

the community are homogeneous. The authors also assume that their single rural site in South Africa is typical. Although models must be intuitively plausible and qualitatively accurate, model validation does not necessarily follow from a good fit to the available data, because many complex models can fit limited data quite well.

Many people in the developed world have forgotten the horror of tuberculosis in the age before antibiotics, a time in which only the wealthy could retreat to sanatoria, as in Thomas Mann's *The Magic Mountain*,<sup>10</sup> and the poor were threatened with stigma and fear, as portrayed in Victoria Spivey's *TB Blues*: "TB's all right to have, but your friends treat you so low down."<sup>11</sup> Now, as then, tuberculosis is associated with poverty. The same absence of resources that contributes to extensive drug resistance makes treatment of MDR and XDR tuberculosis impossible for many. Multidrug and extensive drug resistance are monsters of our own creation. They might be with us longer than we think and might need us to spend more than governments or institutions are willing or able to pay. Although scientific warnings are often ignored until too late, effective interventions<sup>2,12</sup> for the control of XDR tuberculosis in Africa are national and international responsibilities, and the world community ignores this message<sup>13</sup> at great peril.

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We thank Spivey Records for permission to reproduce lyrics from the song *TB Blues*. We declare that we have no conflict of interest.

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## Burma and the challenge of humanitarian assistance

Burma's "Saffron Revolution", and the brutal military crackdown which followed it, brought the world's attention to this closed and troubled country. The Buddhist monks and nuns who led the movement have called for dialogue, democracy, and human rights. But they also called on the junta to address the initial spark of the uprising: the five-fold increase in the cost of gas, the doubling of diesel prices, and the two-thirds increases in petrol costs imposed by the junta on Aug 19, 2007. Burma's people were already in desperate straights before these price hikes. In 2000, Burma's health-care system was ranked 190th out of 191 nations by WHO.<sup>1</sup> UNICEF estimates that close to a third of children nationwide were malnourished in 2006, real wages were

being devoured by inflation, and HIV/AIDS, tuberculosis, malaria, and a range of other health threats were taking terrible tolls on ordinary Burmese.<sup>2</sup> UNICEF reported that Government spending on health care in Burma amounted to US\$0.40 per citizen per year in 2005, compared with \$61 in neighbouring Thailand.<sup>2</sup> Childhood (aged under 5 years) mortality was 106 per 1000 livebirths in 2006, compared with 21 per 1000 in Thailand.<sup>2</sup> The price increases were especially inflammatory for two reasons. First, they affected an already impoverished majority. One estimate is that for an average worker in Rangoon, 50–75% of daily wages would now be spent on travel alone—and fuel-price increases immediately raised the cost of basic commodities, including food.<sup>3,4</sup>

## The printed journal includes an image merely for illustration

Buddhist monks and riot police in Rangoon, Burma, Sept 26, 2007

Second, the junta under General Than Shwe made the energy sector one of its principal supports and one of its show pieces, selling oil and gas reserves to Thailand, India, China, and others. And the junta was spending these revenues lavishly: an estimated \$3-4 billion on arms in 2006 (mainly from China, Russia, and Ukraine), and running costs for the so-called City of Kings, the new capital Naypyidaw, costed by the International Monetary Fund at \$120–240 million a year. All that in a country where the total national budget for HIV/AIDS in 2005 was \$137 000.<sup>2</sup>

The junta's spending seems to have been beyond their means—and the country was thought bankrupt by mid-summer.<sup>4</sup> The General's solution? Squeeze more resources out of the people. They clearly miscalculated how much more deprivation the people could bear.

The attacks on non-violent protestors have moved the conscience of the world. The crackdown is not over and it has already affected health. Burma's monasteries have long been places of refuge and pastoral care. Several of the monasteries active in the uprising and targeted in the crackdown were important centers for HIV/AIDS care, support, and hospice services. These centres were not spared: "Several monasteries in Rangoon were left empty following raids by government security forces... Maggin monastery in Thingangyun township, which provides care for people with HIV and AIDS, was emptied and locked up by the authorities".<sup>5</sup> In the first raid on the Maggin care centre, the Abbot and four senior monks, two aged over 80 years, were arrested.<sup>5</sup>

Humanitarian assistance programmes, already limited by regulations imposed by the junta in 2005 and 2006, were further hampered.<sup>2</sup> The World Food Program has been running food-distribution programmes for poor people, orphans, patients with tuberculosis and HIV/AIDS, and others for some years. This programme ran into difficulty as the junta closed off distribution during the crackdown.<sup>6</sup> Although these limits on humanitarian aid are likely to be short term, the needs are not. And the restrictions imposed by the junta, which led to the withdrawal of the Global Fund and Médecins Sans Frontières, and caused the International Committee of the Red Cross to suspend many field operations, remain barriers to providing relief for the suffering.<sup>2</sup> The root cause of that suffering, military misrule, is ultimately to blame for Burma's hunger. This country was once a rice exporting nation blessed with natural resources. Burma's humanitarian crisis, like Zimbabwe's, is entirely manmade. Thus it is crucial, as calls are made for increased humanitarian assistance, including food and essential drugs, that the medical and humanitarian communities stay mindful of the cause of Burma's impoverishment—the Generals.

There will doubtless be calls for increasing health and humanitarian assistance efforts in Burma in the aftermath of the Saffron Revolution. Some people might call for a depoliticising of aid efforts and for increased direct collaboration with the junta, its Ministries, and its affiliates. It would be heartless to deny the people of Burma any assistance the international community can provide. But it would be equally heartless to allow aid to be manipulated so as to prolong the junta's rule or provide preferential relief for the junta's supporters. Burma's people have shown again that they want freedom and they have been willing, again, to die for their beliefs. All due diligence must be paid, as health and humanitarian efforts are ramped up, that such efforts do not prolong the cause of the very suffering they seek to alleviate: the military regime, which has proven such a threat to health, wellbeing, and prosperity.

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## Health investment benefits economic development

Economic development is good for health, but good health also fosters economic growth. WHO's Commission on Macroeconomics and Health has argued persuasively that policymakers would gain more from scarce resources if they invested in both economies and health, ideally launching a virtuous circle of growth and human development.<sup>1</sup> The Commission has focused on the urgent public-health crises facing sub-Saharan Africa, a region ravaged by HIV/AIDS, malaria, and tuberculosis, and undoubtedly a legitimate focus for global aid efforts. Do the Commission's conclusions have relevance for other low-income and middle-income regions, such as eastern Europe and central Asia, also burdened by poverty and ill health?

Similarly to sub-Saharan Africa, eastern Europe and central Asia include many countries with declining life-expectancy.<sup>2</sup> However, their economies are different from sub-Saharan Africa, because many countries have substantial industrial sectors and generally a more developed infrastructure. Eastern Europe and central Asia's pattern of health is also different: a far greater share of disease burden is accounted for by complex non-communicable diseases and injuries, and thus findings from Africa might not apply directly. Countries in eastern Europe and central Asia are also largely overlooked in the global-health arena, receiving much less development assistance for health than might be expected, in view of the extent of their health and economic development.<sup>3</sup>

This lack of international assistance is not compensated for by domestic policy efforts: governments in this region have given health investment a low priority, and what funds have been made available have done little to redress the substantial, and often increasing, socioeconomic inequalities in health. Little coordination exists with other policies, with

health featuring only peripherally in national poverty-reduction strategies.

Clearly, health in this region has enormous scope for improvement, but would such improvement increase wealth? New evidence shows that individuals, households, and economies pay a heavy price for this largely avoidable disease burden.<sup>4-6</sup> The table<sup>5</sup> shows how ill health reduces an individual's probability of participating in the labour force. However, these findings also have growing importance in low-income and middle-income countries in other parts of the world.<sup>7</sup>

Many of these countries are, at last, experiencing growth, so should we still worry? Unfortunately, this growth is often only a correction of the previous large economic decline, driven by either short-term efficiency gains after partial market reforms or by windfalls from natural resources (eg, oil and gas), with little investment to increase long-term growth to a maximum.

What difference might investment in health make to economic growth? Evidence suggests that health investment could be a hitherto neglected opportunity to

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	Change in probability of participation in labour market
Kazakhstan	-30.4%*
Belarus	-25.1%*
Russian Federation	-23.0%*
Moldova	-22.3%*
Kyrgyzstan	-18.8%*
Ukraine	-16.7%*
Armenia	-16.3%*
Georgia	-6.9%†

\*p<0.01. †p<0.05. Comparisons are between probability of labour force participation with activity limitations with that without such limitations.<sup>5</sup> Results represent instrumental variable profit estimates with microdata from 2001 Living Standards, Lifestyles, and Health Survey.<sup>5</sup>

**Table:** Effect of activity-limiting illness on labour market participation in eight countries from the Commonwealth of Independent States, 2001