SINCE 1900, EVERYTHING IS BETTER, EVEN THE CLIMATE

Increased levels of carbon dioxide will benefit Australia right through to 2050

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FOR centuries, optimists and pessimists have argued over the state of the world. Pessimists see a world where more people means less food, rising demand for resources means depletion and war, and, in recent decades, boosting production capacity means more pollution and global warming. One of the current generation of pessimists' sacred texts, *The Limits to Growth*, influences the environmental movement to this day.

The optimists, by contrast, cheerfully claim that everything — human health, living standards, environmental quality, and so on — is getting better. Their opponents think of them as "cornucopian" economists, placing their faith in the market to fix any and all problems.

But, rather than picking facts and stories to fit some grand narrative of decline or progress, we should try to compare across all areas of human existence to see if the world really is doing better or worse. Together with 21 of the world's top economists, I have tried to do just that, developing a scorecard spanning 150 years. Across 10 areas — including health, education, war, gender, air pollution, climate change, and biodiversity — the economists all answered the same question: What was the relative cost of this problem in every year since 1900, all the way to 2013, with predictions to 2050.

Using classic economic valuations of everything from lost lives, bad health and illiteracy to wetlands destruction and increased hurricane damage from global warming, the economists show how much each problem costs. To estimate the magnitude of the problem, it is compared with the total resources available to fix it. This gives us the problem's size as a share of gross domestic product. And the trends since 1900 are sometimes surprising.

Consider gender inequality. Essentially, we were excluding almost half the world's population from production. In 1900, only 15 per cent of the global workforce was female. What is the loss from lower female workforce participation? Even taking into account that someone has to do unpaid housework and the increased costs of female education, the loss was at least 17 per cent of global GDP in 1900. Today, with higher female participation and lower wage differentials, the loss is 7 per cent, and projected to fall to 4 per cent by 2050.

It will probably come as a big surprise that climate change is expected to be mostly an increasing net benefit — rising to about 1.5 per cent of GDP per year — in the period from 1900 to 2025. This is because global warming has mixed effects; for moderate warming, the benefits prevail. For Australia, the model shows that this is true through to 2050.

On the one hand, because CO_2 works as a fertiliser, higher levels have been a boon for agriculture, which comprises the biggest positive impact at 0.8 per cent of GDP. Likewise, moderate warming prevents more cold deaths than the number of extra heat deaths it causes. It also reduces demand for heating more than it increases the costs of cooling, implying a gain of about 0.4 per cent of GDP. On the other hand, warming increases water stress, costing about 0.2 per cent of GDP, and negatively affects ecosystems like wetlands, at a cost of about 0.1 per cent.

As temperatures rise, however, the costs will rise and the benefits will decline, leading to a dramatic reduction in net benefits. After 2070, global warming will become a net cost to the world, justifying cost-effective climate action now and in the decades to come.

Yet, to put matters in perspective, the scorecard also shows us that the world's biggest environmental problem by far is indoor air pollution. Today, indoor pollution from cooking and heating with bad fuels kills more than three million people annually, or the equivalent of a loss of 3 per cent of global GDP. But in 1900, the cost was 19 per cent of GDP, and it is expected to drop to 1 per cent of GDP by 2050.

Health indicators worldwide have shown some of the largest improvements. Human life expectancy barely changed before the late 18th century. Yet it is difficult to overstate the magnitude of the gain since 1900: in that year, life expectancy worldwide was 32 years, compared to 69 now (and a projection of 76 years in 2050).

The biggest factor was the fall in infant mortality. For example, even as late as 1970, only about 5 per cent of infants were vaccinated against measles, tetanus, whooping cough, diphtheria, and polio. By 2000, it was 85 per cent, saving about three million lives annually — more, each year, than world peace would have saved in the 20th century.

This success has many parents. The Gates Foundation and the GAVI Alliance have spent more than $US2.5 billion and promised another $US10bn for vaccines. Efforts by the Rotary Club, the World Health Organisation and others have reduced polio by 99 per cent worldwide since 1979.

In economic terms, the cost of poor health at the outset of the 20th century was an astounding 32 per cent of global GDP. Today, it is down to about 11 per cent, and by 2050 it will be half that.

While the optimists are not entirely right (loss of biodiversity in the 20th century probably cost about 1 per cent of GDP a year, with some places losing much more), the overall picture is clear. Most of the topics in the scorecard show improvements of 5 to 20 per cent of GDP. And the overall trend is even clearer. Global problems have declined dramatically relative to the resources available to tackle them.

Of course, this does not mean that there are no more problems. Although much smaller, problems in health, education, malnutrition, air pollution, gender inequality and trade remain large.

But realists should now embrace the view that the world is doing much better. Moreover, the scorecard shows us where the substantial challenges remain for a better 2050. We should guide our future attention not on the basis of the scariest stories or loudest pressure groups, but on objective assessments of where we can do the most good.

Bjorn Lomborg, editor of How Much Have Global Problems Cost the World? A Scorecard from 1900 to 2050, will attend Melbourne Creative Innovation 2013.