Australia is turning its back on religion.

That’s the latest finding from a census completed by the Australian Bureau of Statistics, which shows more than one-fifth of the nation’s 21.5 million inhabitants now claim to follow no religion at all.

Compare that with the first census taken a century ago, when a broadly similar grouping—including agnostics and atheists—made up just 0.3% of the 4.5 million population. Or with the U.S., where a comparable 2008 survey found just 1.5% claiming not to follow a faith.

Australia’s 4.8 million nonreligious in the 2011 census was also about a million more than was recorded five years earlier at the last national headcount.

Proponents of religion frequently promote it as a route to happiness. But in Australia, whose prosperity has soared in recent years thanks to a mining boom fueled by developing Asia, some believe it might be the country’s rising level of contentedness that’s actually driving the decline of religion.

“We’re a nation that is very comfortably off and one that managed to ride out the global financial crisis,” said Carole Cusack, associate professor of religion at Sydney University. “Why would you need God here?”

That sentiment finds support from an Organization for Economic Cooperation report last month, which marked Australia as the happiest industrialized nation based on criteria including jobs, income and health. Unless something radical happens that interrupts that path to prosperity, said Ms. Cusack, the trend toward secularism here is likely to continue.

To be sure, Christianity remains the dominant religious category by far in the census—with a hefty 13.2
million followers. However, it now accounts for only 61% of the population, compared with 96% in the 1911 census. The findings echo surveys that depict a sharp drop-off in church attendance.

What’s more, while the total number of Christians in Australia has risen every five years along with the overall population, all of the growth over the past 15 years is accounted for by persons over 45 years of age, while younger people have been shedding their allegiance in the hundreds of thousands.

Prime Minister Julia Gillard is herself an atheist—an unmarried, childless one at that. But that doesn’t seem to carry the same degree of political risk as in the U.S., or even comparably secular countries such as the U.K., where the non-religious stood at 16% of the population of England and Wales at the last count.

“It’s hard to imagine an atheist becoming president of the United States,” said Ms. Cusack. “But here in Australia, the prime minister is one, and people don’t really care about it.”

Still, while Christianity is struggling to grow, some mainstream faiths are advancing fast—albeit off a miniscule base. Australia’s Buddhist population, for instance, has nearly tripled over the past 15 years to 528,978.

Muslims and Hindus have notched similar gains, while traditional aboriginal religions, which dropped in the two previous census counts, have seen a resurgence back to 1996 levels. The reasons for the growth in non-Christian faiths are varied, said Sydney university’s Ms. Cusack.

In the case of Hinduism, the fastest-rising religion in the past five years, she said the growth driver is largely immigration from places like India and Singapore, while Islam’s gain to 476,290 has a lot to do with the high birth rate among practitioners, alongside fresh arrivals from Turkey, Malaysia and other countries.

Buddhism has benefited more than the others from conversions, said Ms. Cusack. Its ascent has also been boosted by an increasing celebrity following and political backing for Tibetan Buddhism led by the Dalai Lama.

The Buddhist Society of Western Australia, which counts Thais, Sri Lankans and Singaporeans among its followers, says it’s seeing membership growth of more than 15% a year.

Philip Ragan, its president, says a lot of newcomers were previously atheists or agnostics, but that many were looking for new ways, such as meditation, to deal with the current global economic uncertainty.

That’s saying something in a country whose wealth has soared in recent years, as the mining boom continues to transform the economy into one of the most successful in the developed world.

–Rachel Pannett and Caroline Henshaw contributed to this article.

Correction: Philip Ragan is the president of the Buddhist Society of Western Australia. A previous version of this post gave his name as Raga.