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Policy coherence issues emerging from COVID-19 with a focus on healthcare supply chains

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The management of the coronavirus pandemic has been considerably impaired by a dearth of essential medical and pharmaceutical products. Disruptions in supply chains for healthcare goods have caused shortages and tight inventories. The reliance of many countries, particularly in Europe and Africa, on products imported from a few international suppliers is largely the result of the process of globalisation in the past decades. In conjunction with the lack of preparedness of health and civil protection systems, interdependencies in healthcare sectors, notably between Europe and Asia, made them vulnerable to a crisis affecting both exporters and importers.

Yet, the COVID-19 crisis is not putting into question globalisation as an economic and social fact. Rather, it is exposing crucial challenges to better manage problems caused by interdependencies, especially in international supply chains for critical goods, across policy areas. The crisis has also been marked by a lack of international coordination, especially when countries started to restrict trade in essential medical goods and medicines for fighting the pandemic.

European policymakers should be well aware of the rapidly changing landscape of global value chains. Addressing those challenges will require clear thinking about the potential trade-offs involved as well as concerted efforts to find synergies and balanced solutions. European policy responses directed to healthcare value chains, aiming at domestic health security and competitiveness in the international market, should be coherent with development policy interests, especially for African countries. They could help alleviate vulnerabilities, deploy a treatment or a vaccine as a public good, and seize opportunities for redeploying value chains in ways that can promote a fairer and safer globalisation.

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Acronyms

API	Active Pharmaceutical Ingredients
BRA	Better Regulation Agenda
COVID-19	Corona Virus Disease 2019
ECDPM	European Centre for Development Policy Management
EU	European Union
MERS	Middle East Respiratory Syndrome-virus
PPE	Personal Protective Equipment
SARS	Severe Acute Respiratory Syndrome
US	United States
VAT	Value Added Tax
WHO	World Health Organization

1. A crisis putting policy-making into question

In early 2020, across the globe, the coronavirus pandemic unexpectedly wreaked havoc on the health of populations and profoundly disrupted the course of economic activity and government action. **The management of the public health crisis by state and social actors has been considerably impaired by a dearth of medical and pharmaceutical products essential to prevent, detect and treat coronavirus infections, in developed and in developing countries.** Disruptions in international healthcare supply chains, due to temporary factory closures, difficulties with distribution, trade restrictions and issues of access and quality, have brought to light interdependencies in production, trade and distribution networks for critical goods, and vulnerabilities. Many countries and local communities were poorly equipped to deal with the COVID-19. That could be a setback for the 2030 Agenda for Sustainable Development.

This paper sheds light on different factors that have presumably contributed to shortages of healthcare goods, the lack of preparedness, and capacities to cope with the crisis, focusing on Europe and Africa. **It looks at the possible effects of public policies and policy coherence problems, between health and other areas, that may have driven those outcomes, with a view to drawing lessons on the management of risks associated with international interdependencies.** Policy coherence, the notion that public policies in different sectors should not undermine each other, but rather work in synergy, underpins the Sustainable Development Goals as a means of implementation.

In the midst of the pandemic, policy-makers and business executives in Europe, and in Africa too, have recognised the risks posed by the current organisation of international supply chains in various sectors (supply chain disruptions also occurred in sectors other than healthcare). **European public actors should be well aware of the acute need for enhancing the coherence of their policies amidst the rapidly changing landscape of "global value chains" in healthcare sectors.** Mitigating domestic supply risks, ensuring economically efficient and long-term participation in international innovation, production and distribution networks, and preventing adverse spillover effects on developing countries could present trade-offs or synergies. Balancing these different objectives is an urgent challenge concerning the management for policies directed to these value chains.

2. Disruptions in healthcare supply chains during the COVID-19 crisis

Industrialised and developing countries have been confronted with a dearth of medical goods essential to prevent the transmission of the virus, detect emerging outbreaks, and treat infected people. In March 2020, the WHO estimated that worldwide the availability of medical supplies was 40% lower than what was needed.[1] Shortages, tight inventories and quality problems concerning personal protective equipment (PPE, notably surgical masks, gloves, gowns and goggles), medical devices (venturi masks, ventilators and oxygen tanks), disinfectants, test kits and other medical goods have greatly hampered national and local responses to COVID-19. In Europe, with a surge in the consumption of supplies by intensive care units, hospitals have also been constrained by a scarcity of essential medicines for treating coronavirus patients (drugs for anaesthesia, resuscitation, muscle relaxation and pain relief).[2] Those shortages have prevented public authorities from adopting a more targeted approach to social distancing that could have lessened the economic fallout from the public health crisis.[3]

Shortages in medical and pharmaceutical products prompted governments all over the world to restrict exports of essential goods for fighting the pandemic.[4] They also took measures to facilitate imports, via temporary suspensions of customs duties and VAT[5]). In the early stages of the epidemic in Europe, several national governments prohibited exports of medical goods to other countries in the European Union (EU). For example, in early March, the German Federal Ministry for Economic Affairs and Energy banned exports of masks, gloves and goggles to prevent domestic shortages. The Dutch government put a temporary export ban on PPE in late March. Eventually those measures were relaxed to allow for the movement of critical medical goods for COVID-19 among EU member states, and especially to ensure adequate supplies in the countries most affected by the epidemic. In late March, the German government allowed exporters to ship PPE to EU countries provided they acquired a permit. (After the initial phase of the crisis, Germany also provided protective clothing and respiratory machines to more severely affected EU countries, Italy notably).

Developing countries have had to temporarily remove customs duties and other taxes on imported medical supplies and equipment used to fight COVID-19. **For most of them, the domestic supply of critical medical goods and drugs for COVID-19, as well as other diseases, is largely made of imports.** Export prohibitions and restrictions in developed and emerging countries and intense competition in the international market due to the international scramble for limited supplies of essential medical and pharmaceutical products[6] have most likely contributed to shortages in developing countries.[7, 8] **At the same time, the economic shock hitting developing countries has reduced their ability to import essential medical goods.** Lockdown measures have caused factories to close and hindered the movement of people and goods across borders. Export revenues have dropped as the demand for commodities in international markets has dropped.[9] Tourism has also collapsed and remittances fallen[10]. In addition, there has been a rapid outflow of capital from emerging and developing countries[11], putting downward pressure on the value of domestic currencies, and illicit financial flows might increase[12].

Although European countries began to ease restrictions on exports of medical goods in May 2020, many other producing countries have kept export bans or restrictions in place for prolonged periods of time (the United States for example). Moreover, Europe and others are still prohibiting exports of medicines for infectious and chronic diseases (for example, pneumococcal vaccines and medicines for cancer and diabetes).

3. Underlying international interdependencies

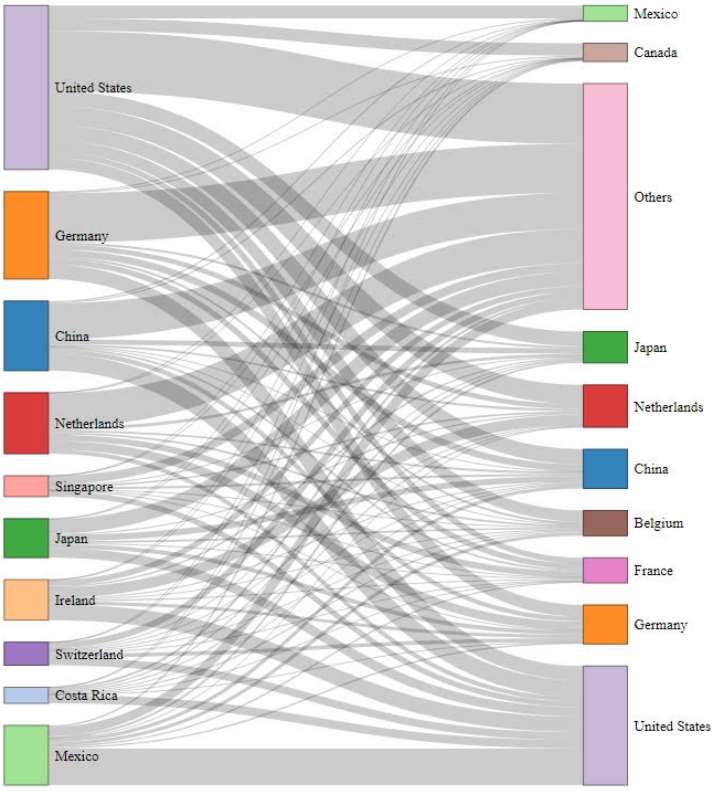
Disruptions in healthcare supply chains have brought to light deeply rooted interdependencies, or simply dependencies, and vulnerabilities in international production and trade networks for critical goods. **The COVID-19 crisis revealed to many the reliance of European countries on basic medical goods imported from China, as epitomised by the emergency Chinese shipment of masks, ventilators and electrocardiographs to Italy on 12 March, 2020.** Delays in shipments of medical supplies from China[13], as well as quality issues[14, 15], were frequently reported in the past months.

The major exporters of medical goods worldwide are the EU, the United States (US), China, Japan and South Korea. According to the WTO[16], **China is the leading exporter of medical protective equipment, followed by Germany and the US**, with the three roughly representing 40% of world exports of this type of equipment. **Germany is the largest supplier in the world for diagnostic tests and other medical products, followed**

by the US and Switzerland, with the three accounting for about 35% of world exports of these products. Open Trade Statistics indicate a similar pattern of trade in medical goods (see Figure 1).

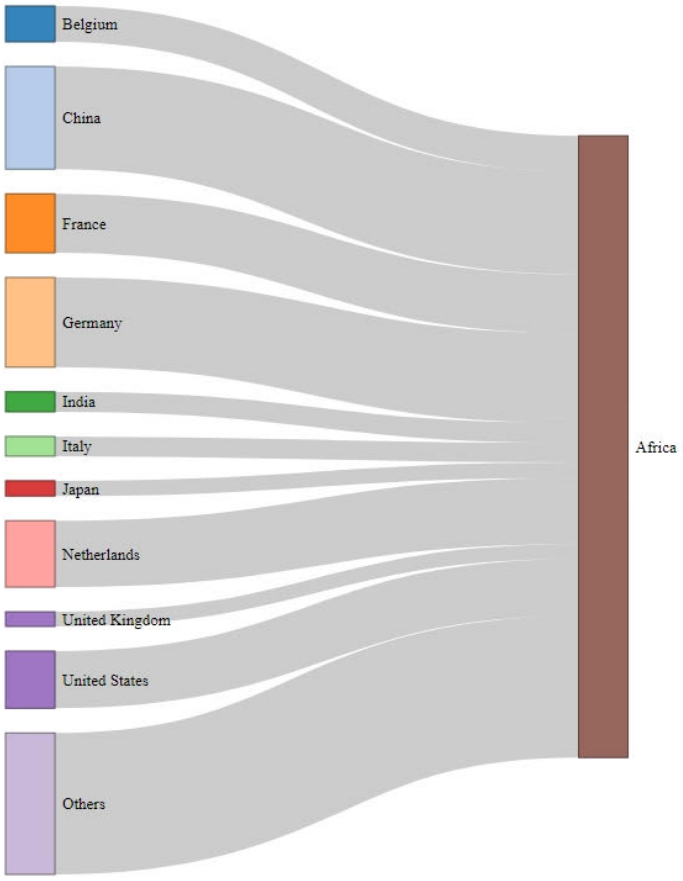
World trade in medical goods in 2019 (including intra-EU trade) amounted to approximately $2 trillion, which represents 5% of total merchandise trade. World trade in products described as critical for fighting COVID-19 amounted to $597 bn in 2019, that is, 1,7% of total merchandise trade. **Developing countries mainly import medical goods from European countries, China and the US.**[17]

Figure 1: Bilateral trade in medical goods between exporters (left) and importers (right) in 2018[18]



Sources: UN Comtrade, World Bank, Center for International Development at Harvard University and Observatory of Economic Complexity. Data processed by Open Trade Statistics (2020).

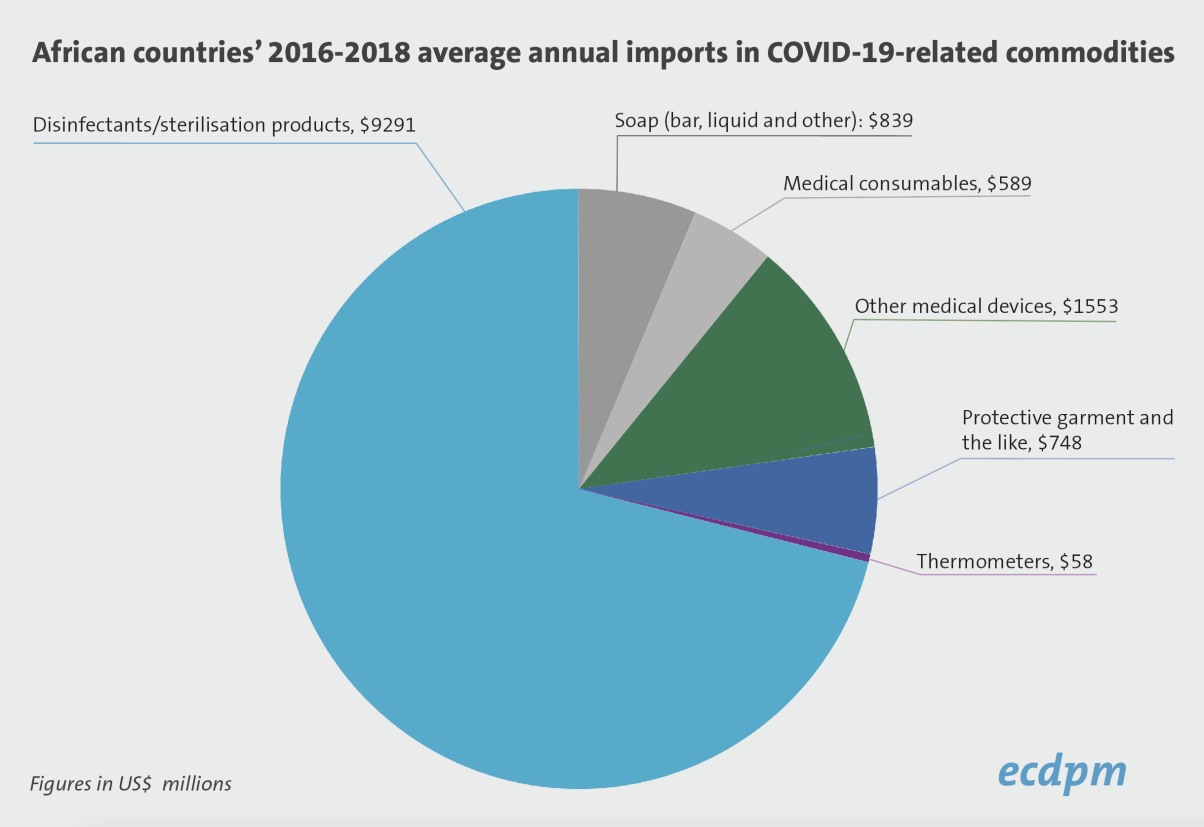
Figure 2: African countries' imports of medical goods in 2018[19]



Sources: UN Comtrade, World Bank, Center for International Development at Harvard University and Observatory of Economic Complexity. Data processed by Open Trade Statistics (2020).

As Figure 2 and other sources indicate, **almost all of the imports of medical goods of African countries come from European countries (mainly Germany, the Netherlands and Belgium), China and the US**.[20] Over the period 2016-2018, African countries' imports of medical goods mainly consist of disinfectants and sterilisation products (see Figure 3).[21] With these exporting countries heavily affected by COVID-19 and having large domestic needs for essential medical goods, African countries were very exposed to the risk of supply chain disruption.[22]

Figure 3: African countries' 2016-2018 average annual imports of COVID-19-related goods



Source: based on trade data reported in UNECA (2020).

The crisis also showed the heavy reliance of European countries on a few other countries, especially China, for their supply of key pharmaceuticals and chemical compounds used in the pharmaceutical industry.[23] African countries are highly dependent on pharmaceutical imports from China and India and on products supplied by European pharmaceutical companies.[24] China is notably a large producer and exporter of chemical reagents for coronavirus testing in the world. The closure of chemical and pharmaceutical factories, breakdowns in logistics and transportation, and the ban on exports of reagents imposed by the Chinese government made it difficult for other countries to source reagents to manufacture diagnostic tests.[25]

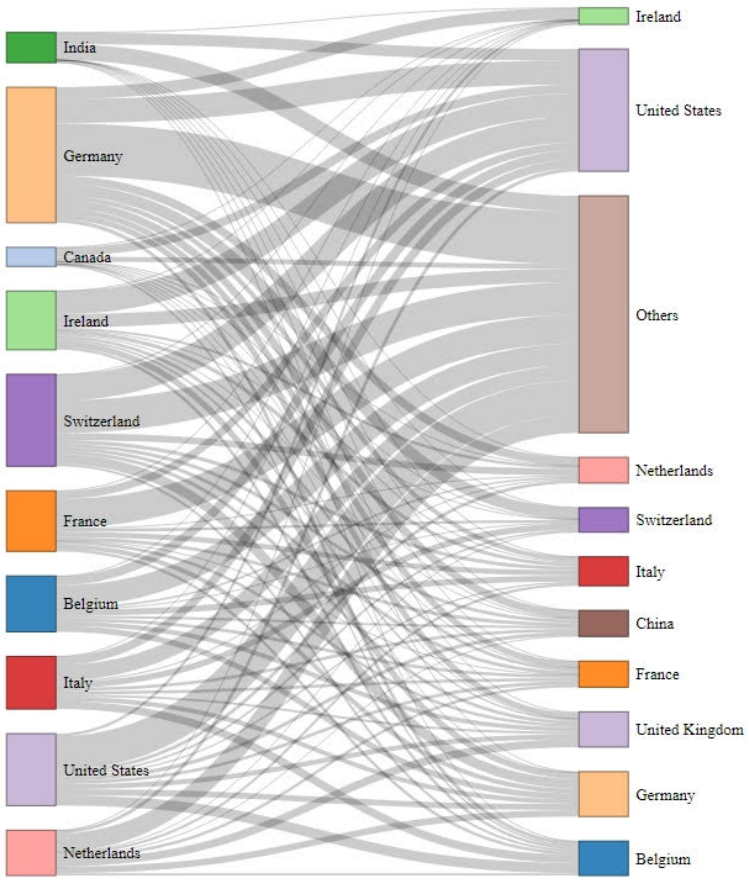
In the 1990s, European and North American pharmaceutical firms, in search of the lowest production costs, started to offshore and later outsource manufacturing operations to Asian countries, mainly China. In the past couple of decades, leading pharmaceutical companies also adopted "lean" business models, as in other industries, to manufacture and market low-profit-margin products on a large scale.[26] The internationalisation of pharmaceutical production networks also led to a redeployment of research and development capabilities towards emerging markets. **In the meantime, China developed a strong pharmaceutical industry, specialising in the production of active pharmaceutical ingredients (APIs) and chemical compounds (enzymes for example) required to make APIs.** China produces a large share of the world output of APIs and chemical compounds.[27] Even India, which developed its own strong pharmaceutical industry, specialising in generics, depends on China for APIs.

A 2018 report of the French national academy of pharmacy observed that shortages of antibiotics, anticancer drugs, cardiovascular drugs, anaesthetics, vaccines and other medicines essential for various treatments had become increasingly frequent in France and other European countries since the 2000s. The report attributed those shortages to several factors, including the relocation of pharmaceutical

manufacturing in Asia, particularly China and India, to lower manufacturing costs and circumvent stringent environmental regulations in Europe, and rapidly expanding pharmaceutical markets in emerging economies. Reportedly, in Europe, increasingly complex regulatory requirements, with discrepancies between territorial jurisdictions, raised the costs of putting products on the market, while tight price regulations reduced revenues. That, in turn, discouraged pharmaceutical companies from investing in production capabilities at home (in France and Germany in particular) and incentivised them to invest more in Asia in key stages of value chains.[28]

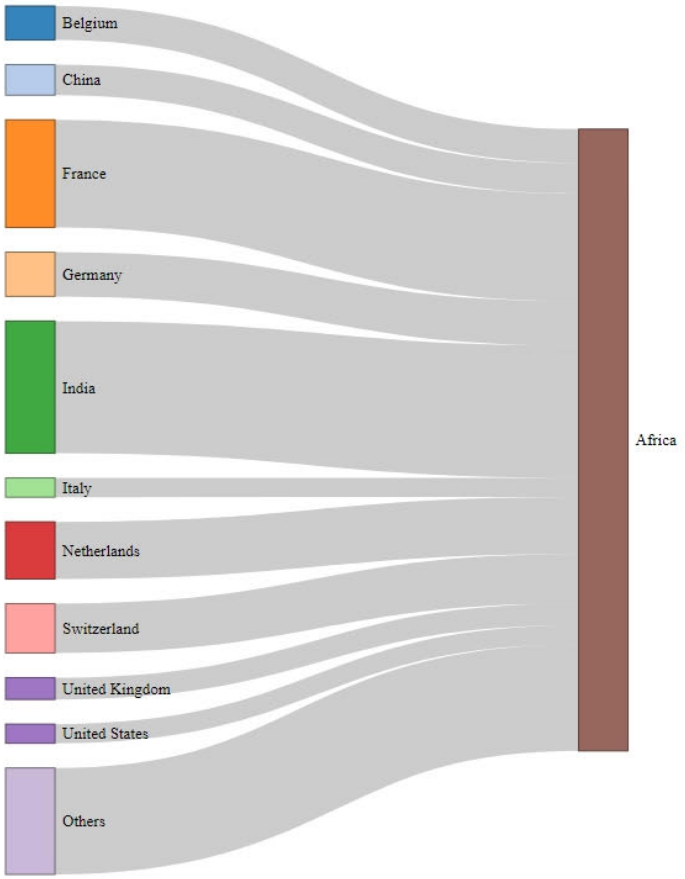
The redeployment of medical and pharmaceutical production networks to Asia probably resulted in efficiency gains and kept prices low in Europe. **Yet, it also generated risks of supply disruption particularly in the circumstances of a widespread pandemic.** Actors in the business sector have recognised the risks posed by excessive reliance on a few far-away suppliers, and not just in healthcare sectors.[29]

Figure 4: Bilateral trade in pharmaceuticals between exporters (left) and importers (right) in 2018 [30]



Sources: UN Comtrade, World Bank, Center for International Development at Harvard University and Observatory of Economic Complexity. Data processed by Open Trade Statistics (2020).

Figure 5: African countries' imports of pharmaceuticals in 2018[31]



Sources: UN Comtrade, World Bank, Center for International Development at Harvard University and Observatory of Economic Complexity. Data processed by Open Trade Statistics (2020).

The shortages observed in many countries reflect the limitations of markets in regulating themselves, especially in abnormal times.[32] As the international markets for medical equipment and pharmaceutical products have relatively high levels of concentration[33] (in the case of reagents, for example, the market is dominated by a few firms), importing countries are even more exposed to supply disruptions and price hikes. Quality issues have affected the performance of markets during the crisis.[34] Uncoordinated actions taken by governments in unusual circumstances can worsen market outcomes as export restrictions can feed off each other, with one country after another restricting exports due to concerns about rising prices and shortages in domestic markets. **The crisis was also marked by the lack of international coordination to provide timely information on the state of supply chains and inventories for critical medical supplies, equipment and medicines[35], and to regulate trade flows so as to ensure fair access for vulnerable countries.**

4. Unpreparedness in the face of the pandemic

In this context, inadequate preparedness of health and civil protection systems, another salient feature of the public health crisis, created the conditions for the occurrence of shortages in essential healthcare goods. Since the 1990s, health systems in European countries have been increasingly privatised in the pursuit of efficiency and flexibility gains. Public spending for healthcare as a share of total expenditures for healthcare has declined in most European countries.[36] That has led to a decrease in hospital capacities (which are mainly in public hospitals in Europe) and in the number of beds relative to population. To reduce costs, public health agencies and hospitals did not maintain stockpiles of essential products beyond what just-in-time inventory management models required. As medical supplies and equipment and even more so medicines represent large shares of health expenditures, healthcare providers sought to source supplies internationally at the lowest costs. That was the case in particular for reagents. Given the relatively small numbers of patients receiving intensive care and needing pharmaceuticals relative to national populations, the difficulties that some European health systems had in managing the crisis underscore the magnitude of their vulnerabilities.

Virologists, epidemiologists and policy experts expected and warned policy-makers and the public of a pandemic with a pulmonary virus.[37] Awareness increased steadily but slowly on the occasions of SARS (in 2003), the avian influenza H1N1 (in 2009) and the Middle East Respiratory Syndrome, MERS, (in 2012, 2015 and 2018). But a few years later the perception of risk receded and efforts to ensure preparedness and develop treatments largely petered out, especially in the West.[38, 39] **The unexpected character of the COVID-19 crisis also highlighted the lack of foresight of pandemic risks in Europe.**

5. Responses of production and distribution systems during the crisis

Despite shortcomings in national health systems, public and private actors showed a great deal of flexibility and coping capacity during the COVID-19 crisis. In Europe, national governments, assisted by the European Commission, mobilised private companies to repurpose manufacturing plants (textile and automotive equipment factories for example) to produce medical supplies and equipment. Eventually domestic companies, large and small, in various sectors, were able to manufacture sizable quantities of masks and ventilators. In several countries, governments played a crucial role in redirecting production factors towards essential goods for fighting the coronavirus. That, among other aspects of the management of the health crisis, showed the importance of political action for the protection of populations.

Germany has weathered the epidemic relatively well, with a much lower mortality rate among cases than neighbouring countries in West Europe[40]. Part of the explanation is due to the strong health system that successive governments put in place in the past couple of decades[41], with a large number of intensive care beds and with adequate equipment. **Also, starting in early January, widespread coronavirus testing was implemented, which was possible because of the ability of the country to manufacture diagnostic tests on a large scale**. In addition to strong medical and pharmaceutical industries, the dense industrial fabric of the country, made of SMEs with flexible production capabilities, probably facilitated the task of policy-makers in promoting a shift towards the manufacturing of tests and medical devices used in the fight against the epidemic.[42] However, as in other European countries, masks were in short supply in Germany.[43]

Although a multitude of factors explain differences in COVID-19 mortality rates between European countries, the German experience lends support to the hypothesis that domestic production capabilities were essential for coping with such a widespread crisis. The experience of South Korea, which deployed an extensive and effective contact-tracing-and-testing method that allowed the government to prevent and contain outbreaks while avoiding an extensive economic standstill[44], supports this explanation too. **Soon after the emergence of SARS-CoV-2 in China, the Korea Centers for Disease Control and Prevention rapidly developed diagnostics and Korean manufacturers engineered and produced commercial kits in large numbers.**[45] Unlike other countries, after the dangerous MERS outbreak in 2015, South Korea had maintained manufacturing capabilities for reagents and coronavirus diagnostic tests, and the government had put in place an emergency regulatory approval procedure for these products.

In several African countries, local producers have responded effectively and rapidly to surging needs for essential medical goods to test for the coronavirus and provide intensive care to patients. For example, in Kenya[46] and Tunisia[47] factories were rapidly repurposed to produce surgical masks. In Morocco[48] and South Africa[49] domestic manufacturers started to produce ventilators and venturi masks on an industrial scale as the Covid-19 began to spread in these countries. The Kenya Association of Manufacturers has used 3D printing to produce ventilators.[50] The University of Botswana and Makerere University in Uganda designed ventilator prototypes that African manufacturers could imitate to scale up the production of this type of device throughout the continent. In Senegal researchers collaborated with a British company to develop a diagnostic test to be manufactured both in Senegal and the UK.[51] The first, and so far only commercial COVID-19 test in Africa is produced in Egypt.[52]

Unsurprisingly, African countries with a relatively strong manufacturing base and exportation capabilities in various sectors seem to have been better than others at producing medical goods for COVID-19 that are usually imported from overseas.[53] The adaptivity of economic actors and the reactivity of entrepreneurs, in both the formal and informal sectors, has allowed some African countries to quickly produce basic medical supplies and equipment on a commercial scale. Also noteworthy is the role played by African online commerce platforms such as Jumia, which during the crisis has reoriented its business towards the distribution of essential products, including disinfectants and masks.[54]

Yet, many African countries have had too little medical supplies and equipment. **The ability of local producers to repurpose factories and ramp up the production of essential goods has often been hampered by several factors.** African medical and pharmaceutical industries largely depend on imported inputs and machines. Export restrictions in producing countries and border closures in Africa have made it more difficult to access the intermediate and capital goods necessary to repurpose and scale up production. Inadequate regulatory frameworks have undermined quality assurance, especially in a situation of shortages and emergency needs for PPE and medicines. Typically, that results in opportunistic actors putting low-quality, substandard goods on the market. For instance, **the WHO observed that falsified chloroquine-based products are circulating in African markets,**[55] which may have detrimental effects on public health.

6. Renewed concerns about access to treatments and vaccines

Many initiatives, publicly- or privately-led, are underway to develop a vaccine against Sars-CoV-2 virus, with several clinical trials being conducted. Various state and non-state actors have mobilised large amounts of resources to fund the race to discover a vaccine. Yet, **the process of developing and deploying a vaccine**

is riddled with challenges and risks, at every step (research, clinical trials, regulatory approvals, manufacturing at scale, distribution and administration to populations). Tensions between cooperation and competition, at different levels, underlie the process. It is also possible that the development of a vaccine will take more time and resources than an antiviral therapy (inhibiting key enzymes of the coronavirus). Experiences with the effectiveness of vaccines for respiratory diseases are mixed.[56] Another risk is that vulnerable populations and communities in low- and middle-income countries do not get broad-based access to a vaccine or a treatment due to excessively high pricing and inadequate distribution capabilities.

Prospects for the delivery of a safe and effective vaccine, or a treatment, for COVID-19 as a global public good is going to depend on multiple policy areas. **A multitude of actors, interests and incentives are going to have an influence on the coherence and the effectiveness of policies.** A good understanding of those factors is crucial for minimising trade-offs between incentives for innovation, broad-based access and fairness in the sharing of the burden of financing the development and deployment of vaccines and treatments.

Different approaches have emerged, with potentially different implications. For example, the US government, with the Operation Warp Speed coordinated by a public agency, has made an early commitment to financially compensate leading pharmaceutical firms[57] for their investments in the development of a COVID-19 vaccine. In contrast, European leaders have called for a potential COVID-19 vaccine to be considered as a global public good. Although the EU has been slower than other major actors in entering the vaccine race, in early May a donors conference led by the European Commission led to the mobilisation of 9,5 billion euros for the development, manufacturing and distribution of vaccines, treatments and diagnostics.[58, 59] In late May, the WHO adopted a resolution in favour of freely-accessible licenses and affordable vaccines and treatments, with the support of member states from Africa, Asia, Europe and Latin America.[60] Other member states, from countries with large pharmaceutical industries (Argentina, Brazil, India, Russia and the United States), did not back this initiative. That indicated that predominantly national approaches, partly driven by geo-political and -economical motivations, risk undermining international cooperation for the funding, development and deployment of a portfolio of potential vaccines and treatments for the coronavirus.

The different approaches taken by those actors also reflect different ways of addressing two key problems. **One concerns incentives to the private sector, which play a central role in every step of the process.** Pharmaceutical companies usually invest too little in vaccine development, from a social perspective, especially when a profitable market is not certain, or when price regulations or mandatory licensing reduce prospective profits. For instance, the lack of a certain market hindered the development of treatments for SARS.[61] In general a structural lack of incentives has resulted in very low expenditures on pharmaceutical research and development for emerging infectious diseases, particularly coronaviruses. That justifies public (co-)funding of privately-led vaccine research and development, and advance purchasing commitments. The pandemic also poses the problem of incentives for building distribution and administration capabilities to vaccinate or treat large populations in different regions of the world. Yet, past experiences show that the risk of private companies gaining excessive profits from selling to the general public pharmaceutical products based on largely publicly-funded research cannot be ignored.[62]

Another problem concerns the allocation of limited supplies of a vaccine or a treatment when it becomes available. Past experiences could be useful in designing a rationing mechanism, for instance, the case of the 2009 H1N1 flu. In that case countries had made advance purchasing orders for vaccines and annual payments to maintain their orders. When the pandemic emerged, the limited supplies available were distributed among buyers, in proportions corresponding to the size of advance orders. That approach also included contingency plans to target populations most in need according to objective criteria (for example,

healthcare workers and people at greatest health risk), depending on the dynamics of infections. While that can be a solution for wealthy countries, poor countries may still have difficulty in accessing adequate quantities of a vaccine or a treatment. In the case of this pandemic, the outcome will critically depend on the performance of international coordination to make advance purchasing commitments, set fair allocation rules across countries and regions, and provide adequate financial support for vulnerable countries.

7. Concluding remarks and policy recommendations

The rapid internationalisation of supply chains for medical goods and pharmaceuticals in the past two to three decades resulted in strong interdependencies between different regions, particularly between Europe and Asia. In conjunction with global technological and market factors, different policies and regulations, intentionally or not, provided incentives for the medical and pharmaceutical sectors to offshore and outsource key stages of the value chain to Asia. While this process has probably helped to keep healthcare costs in check in European countries, it has also generated domestic supply risks, especially in a situation of pandemic affecting both exporting and importing countries almost simultaneously. At the same time, insufficient foresight of pandemic risks and unpreparedness created vulnerabilities to disruptions in supply chains for essential healthcare goods, which had largely gone unnoticed or been neglected before the COVID-19 crisis. **Developing countries, particularly in Africa, have been exposed to such risks too, with an even greater reliance on international supply chains.**

What policy-making conditions, principles and mechanisms have led to this situation? This reflection is crucial to elaborate realistic measures to secure the supply of critical healthcare goods for domestic objectives in the future, while preserving gains from specialisation and scale economies in international production and trade networks. The question is also relevant because other cross-border risks loom on the horizon, including climate change and shocks due to related extreme weather events in some parts of the world that may affect European economies and societies through international supply chains, financial systems, and insecurity spillovers.[63]

In the wake of the crisis, confusion about the challenges posed by globalisation has been widespread. In the current situation, globalisation is, in the first place, a given, practical aspect of interrelations between societies and states around the globe. In the recent period, the development of international digital networks has been its most tangible manifestation—information, communication and automation technologies have played an increasingly important role in driving international value chain dynamics. This fact is most likely here to stay, in all its dimensions, technological, economic, political and in mindsets. The other aspect of globalisation is the management of this state of affairs. **The crisis induced by COVID-19 is not putting into question globalisation as a fact, rather it is intensifying the challenge of better managing it.** It is essential at that level that opportunities for promoting change are to be pursued and that the political debate will be most relevant.

The distinction made above may be useful to overcome the confusion between the regulation of international production and trade networks, as a key instrument of economic policy (for example, a regulation linked to environmental externalities), and the pursuit of national self-sufficiency. **The issue of the regulation of international value chains, and more broadly of globalisation, is going to be crucial in a geo-economical context where large countries tightly control their external economic relations and strategically promote key economic sectors** (US, China and Russia notably).

In the wake of the epidemic in Europe, understandably, political leaders have announced changes in economic and health policies, notably the reshoring of critical supply chains for public health security.[64] **However, when crafting structural reforms, policy-makers will be confronted with difficult trade-offs.** Rebuilding industrial capabilities may be costly and risky in an uncertain economic context after COVID-19. Uncoordinated reshoring would not necessarily enhance diversity, flexibility and transparency in production and trade networks in Europe and internationally.

At the EU level, a number of policy-making and programming processes could present opportunities to address those trade-offs and make critical supply chains for domestic objectives more flexible and secure: The Recovery Plan for European, potentially supported by a €750 bn fund, which includes a measure to protect strategic sectors from foreign state-backed investments, a programme for health security, EU4Health, and the Enhanced InvestEU Programme; the new EU pharmaceutical strategy, as part of the EU industrial policy launched in March 2020; and the new research and innovation programme.[65] **Yet, the mitigation of supply risks borne out of Europe may also require measures to better regulate healthcare product markets internationally**, in a manner that is coherent with domestic objectives. That may entail enhanced international cooperation to identify and reduce risks in locations where the production of essential products takes place, and to improve the exchange of information on the state of cross-border supply chains, trade flows and inventories.

In the rush to stimulate an economic recovery in Europe and extinguish the public health crisis, there might be considerable scope for contradictions to emerge between European policies focused on domestic objectives and those aiming at international development, particularly in developing countries in Africa.[66] Potential problems of policy coherence for development include:

- Export restrictions that limit developing countries' access to essential healthcare goods for fighting COVID-19;
- Humanitarian assistance, if it does not appropriately procure and distribute medical goods and medicines, could distort markets, discouraging domestic producers or causing inflation in the prices of healthcare products in domestic markets;
- Policies aiming at securing supplies of treatments or vaccines for European populations could hinder availability and access for vulnerable populations in developing countries, although European policy-makers have made commitments in favour of making those public goods;
- European policies that may have contributed to the concentration of medical and pharmaceutical production capabilities in China and a few other countries may have also created supply risks for developing countries; in the wake of COVID-19, European economic policies, in conjunction with the EU External Investment Plan, could contribute to a more enabling environment for the growth of Africa-based manufacturers and entrepreneurs already developing and producing essential healthcare products, thus favouring economic diversification in African countries, while also promoting the emergence of alternative international suppliers for Europe;
- The relaxation of rules on state aid to businesses in the EU could result in international market distortions in sectors with emerging African producers of essential healthcare products;
- Potential European initiatives to improve the international regulatory framework for healthcare product markets should not overlook the challenges facing developing countries, especially the issue of substandard medicines undermining African pharmaceutical markets[67] (these products largely originate from emerging countries with inadequate domestic regulatory frameworks).

Clear thinking about the potential trade-offs involved as well as concerted efforts to find synergies and balanced solutions will be vital. For that purpose, policy-makers in European countries and at the EU level could make use of the existing instruments for policy coherence. **At the EU level, the Better**

Regulation Agenda (BRA) conceived by the previous Commission could be a useful instrument. As the Better Regulation guidelines and accompanying tools are being updated by the European Commission, the guidelines for *ex ante* impact assessments could be upgraded so as to ensure that the kinds of policy coherence problems emerging from this crisis receive more scrutiny in the future. The BRA can ensure that legislative proposals aimed at healthcare supply chains be based on adequate context analyses, elaborated through consultative and consensus-building mechanisms between different policy areas and stakeholders, and assessed against a set of strategic objectives. Furthermore, in light of the COVID-19 crisis, **the Regulatory Scrutiny Board, which is supposed to control the quality of impact assessments performed by the Commission, should strengthen the weight of foresight in the implementation of the BRA**.

The EU Council could also play an important role in promoting policy coherence in the wake of the crisis, especially through the Competitiveness Council. It could better take into account risks concerning public health crisis and international development objectives when guiding innovation and industrial policies and promoting competitiveness in key sectors in Europe.

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16 Source: https://www.wto.org/english/news_e/news20_e/rese_03apr20_e.pdf.
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18 Medical goods consist of codes 3005, 9018, 9019 and 9020 of the Harmonized Commodity Description and Coding Systems (HS), including in particular wadding, gauze and bandages; and ventilators, venturi masks and oxygen tanks.
19 Same goods as Figure 1.
20 The share of African imports of medical goods from these three origins amounts to 94% according to this source: https://oecd-development-matters.org/2020/05/01/accelerating-the-response-to-covid-19-what-does-africa-need/.
21 Source: https://www.uneca.org/sites/default/files/PublicationFiles/briefing_paper_on_trade_policies_for_africa_to_tackle_covid-19_290820.pdf.
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24 African countries as a whole import from outside the continent roughly 90% of the pharmaceuticals that they consume (source: About African countries' import dependency, see this: https://www.africapharmaconf.com/site/wp-content/uploads/2020/05/Dr.-Babatunde-Omilolas-Presentation-AUDA-NEPAD-Africa-Pharma-Presentation-6.pdf).
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[32] Robert Boyer, Économie politique des capitalismes. Théorie de la régulation et des crises, Paris, La Découverte, 2015.
[33] See R. Silverman , J. Madan Keller , A. Glassman and K. Chalkidou, 2019. Tackling the Triple Transition in Global Health Procurement. Final Report of CGD's Working Group on the Future of Global Health Procurement.
[34] Sun Yu. Chinese mask makers use loopholes to speed up regulatory approval. Financial Times, 1 April, 2020.
[35] The reporting system for medical and pharmaceutical products run by the WHO provides timely information on shortages at the point of use but lacks information on disruptions in the supply chain.
[36] Source: https://blogs.lse.ac.uk/europpblog/2020/03/20/european-health-systems-and-covid-19-some-early-lessons/.
[37] Although it has improved living standards for numerous people in the past decades, international economic integration has also largely contributed to creating favourable conditions for the emergence and spread of infectious diseases across the globe. It has put pressure on ecosystems, reducing the distance between humans and wildlife, and increased the international movement of people for business and tourism. In several instances, this process probably put short-term economic gains ahead of public health and economic security.
[38] See Frank Snowden, Epidemics and Society: From the Black Death to the Present, 2019.
[39] William A. Haseltine. What AIDS taught us about fighting pandemics. Project Syndicate, May 2020.
[40] https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200423-sitrep-94-covid-19.pdf?sfvrsn=b8304bf0_4.
[41] Germany, to pursue with this example, reformed the health sector in the 2000s, by streamlining public health services provision, decentralising healthcare management, at the levels of Landers and hospitals, and introducing some competition among providers, while maintaining relatively high public health expenditures compared to the average OECD country. (Source: http://www.lefigaro.fr/story/comment-le-systeme-de-sante-allemand-a-fait-ses-preuves-13323.).
[42] The German policy-making approach, based on consensus between different actors, with Lander governments having much autonomy, seems to have facilitated the response to the crisis. Landers coordinated the repurposing of factories and the scaling up of the production of diagnostic tests.
[43] The Myth of German Coronavirus Exceptionalism. Michael Meyer-Resende, Carnegie Europe, June 23, 2020.
[44] See David Lee, Jaehong Lee, Testing on the move: South Korea's rapid response to the COVID-19 pandemic, Transportation Research Interdisciplinary Perspectives, Volume 5, 2020,
[45] See https://edition.cnn.com/2020/03/12/asia/coronavirus-south-korea-testing-intl-hnk/index.html and Dennis Normile, Mar. 17, 2020, Coronavirus cases have dropped sharply in South Korea. What's the secret to its success? Science, https://www.sciencemag.org/news/2020/03/coronavirus-cases-have-dropped-sharply-south-korea-whats-secret-its-success.
[46] The Kenyan factory that transformed into a surgical mask assembly line overnight. Max Bearak, The Washington Post, April 8, 2020.
[47] https://en.africanmanager.com/ministries-of-industry-and-health-target-production-of-32-million-face-masks/.
[48] https://www.reuters.com/article/us-health-coronavirus-morocco-ventilator/moroccan-companies-begin-ventilator-production-idUSKCN21S1ZV
[49] https://qz.com/africa/1835025/south-africa-producing-10000-ventilators-for-covid-19-by-june/.
[50] https://africa.cgtn.com/2020/04/22/kenya-to-begin-mass-producing-ventilators/.
[51] https://www.aljazeera.com/news/2020/04/senegal-trials-1-covid-19-test-kit-200428132313740.html.
[52] https://oecd-development-matters.org/2020/05/01/accelerating-the-response-to-covid-19-what-does-africa-need/
[53] https://www.unido.org/news/covid-19-critical-supplies-manufacturing-repurposing-challenge.
[54] https://www.cosmeticsdesign-europe.com/Article/2020/04/09/Jumia-launches-coronavirus-essentials-e-commerce-platform-in-South-Africa.
[55] https://www.who.int/docs/default-source/essential-medicines/drug-alerts20/drug-alert-4/n-4-2020-falsified-chloroquine-en.pdf?sfvrsn=c4354802_6
[56] Source: https://www.spiegel.de/international/world/eu-pandemic-adviser-peter-piot-we-will-have-to-learn-to-live-with-covid-19-a-92cdf795-3378-44c8-b565-3294596e410c.
[57] Moderna, AstraZeneca in partnership with Oxford University, Johnson & Johnson, Merck and Pfizer.
[58] Discovery trial, a European initiative to find a treatment for COVID-19 has produced mixed results so far.
[59] Other initiatives aim to develop a vaccine with minimal restrictions to worldwide diffusion, including one financed by the Bill and Melinda Gates Foundation and the international vaccine initiative CEPI (see https://cepi.net/).
[60] This resolution referred as a legal basis to the safeguards and flexibilities provided for by the WTO Doha Declaration on the TRIPS Agreement and Public Health concerning access to medicines. It followed a call by leaders from around the globe for 'Uniting behind a people's vaccine against COVID-19' (see https://www.unaids.org).
[61] William A. Haseltine. What AIDS taught us about fighting pandemics. Project Syndicate, May 2020.
[62] Source: https://www.nytimes.com/2020/03/18/opinion/coronavirus-vaccine-cost.html.
[63] See Cascading climate impacts: a new factor in European policy-making. 2020. Mikael Hildén, Glada Lahn, Timothy R. Carter, Richard J. T. Klein, Ilona M. Otto, Benjamin Pohl, Christopher P. O. Reyer and Fabien Tondel.
[64] EU Commissioner for Internal Market Thierry Breton called for ensuring that the EU can produce the medical and pharmaceutical goods it needs. German Federal Minister of Health Jens Spahn stated that the EU should produce the medical goods essential for the situations such as the COVID-19 crisis and diversify its supply chains (https://www.lemonde.fr/idees/article/2020/05/29/jens-spahn-pourquoi-l-allemagne-surmonte-relativement-bien-cette-crise_6041110_3232.html). See also https://www.euractiv.com/section/health-consumers/news/commission-aims-to-bring-back-medicine-production-to-europe/.

[65] See https://ecdpm.org/publications/international-collaboration-horizon-europe-new-approach-partnering-with-africa/?utm_source=ECDPM+Newsletters+List&utm_campaign=f7d827a34c-EMAIL_CAMPAIGN_2019_09_05_08_48_COPY_01&utm_medium=email&utm_term=0_f93a3dae14-f7d827a34c-388627805.

[66] Recent European efforts to support the development production and marketing systems in medical and pharmaceutical sectors in developing countries and to encourage the transfer of technologies include the EC-funded Local Production Programme, supporting investments (https://www.who.int/phi/implementation/tech_transfer/about/en/).

[67] Paul Adepoju, 2020, African nations to criminalise falsified medicine trafficking, The Lancet, Volume 395, Issue 10221.

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