
How to Boost Health Product Supplies in Developing Regions



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Are development banks and philanthropic foundations using the right incentives to encourage global life sciences companies to cater to underserved markets?

One of the most important messages that global pandemics brought home is the severe healthcare gap in some parts of the world. With news and videos circulating around the shortage of vaccines, test kits, oxygen and even hospital beds in some regions when Covid-19 struck, it became impossible to turn a blind eye to the heart-wrenching realities of healthcare inequity. Even though the demand and supply dynamics during Covid-19 were extreme, one fact remains even for routine health products: Developing country healthcare markets require a different business model to that of industrialised markets.

The absence of robust healthcare infrastructure, very limited coverage by third-party payers and a considerable population subsisting on incomes notably lower than those in developed markets prevent pharmaceutical, vaccine and diagnostics companies (both global and local) from serving these markets by themselves. They need financial support from national,

international and philanthropic organisations. And many such organisations have stepped up, including governments of developed and developing countries, development finance institutions such as the International Finance Corporation (IFC) and the European Investment Bank (EIB), or philanthropic foundations such as the Bill & Melinda Gates Foundation.

The question many of them face is: What is the most effective way to encourage global pharmaceutical and life sciences companies to invest in serving low- and middle-income countries (LMIC)?

Incentives for global life sciences companies to invest in supply capacity

When life sciences companies introduce new medicines, vaccines, medical devices and diagnostics, LMIC are often the last to gain access. For practical reasons such as uncertain market demand and low ability to pay, companies tend not to prioritise production capacity for developing countries or shun these markets altogether to reduce business risks.

To plug this market inefficiency, development banks and philanthropic foundations have employed market-like instruments such as subsidies and minimum volume guarantees to meet the social objective of healthcare equity. In practice, encouraging global life sciences companies to invest in production capacity involves mitigating risks stemming from the consumers' low ability to pay, uncertain demand, and at times, barriers such as the high fixed costs of production.

Depending on the market conditions and cost structure of production, they would select the most appropriate incentive mechanism. They might offer sales subsidies based on the volume of sales in these markets, variable-capacity subsidy based on the volume produced or a total-capacity subsidy based on the total investment put into building capacity. Another commonly used mechanism is minimum volume guarantees, which have been employed by the Bill & Melinda Gates Foundation, MedAccess and Children's Investment Fund Foundation (CIFF).

The choice of instrument has wide-ranging repercussions: how much capital is at risk, whether the intended impact will be achieved, and if it would result in unintended consequences such as market distortion. However, these high-impact decisions are not always made in a methodical way. Instead, they are often guided by intuition.

An investment framework for incentivising global companies to invest in LMIC markets

What if there was a framework to guide social investors in the selection of instrument that could boost supply to sufficient levels to maximise social welfare?

My co-authors Burak Kazaz from Syracuse University, Scott Webster from Arizona State University and I developed a **mathematical model** to guide decisions to incentivise investment in capacity. To build the model, we used data from organisations that have worked on projects to incentivise investment in building capacity for contraceptive implants, viral load tests and long-lasting insecticide-treated bed nets.

We then used real-life examples to validate the model, taking into consideration conditions under which each incentive is likely to be effective, such as the characteristics of the market, manufacturing costs and their interactions, as well as the budget of the social investor.

In practice, our framework can be used to identify the most effective incentive based on certain parameters. Our work also provides insights into the type of settings where a particular mechanism dominates.

Start with knowing the barriers

One of the most common drawbacks of producing for LMICs is the lower ability of consumers to pay for these health products. When end customers' or the government's ability to pay is extremely low, a sales subsidy would be effective in ensuring that consumers can better afford these products. But when the ability to pay is moderately low, capacity subsidy is more effective.

On the other side of the equation is supply, which is highly dependent on the cost of production. When ability to pay is moderate but high variable costs stand in the way of increasing supply, social investors with a high budget could provide capacity subsidy to incentivise production. In the same scenario, social investors with a lower budget could provide a low-interest loan to help producers mitigate financial risks. On the other hand, when the biggest barrier to expanding production capacity is the high fixed cost of production, volume guarantees by social investors can help producers mitigate the demand risk.

At times, social investors may recognise a strong demand for a product before producers do. In such a scenario, a volume guarantee by social investors might well be an effective safety net to encourage producers to increase production beyond their perceived demand to meet the (more probable) high demand.

Social investment is an art, not a science

Clearly, many factors are at play in producing for LMIC markets. Moreover, the above conditions may not be mutually exclusive, but rather, can coexist in different configurations. This calls for a combination of mechanisms. Instead of being fixated with sticking strictly to the framework, it could be more useful to view it as a guide to making social investment decisions.

In the case of [MedAccess](#), it stepped up in the fight against malaria by working with German chemical company BASF to increase its volume of mosquito nets with pyrethroid and chlorfenapyr insecticides. To arrive at the best strategy, MedAccess had to consider global and national policies, financing and regulation to assess the likelihood of these nets' approval, recommendation and use. In 2019, together with the Bill & Melinda Gates Foundation, MedAccess provided the chemical producer a four-year volume guarantee to purchase a specified volume of innovative nets. The investment paid off. By the end of 2022, BASF had shipped more than 35 million nets to 16 countries and the volume guarantee was removed.

When the production of [Covid-19 vaccines](#) had to be ramped up rapidly, pharmaceutical companies faced unprecedented uncertainty in investing to boost capacity. In this case, the choice of instrument, interestingly, depends on expected demand. When forecasts of the vaccine developer and the social investor are aligned, a combination of a low-interest loan and capacity subsidy would be the most effective. However, in the case of Covid-19 vaccines, the medium-term demand forecast of the social investor is higher than that of the vaccine developer, which makes volume guarantee the only viable and effective instrument to incentivise investment in manufacturing capacity.

The need for equitable healthcare has no boundaries

This framework not only has immediate applications in practice and policy work, it also has wider applicability in the field of supply chain finance in the global health sector. Contrary to conventional wisdom, Covid-19 has shown

that healthcare gaps do not only exist in less developed countries.

When the pandemic swept across the world, governments of high-income countries and sovereign wealth funds invested large sums in expanding production and distribution capacity. When the next global health emergency strikes, this framework could guide decision-makers in getting the most social impact out of their investments.

There is much at stake in ensuring that health products become available to all countries quickly. When social investors share risks with global life sciences companies using the right instruments, they take an important step in the right direction in solving the problem.

Find article at

<https://knowledge.insead.edu/operations/how-boost-health-product-supplies-developing-regions>

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About the research

"**Increasing the supply of health products in underserved regions**" is published in *Production and Operations Management*.

About the series

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Covid-19

Covid-19 is no longer a global health emergency but its impact on public health, the global economy and the future of work cannot be overstated. INSEAD's thought leaders — both faculty and their close

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