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Solidarity in Times of Crisis

Thomas Pogge

The 2020s have put the world in crisis mode. There is the COVID-19 pandemic, which has killed millions and sickened a substantial share of the world's population. There is the unprecedented rise in the prices of cereals, vegetables, and cooking oils, which renders nearly half of humanity unable to afford a healthy diet. There are the effects of excessive emissions: air pollution, rising sea levels, extreme weather events, expanding tropical disease areas, increasing scarcity of food and water. And there is a rising tendency to respond to disagreements with violence or threats thereof. It feels like things are relentlessly spinning out of control.

All these crises are caused or exacerbated by human agents – states and corporations especially – working against one another, each seeking its own advantage regardless of the cost to others. Such ruthless rivalry does motivate strong efforts and high performance, but these benefits could be obtained in other ways and, in any case, are overwhelmed by the enormous inefficiencies and other costs that self-regarding efforts impose upon others. All human beings and our entire planet could do much better if we worked in concert for the good of the whole.

To illustrate this point, the present paper focuses on one crucial element in averting or mastering crises: technological innovation. To prevent or end pandemics, we need innovative health technologies: new vaccines, treatments, and personal protective equipment. To resolve the ecological crisis, we need new green technologies to transform electricity generation, traffic and transportation, residential and office heating and cooling, communications and computing, construction, meat production, agriculture, forestry, industrial manufacture of steel, cement and other commodities. To overcome the food crisis, we need to develop new foodstuffs that can deliver taste and nutrients at much lower cost in terms of land, water, labor, fertilizers, and pesticides. All such crucial innovations must not merely be achieved but must also be widely deployed around the world. Wide deployment can relieve or at least greatly alleviate our crises and can thereby ease the intense rivalries that currently induce a strong tendency to seek security in arms. The international collaboration involved in the wide deployment of new technologies would also build trust and solidarity, which would further reduce the hostilities and tensions that often lead to armed confrontations and to war.

Globalized in 1995 through the TRIPs Agreement, humanity's dominant mechanism for rewarding and encouraging technological innovations involves 20-year product patents, whose monopoly features enable innovators to reap large markups or licensing fees from early users. Such monopoly rents are effective incentives for developing innovations. But they also impede their diffusion by enlarging the gap between sales price and variable cost of supply. This gap produces

deadweight losses, as many who would have bought the product at a competitive price do not buy it at a monopoly price.

Such a headwind against dissemination is an acceptable evil in the case of innovative consumer goods such as new computer games, exercise machines or gardening equipment. If we want innovations, we must make investment in innovation profitable. Financing rewards out of tax revenues would impose unfair burdens on those who have no interest in the funded innovations. It makes some sense, then, to impose monopoly markups on early users, thereby also channeling innovation efforts toward new technologies that some people will really appreciate.

Yet, the monopoly patent solution has two serious defects. The first concerns innovations whose benefits overwhelmingly go to third parties (other than their buyers and users). A paradigm example are green technologies that reduce harmful emissions. The benefits produced by their deployment are widely dispersed around the world and to future generations – but often lost as monopoly markups deter potential buyers. Another example are pharmaceuticals against infectious diseases: insofar as monopoly markups on such cures and vaccines deter patients from buying them, the disease spreads faster and wider with increased risks to us all.

The other serious defect of the monopoly patent solution concerns its treatment of the poor. Monopoly markups cut poor persons off from new technologies even when these are necessary for their very survival. We see this daily in poor countries: people suffering and even dying – 6 million each year! – from tuberculosis, malaria, pneumonia, hepatitis, diarrhea, and many other tropical diseases because they cannot afford advanced cures or vaccines. And this silent catastrophe brings another in its wake: knowing that poor people cannot afford advanced medical treatments, pharmaceutical firms rarely invest in research and development efforts targeting diseases concentrated among the poor.

Additional incentives are needed to close these gaps in the existing monopoly patent regime – incentives to develop the high-impact innovations that currently earn insufficient rewards, and incentives also to deploy existing innovations more widely so as to optimize their beneficial effects. How might such additional incentives be designed and financed?

A straightforward answer is that states should offer to pay for certain innovations that presently are insufficiently rewarded. This seems reasonable because both goals – realizing widely dispersed benefits and making the fruits of innovation accessible also to the poor – are legitimate state objectives.

To implement this answer, states might offer prizes for specific inventions – such as a malaria vaccine or a machine for sequestering greenhouse gases – and then make the award of such a prize conditional on the winner waiving its relevant patent privileges. This kind of solution poses difficult questions: which problems should be addressed with such a prize? How large should each of these prizes be? What criteria should be laid down for recognizing a solution? And how can it be ensured that prize-winning technologies, freed from monopoly markups, will be widely deployed?

One promising way of bypassing these difficulties involves offering impact rewards instead of prizes, thus rewarding not specific pre-defined accomplishments but generic achievements in a sector-wide dimension of value that is applicable to all innovations in this domain. For example,

health-technology innovations could be rewarded according to their health impact, green-technology innovations according to pollution averted, educational innovations according to their impact on skills and employment, agricultural innovations according to their impact on harvest yields and reduced consumption of water, pesticides, or fertilizers. In any of these innovation domains, states could create an indefinite series of annual reward pools, each of which is to be divided among participating innovations according to the impact achieved in the preceding year. Each innovation would partake in a fixed number of annual disbursements and would then, at the end of its reward period, become available for generic production and distribution.

As in the prize model, participation would be voluntary, leaving innovators a choice, with each of their innovations, whether to register it for impact rewards or instead to exploit their monopoly privileges under the patent system. By adjusting the size of the annual reward pools, states could regulate the number of rewarded innovations, assuring that the most impactful technologies are developed and widely deployed even if their expected patent earnings are low.

Because participation is optional, an impact fund's reward rate emerges endogenously. When innovators find the going rate unattractive, registrations dry up and the reward rate rises as older innovations exit at the end of their reward period. When the reward rate is seen as generous, registrations multiply, and the reward rate declines. Such equilibration reassures participating innovators and funders that the reward rate will be fair between them and stable.

Organizing a wide competition across a whole domain of innovation, any impact fund would create a new kind of competitive market on which all the diverse new technologies of a sector can compete toward advancing a single objective. In this competition, all can be winners, earning more in annual premiums than they invested in their innovation effort. Such a competitive market would train participating innovators to holistically organize their research, development, marketing, and delivery operations toward achieving the most cost-effective progress. Covering R&D costs and innovator profits as public goods, it would make access to registered innovations widely affordable at competitive prices.

Impact funds would induce the development of precisely those high-value innovations that monopoly patents fail to reward. And they would also transform innovator motivations in regard to dissemination. While monopoly rewards incite great efforts to find, stop, prevent, and deter patent infringements, impact rewards encourage innovators actively to promote the rapid, widespread, and effective deployment of their technology for optimal effect. Making no profit on its sales price, such innovators would nonetheless promote their technology's wide deployment and efficient use by providing discounts, technical assistance, and maintenance — insofar as the increase in impact rewards earned from such promotional investments is expected to exceed their cost. In this way, impact rewards do not merely remove the monopoly headwind against dissemination but also create a new supportive tailwind. This is so because impact rewards allow innovators to collect impact rewards in addition to the sales price and thereby to earn more from each deployment of their technology than what users are willing and able to pay.

On the path to creating the first impact fund, a smaller pilot is essential. Such a pilot could feature a single reward pool of, say, €100 million, raised from governments or foundations. Originators would be invited to compete for a share of the pool by nominating one of their proprietary

technologies and a target region in the Global South. If selected for the pilot, the originator would make its nominated technology available without markup throughout its target region – either by selling the product itself at the lowest feasible cost of manufacture and distribution, or by issuing cost-free licenses to others for manufacture and sale of the product. In return, the originator would be rewarded, at the end of the 2-year or 3-year pilot period, with a share of the reward pool corresponding to the share of impact achieved with its technology. If one technology accounts for 25% of the impact achieved by all technologies participating in the pilot, then its originator would collect 25% of the reward pool. If a participating technology was available in the target region even before the pilot, then “impact” is understood as “additional impact” achieved thanks to the lower price and the originator’s pilot-driven efforts to promote deployments and effective use. Technologies proposed for participation in the pilot would be selected on the basis of, *inter alia*, anticipated incremental gains, susceptibility to reliable, consistent, and inexpensive impact assessment, and promise of additional social value.

Such a pilot would show concretely how originators respond to the novel competitive impact rewards and how impact can be assessed in a reliable and timely manner. It would help refine impact assessment and provide an indication of the cost-effectiveness of competitive impact rewards. With a successful pilot, an international agreement to establish the first permanent international impact fund would become a real possibility. In addition, the pilot would yield its own substantial gains and policy insights through the pilot projects it monitors and rewards.

Millions of human beings die prematurely each year from diseases that, with advanced pharmaceuticals, we could contain and even eradicate. Some 8 million die prematurely each year from air pollution resulting from the burning of fossil fuels. Further millions are dying in the current COVID pandemic which is continuously fueled by the inaccessibility, to a majority of humankind, of the best vaccines and treatments. It is obvious that, with its existing scientific, technological, economic, and administrative capabilities, humankind could do much better. Solidarity requires that we use these capabilities to ensure much fuller realization of the recognized human right “to enjoy the benefits of scientific progress and its applications” (Article 15 of the *International Covenant on Economic, Social and Cultural Rights*).

Let me conclude by complementing this appeal to solidarity with two further arguments. One involves an appeal to prudence. Realistically, the cost of impact funds would have to be borne mainly by affluent countries even while the lion’s share of resulting harm reductions would go to the populations in the Global South who are much more vulnerable to the ravages of disease and climate change. Nonetheless, allowing poorer populations to partake in the benefits of scientific progress would also bring substantial benefits for affluent populations. This is obvious in the domain of green technologies where lower emissions and pollution result in considerable health benefits around the world and also reduce all the adverse effects of climate change such as extreme weather events (floods, storms, droughts, heat waves), expanded reach of tropical diseases, and increasing scarcity of food and water. A parallel point can be made about the pharmaceutical sector where, as a result of their exclusion from the fruits of pharmaceutical innovation, poor populations have become breeding grounds for infectious diseases, for new disease strains, as well as for drug resistance, which often emerges when poor people cannot afford to take an expensive drug at full dosage for the full course of treatment. Here, too, excluding the poor entails dangers and risks for all of humankind. Facing a non-quantifiable

probability of catastrophic global harm, even the affluent have compelling reason to reduce these dangers and risks as far as reasonably possible.

My final argument appeals to justice. The TRIPS Agreement requires WTO member states to grant and enforce monopoly patents on qualifying innovations. In particular, states must prohibit and prevent on their territory any manufacture and sale of patented technologies that lacks express permission from the patent holder. Consider what this means for life-saving medicines. Benefiting from its monopoly patents, the originator of an advanced medicine sells it around the world at prices that often exceed 1000 times the cost of production. Many generic manufacturers are able and quite willing to mass-produce this medicine and sell it at a price close to cost of production. But international law requires states to prohibit and prevent their doing so – and millions die each year as a result. Surely this is a failure of solidarity: rich countries and their pharmaceutical firms are unwilling to share their medicines with poorer populations at prices the latter can afford. But it is also a more grievous wrong: those who prevent life-saving activities (by willing and able generic manufacturers) are not merely failing to help those who die as a result but are actively intervening so as to bring those deaths about. This is what patent-enforcing states do, often under pressure from other states with a heavy presence of innovative firms that derive large profits from their intellectual property rights: innovative firms lobby their government to pressure other governments to vigorously enforce their patents.

In defense of the *status quo*, it is often said that exclusion of the poor is an inevitable side effect of necessary innovation incentives: if originators were not adequately rewarded, they would produce no innovations, and the poor would still suffer much as they do today. With the demonstrable feasibility of impact funds, this defense collapses. Impact funds would provide strong innovation incentives by rewarding innovations from public funds according to the social benefit produced with them – even while ensuring that these innovations are widely accessible by being priced at marginal cost of supply or even below. It is indeed hugely important to encourage and reward innovation; but we could and therefore must do so without excluding the poor from its benefits.