Calculating the Costs and Benefits of Advance Preparations for Future Pandemics

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The Covid-19 pandemic is estimated to have caused over 7 million deaths and reduced economic output by over $13 trillion to date. While vaccines were developed and deployed with unprecedented speed, pre-pandemic investments could have accelerated their widespread introduction, saving millions of lives and trillions of dollars. Combining estimates of the frequency and intensity of pandemics with estimates of mortality, economic-output, and human-capital losses from pandemics of varying severities, we calculate expected global losses from pandemics of over $800 billion annually. According to our model, spending $60 billion up front to expand production capacity for vaccines and supply-chain inputs and $5 billion every year thereafter would be sufficient to ensure production capacity to vaccinate 70% of the global population against a new virus within six months, generating an expected net present value (NPV) of over $400 billion. A proportionate advance-investment program undertaken by the United States alone would generate an expected NPV of $47 billion ($141 per capita).

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