

Academic publications are important reflections of the strength of the research community in a country. A strong research community fuels innovation in the economy. It's also the bedrock for generating high-quality evidence to inform policy decisions.

Indonesia, the largest economy in Southeast Asia and the fourth-most-populous country in the world, wields substantial economic and political influence in the Asia-Pacific region. It has the potential to make important contributions through academic research and the dissemination of knowledge emerging from Indonesian universities.

In the last four years Indonesia has rapidly increased its academic publications output. Indonesia's publication output increased tenfold with an average annual growth rate of 15%, growing from 538 in 1996 to 5,499 in 2014.

This may ultimately help Indonesia produce high-value goods for export, such as chemicals, electronics and bio-medical manufacturing. It would also quicken its transition to a middle-income country.

As [Lord Nicholas Stern noted](#) :

Whilst creativity, ideas and questioning are of value in their own right, economies and societies which invest more in research generally show faster rates of growth in output and human development.

Still behind

However, Indonesia still has a lot of catching up to do to be on par with other countries in the region and other middle-income countries in publishing academic articles.

Between 1996 and 2008 Indonesia published just over [9,000 scientific documents](#) . That figure

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Written by Helen Tilley, Research Fellow, Overseas Development Institute

places Indonesia more than 13 years behind other lower-middle-income countries like Bangladesh or Kenya.

Indonesia trails even further behind neighbouring upper-middle-income countries such as Thailand and Malaysia or high-income countries such as Singapore.

Singapore, South Africa and Mexico still each produce three times as many academic publications as Indonesia.

The [low production of academic papers](#) by Indonesian research institutions is one of the symptoms of a weak knowledge sector.

In 2014 Indonesia accounted for only 0.65% of academic publications in the ASEAN region. It produced just over 0.2% of global publications. Compared to the size of the economy and population of Indonesia there's a substantial gap between actual and potential research output.

Indonesia produces the lowest number of academic publications per US\$1 billion of GDP (2.2 publications per US\$1 billion of GDP), compared to neighbouring ASEAN countries and partner countries of the G20. The Philippines produces 2.7 and Vietnam 7.2 academic publications per US\$1 billion of GDP.

Indonesia has also failed to maximise the [potential for international collaborations](#) in recent years. International collaborations help scientists to access knowledge and expertise, and apply them to local problems. They also enhance domestic scientific capabilities through the exchange of knowledge and experience.

Until 2011 67% of publications involved co-authorship, but by 2014 this had fallen to 44%. Previously, Indonesian authors were more collaborative than authors from countries with much higher publication output.

Indonesia's potential

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If Indonesia continues to produce academic publications at the current rate it may eventually overtake other ASEAN countries such as Vietnam, the Philippines and Malaysia. Indonesia may also overtake key G20 partners such as South Africa and Mexico, which have had lower growth rates.

Indonesia's academic articles are also informing other research. Other researchers are citing more and more academic articles by Indonesian academics.

Between 1996 and 2011 Indonesia's average annual increase in cited publications was 16%. This is lower than China and Singapore. But higher than the Philippines, Vietnam, Malaysia and other countries.

This does, however, reflect a lower absolute increase in cited publications compared to other middle-income G20 economies given the smaller total publication output of Indonesia. There is still progress to be made.

Indonesia's researchers have shown progress in producing knowledge. But it must catch up to close the gap in academic publications with other countries.

To do so, Indonesia has to continue building a culture of research in its universities. This means funding basic research and innovation.

Government organisations should commission research directly from Indonesian universities and research centres to support public policy decisions. The government should also create incentives to promote private and philanthropic investment in research.

Indonesia has made an important start on funding research through the creation this year of the Indonesian Science Fund
. This is the first competitive, peer-reviewed research fund in the nation.

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Changes in regulations and rules are needed to guide research commissioning to support public policy. There should also be a change in attitude and expectations among policymakers.

Here too there are signs of progress. The government is considering changing procurement regulations to incentivise policy makers to commission research from Indonesian universities and research institutes.

All of this points to a cultural shift that values research. Creating a culture of research in universities cannot be done by researchers alone. It needs leadership from the government and university rectors, and clear signals that research is valued and used.

Academic publication is the visible indicator of a healthy research environment. As the culture of research is built and the research environment grows, publications will grow. Then we will see Indonesia catch up with – and perhaps surpass – other countries in the region and produce the knowledge and research evidence required by a rapidly growing economy to [innovate](#).

This piece was co-authored by Fred Carden, Principal in Using Evidence Inc and Senior Research Advisor to the [Knowledge Sector Initiative](#), a joint program between the Indonesian and Australian governments supporting the use of better research, analysis and evidence in public policy.

Helen Tilley is a researcher in the Research and Policy in Development programme of the Overseas Development Institute (ODI). This blog is based on research undertaken with the Knowledge Sector Initiative in Indonesia. The views expressed in this blog do not reflect the views of the Government of Australia, the Government of Indonesia, ODI, or the Knowledge Sector Initiative. None of the entities accept any liability arising as a result of this publication.

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