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ECONOMICS FOCUS: Neglected diseases and the profit motive

Should the G8 promise to buy vaccines that have yet to be invented?

JESUIT missionaries in Peru stumbled across the first effective treatment for malaria: an alkaloid called quinine, extracted from the bark of the cinchona tree. Unfortunately, a vaccine for this resilient disease, or other big killers such as tuberculosis (TB) and AIDS, does not grow on trees. Inventing one, and bringing it to market, is a risky and costly undertaking. And the people in direst need of such vaccines – the poor – lack the purchasing power to make them worth a company's while.

Michael Kremer, an economist at Harvard University, argues that donors—ie, rich countries' governments – could engineer a market where none yet exists*. They should make a legally binding commitment to buy a vaccine, if and when one is invented. If credible, such a promise would create an incentive for profit-seeking companies to find, test and make life-saving jabs or pills. Whereas today public money “pushes” research on neglected diseases, under his proposal the promise of money tomorrow would “pull” research along.

This elegant notion, often called an “advance purchase commitment” (APC), has migrated with unusual speed from Mr Kremer's blackboard to the communiqués of the powerful. Next month, the finance ministers of the G8 countries will settle on one or two proposals in this spirit. As well as the toughest nuts – vaccines for AIDS, malaria and TB – three softer targets are also vying for the G8's attention: rotavirus (which causes diarrhoea in children), human papillomavirus (a cause of cervical cancer), and pneumococcus (a bacterium that causes pneumonia).

But even as it wins converts, the APC idea is also collecting critics. None is more dogged than Andrew Farlow, an economist at Oxford University and author of a sprawling

critique** of Mr Kremer's big idea and its application to malaria in particular. APCs, he says, are a “policy boil” that needs to be lanced.

There is, Mr Farlow points out, no such thing as “a” malaria vaccine. The first vaccine to market may not be the best possible. The earliest polio shot, for example, was superseded by an oral vaccine, which was easier to administer and lasted longer. From the outset, the G8 will have to set out the traits of a vaccine it would be willing to buy: how effective it must be; how long it should last; the maximum number of doses it should require. Its thorny task is to decide what would be desirable, at what price, long before anyone knows what is feasible.

However the terms are set, Mr Farlow argues, the G8 pledge will at best motivate firms to hit this mark, but not surpass it. Firms are, after all, competing for a limited pot of money. (Mr Kremer and his collaborators suggest it should be about \$3 billion for a malaria, AIDS or TB vaccine, which is about the value of the market for a new drug in the rich world.) A company that comes to market second, with a later, better vaccine may find the pot already emptied by its swifter rival. If companies anticipate this danger, they will lower their sights, settling for a vaccine that just clears the bar set by the G8 donors.

To this objection, the advocates of pull-funding have at least two responses. First, in the face of a disease such as malaria, which kills up to 2.7m people a year, speed is itself a virtue, for which some sacrifice in quality may be worthwhile. Second, in its current incarnation, the APC creates some room for later vaccines to enter the market. Money will not be showered on a company the moment it crosses the finish line, but will be paid out a little at a time. In one scenario, the final customers for vaccines would set the pace. For example, the Kenyan health ministry would decide whether to buy a company's vaccine, for \$1 per dose, and the company would then receive a “top-up” payment of \$14 from the G8. If the pot (including the Kenyan co-payments) contained \$3 billion, it would be drained only after 200m shots had been sold. This, advocates hope, will give a second-generation vaccine time to steal the market from its forerunners.

Unfortunately, this set-up creates problems of its own. Corruption is one danger. If every dollar that a health ministry spends on a given vaccine is worth another \$14 to the company supplying it, an unscrupulous firm might go to illegal lengths to attract the ministry's custom.

A cure or a placebo?

What if companies fail to bite at the carrot the G8 dangles before them, or fall short of a vaccine donors are willing to buy? Well then, argues Mr Kremer, donors have lost nothing. If his scheme fails, the public purse has lost hardly a cent. If it succeeds, then every dollar spent is eminently worthwhile. This, needless to say, is a big part of his scheme's appeal to politicians.

But Mr Farlow doubts that a G8 promise would be credible unless funds were set aside in advance – money he would rather were used elsewhere. There is much else to spend it on. By one count, more than 25 malaria vaccines are currently in or near clinical trials, pushed by public money and philanthropic generosity. Several vaccines, for example against hepatitis B, have already been invented, but fail to reach all the poor.

APCs should not stop governments providing a push wherever it is needed, Mr Kremer insists. But will governments themselves hear him? Critics argue that even if his scheme makes no claim on public funds today, it has still made a big demand on political attention, diverting it from other ends. Mr Kremer sincerely hopes APCs will help provide the world's poor with much-needed vaccines. It might; but despite his best intentions it might instead provide politicians with a prophylactic against other pressing demands for their help.

* For example, "Making Markets for Vaccines". Available at www.cgdev.org/content/publications/detail/2869/

** "The Science, Economics and Politics of Malaria Vaccine Policy". Available at www.economics.ox.ac.uk/members/andrew.farlow/