribution of the COVID-19 vaccine to a certain extent. The adjusted distribution plan guided by FPM embodies the concept of global justice and sticks to 3 major principles: (1) giving priority to disadvantaged and marginalized groups, (2) focusing on global justice, and (3) benefiting individuals and limiting negative impacts to individuals.<sup>13</sup> In the first stage of the FPM, the major objective of the distribution is to lower the number of early deaths. In the second stage, the goal is to eliminate economic hardship and control the incidence of disease. In the third stage, the main purpose of vaccine distribution is to prevent local COVID-19 community infection and restore normal economic activities. Compared to the proportional distribution mechanism, the fair priority model allocates vaccines based on the risks of early deaths caused, both directly and indirectly, by the COVID-19 virus. Another important difference in the ethical standard is that the fair priority model guarantees cross-border fairness, as well as the just distribution within countries and regions. It allocates vaccines to individuals who need vaccines in each country or region and thus promotes just distributions across different social classes within each country or region. Recently, the COVAX announced that 600 000 doses of Oxford-AstraZeneca vaccines authorized by the Serum Institute

of India have arrived in Accra, Ghana, which has become the first country outside India to obtain COVID-19 vaccines through the COVAX mechanism.<sup>11</sup> This is a significant achievement towards the goal of ensuring an equitable global distribution of the COVID-19 vaccines. The FPM requires that the private attribute of the COVID-19 vaccines, as a GPG, should be weakened and that the monopoly power of pharmaceutical companies controlling technology and production in the process of global distribution should be removed.

The underlying problem of inefficient and unjust distribution of COVID-19 vaccines is the absence of the governments or international organizations having the ability to make collectively binding decisions at the global level. Therefore, international organizations, such as the United Nations, the World Health Organization, and the International Court of Human Rights, need to reward pharmaceutical companies in support of global cooperation regarding funding, raw materials, and policies and sanction those not collaborating with others. To achieve this goal, the procedure illustrated above requires the support of cooperative countries and regions, as well as sanctions on noncooperative ones to a greater extent. However, this does not exclude the assistance provided by various regional organizations and governments, nongovernmental organizations, and individuals to others within their capabilities. The joint development and effective and just distribution of vaccines against COVID-19 become the most urgent challenge. Therefore, at this critical moment, companies and organizations should assume social responsibilities and obligations to mankind. For example, the recent proposals made by countries, such as India and South Africa, that attempt to abandon the protection of intellectual property rights are an important step towards global justice by rationally adopting the technology of the COVID-19 vaccines.<sup>14</sup> Unfortunately, these proposals have recently been boycotted by some developed countries, which incentivizes us to consider the possibility of a one-off buyout by an international organization.

In addition to efficient and just distribution across different countries or regions, international organizations also need to effectively and justly supervise the distribution and vaccination of vaccines within each country or region as a prerequisite for vaccine supply. In the national distribution framework jointly proposed by the American Academy of Sciences and the Academy of Engineering, it is recommended to give priority to ethnic minority groups in distressing socio-economic conditions.<sup>15</sup> Its key principle of distribution is to consider the aged population and actual infection rate in a country or region. Then, the framework rationalizes the distribution according to the degree of priority and gives priority to high-risk groups, such as medical staff and the elderly. However, undoubtedly, this attempt might be a bit too ambitious since it requires the effective execution by multi-nation law enforcement and collaboration, even if it theoretically works well from a perspective of critical global justice. That being said, this limitation related to the practical use could at least be partially achieved by the existing credible international organizations.

The socio-economic status is never what determines the right to life and health. The COVID-19 vaccine should be a public good that most people, especially those low-income and disadvantaged groups, could access and afford. Following the above-mentioned principles, from a perspective of critical global justice, the effective coordination and expansion of powers of some international organizations, such as the United Nations and the World Health Organization, could be justified to better serve and benefit the entire global population.

## Conclusions

Almost all countries have been struggling with the unexpected and ongoing global COVID-19 pandemic since it broke out. As a practical and efficient approach to ending the pandemic, the COVID-19 vaccines have been, unfortunately, inequitably distributed among countries. Richer countries and regions have acquired far more vaccines than needed, making the pandemic even more devastating, especially for the underdeveloped and marginalized countries and regions. To put an end to the COVID-19 pandemic, we first comprehensively examine the root causes of the inefficient and unjust global distribution of vaccines, as well as the shortcomings of the current distribution frameworks. Moreover, under the framework of critical global justice, we propose a multi-phase fair priority model that improves the existing proportional distribution mechanism. The idea on the applications of critical global justice presented in this paper is of direct policy relevance to how we could stop the spread of the COVID-19 pandemic by collectively taking some global actions. The proposed methodology is more in line with statistical facts and advances the understanding of critical global justice by applying the framework to a real-life scenario.

Various disadvantaged groups in developing or underdeveloped countries or regions do not know whether the so-called elites in high-class living in developed countries or regions will honor what they promised when talking about human solidarity. As opposed to some compelling and ideal propositions, what has been happening, in reality, turns out to be quite disappointing and concerning. Dating back to the beginning of the COVID-19 pandemic in the spring of 2020, some developed countries or regions scrambled for anti-pandemic resources, such as masks. Then, these countries have also been buying out and hoarding the COVID-19 vaccines. Now, due to the lacking management and any specific monitoring mechanism of vaccine distribution, some countries are throwing away expired vaccine doses that are much more needed in other regions. As a result, the farce that lasts for more than one year has to end now.

Global justice should not stay in a Kantian version of idealized conditions, which heavily relies on the kindness and generosity of others. Instead, the idea of critical global justice embodying the guiding principles of humanitarianism should be put into action to guarantee the overall sustainable development of human society. However, undoubtedly, this

approach might be a bit too ideal in terms of the effective execution by multi-nation law enforcement and collaboration. Specifically, it requires not only substantial improvements on the existing global distribution mechanism of COVID-19 vaccines represented by COVAX but also the effective coordination and expansion of powers of some international organizations, such as the United Nations and the World Health Organization. Assessing its feasibility is thus an important direction for future research. On the brighter side, the limitations could at least be partially overcome by these above-mentioned international authoritative organizations. In summary, the global distribution of the COVID-19 vaccines could be taken as an opportunity to promote the development of the global social and economic structure towards global justice more broadly and substantively.

## Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Funding

This research is supported by Humanities and Social Sciences Research Projects at Universities in Zhejiang Province by Department of Education of Zhejiang Province (Grant No. 2021QN045), the Fundamental Research Funds for the Central Universities (Grant No. 2021QN81022), Zhejiang University Global Partnership Fund with University of Cambridge, and Soft Science Research Projects by Zhejiang Province Association for Science and Technology (Grant No. 2021KXCX-KT023).

## ORCID iD

Jiajun Lu  <https://orcid.org/0000-0001-9576-5484>

## Notes

1. <https://www.nytimes.com/2020/12/24/health/herd-immunity-covid-coronavirus.html>
2. <https://www.stcn.com/sy/ct/202010/t20201021.2448206.html>
3. <https://www.gavi.org/vaccineswork/covaxexplained>
4. <https://www.oxfam.org/en/press-releases/small-group-rich-nations-have-bought-more-half-future-supply-leading-covid-19>
5. <https://www.npr.org/sections/goatsandsoda/2020/12/03/942303736/how-rich-countries-are-hoarding-the-worlds-vaccines-in-charts>
6. <https://www.cnbc.com/2021/04/09/who-says-poor-countries-have-received-just-0point2percent-of-worlds-vaccine-supply.html>
7. <http://www.xinhuanet.com/world/2021/03/23/c1127244818.htm>
8. <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/contracts.html>
9. <https://launchandscalefaster.org/COVID-19>
10. If simply caused by accidental events, such as natural disasters, it has nothing to do with the global justice or injustice.
11. <https://www.who.int/news/item/24-02-2021-covid-19-vaccine-doses-shipped-by-the-covax-facility-head-to-ghana-marking-beginning-of-global-rollout>

## References

1. McNeil D Jr. How much herd immunity is enough? *The New York Times*. 2020.
2. Saksena N. Global justice and the COVID-19 vaccine: limitations of the public goods framework. *Global Publ Health*. 2021:1-10.
3. Berkley S. *COVAX Explained*. Geneva, Switzerland: Gavi, the Vaccine Alliance; 2020.
4. Tabacek K. *Small Group of Rich Nations Have Bought up More than Half the Future Supply of Leading COVID-19 Vaccine Contenders*. Nairobi, Kenya: Oxfam International. 2020.
5. Aaron H. The social insurance paradox. *Can J Econ Polit Sci*. 1966;32(3):371-374.
6. Banerjee A, Duflo E. *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*. New York, NY: Public Affairs; 2011.
7. WHO. *COVAX: Working for Global Equitable Access to COVID-19 Vaccines*. Technical report. Geneva, Switzerland: World Health Organization; 2020.
8. Nordhaus WD. *Some Foundational and Transformative Grand Challenges for the Social and Behavioral Sciences: The Problem of Global Public Goods. American Economic Association, Ten Years and beyond: Economists Answer NSF's Call for Long-Term Research Agendas*. Nashville, TN: American Economic Association; 2010.
9. Li Z. Big data, late capitalism and global justice. *J Huazhong Univ Sci Technol*. 2021;01.
10. Li Z. On the justifications of contemporary global justice theories. *Yearb East West Philos*. 2019(4):55-62.
11. Fidler DP. Negotiating equitable access to influenza vaccines: global health diplomacy and the controversies surrounding avian influenza H5N1 and pandemic influenza H1N1. In: *Negotiating and Navigating Global Health: Case Studies in Global Health Diplomacy*. Singapore: World Scientific; 2012: 161-172.
12. Sen A. Global justice. In: Kaul I, Grunberg I, Stern M, eds. *Global Public Goods: International Cooperation in the 21st Century*. Oxford, UK: Oxford Scholarship Online; 1999: 116-125.
13. Emanuel EJ, Luna F, Schaefer GO, Tan K-C, Wolff J. *Enhancing the WHO's Proposed Framework for Distributing COVID-19 Vaccines Among Countries*. Geneva, Switzerland: World Health Organization; 2021.
14. Usher AD. South Africa and India push for COVID-19 patents ban. *Lancet*. 2020;396(10265):1790-1791.
15. Schmidt H, Gostin LO, Williams MA. Is it lawful and ethical to prioritize racial minorities for COVID-19 vaccines? *Jama*. 2020;324(20):2023-2024.