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Foreword

ANZRSAI 46th Annual Conference 2023

The 2023 ANZRSAI Conference (i.e. Our 46th annual conference) is planned to be held jointly with RSA conference at RMIT University in Melbourne over three days, 26-28 November. It will be an in-person conference, although opportunities for on-line presentation and streaming will be available. If your work addresses the implications of global crises for regional futures, please join us for our 46th ANZRSAI Annual Conference and the fourth RSA conference in Australasia at RMIT, Melbourne. Proposals for contributed papers, for themed panels, or for special sessions, will be welcomed on any topic related to regional futures.

Further information about the conference is available at:
https://www.anzrsai.org/conference/
https://www.regionalstudies.org/events/2023-australasia/
https://www.regionalstudies.org/wp-content/uploads/2023/04/ANZRSAI-RSA-2023-First-Call-for-Papers_DRAFT-v3.pdf

More Economists back RBA rate hike pause

More economists believe the Reserve Bank of Australia (RBA) will hit pause on its record-breaking run of interest rate hikes in April before resuming once more in May amid financial industry instability.

Yesterday Australia's unemployment rate fell to 3.5 per cent in the wake of a falling monthly inflation indicator, generally showing a stronger economy.

But news of Credit Suisse being forced to borrow billions to keep the doors open, along with the collapse of the Silicon Valley Bank and Signature Bank has some economists tipping that Australia's central bank will hold on to its course of rate hiking.

Senior economist at AMP Australia Diana Mousina said there was "some chance" that Governor Philip Lowe and the board would hike rates in April, but they were not expecting it.
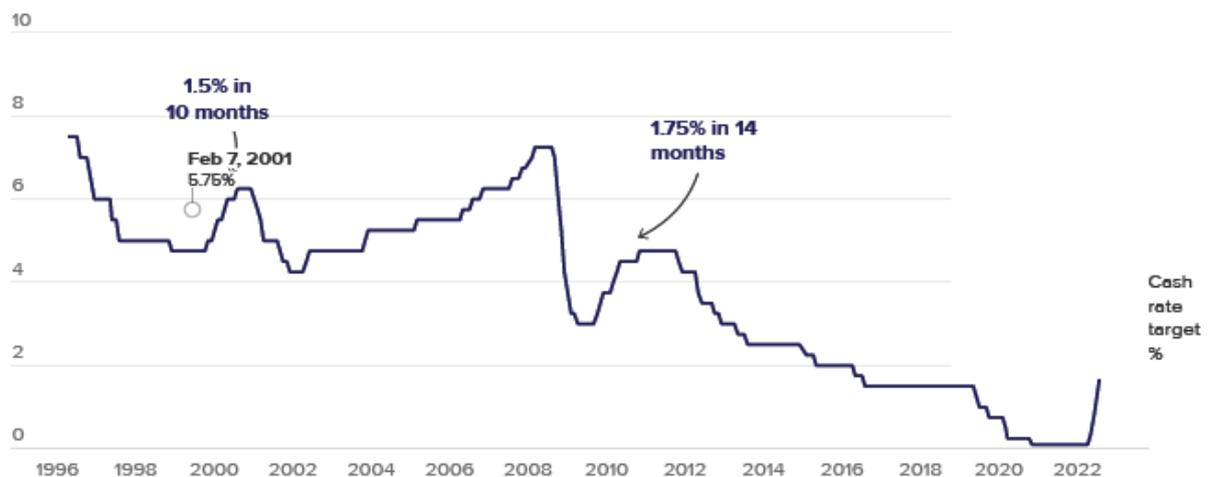
Source: RBA

Fig. 1. Interest rates: cash target rate

"Panic in markets over the past week around the risks to bank liquidity after the collapse of three regional US lenders and current worries around Europe's Credit Suisse bank shows that impacts of central banks rate hikes are increasing financial stability risks given the fast upward moves in rates over the past year and contagion risks remain high for now," Mousina wrote.

"Additionally, we think the February retail and inflation data in two weeks' time will also disappoint expectations.

"Our base case is that the RBA will keep the cash rate unchanged in April at 3.6 per cent and see the central bank maintaining the cash rate at this level before the risk of rate cuts in late 2023/early 2024."

Westpac Chief Economist Bill Evans reiterated that there would likely be a pause in rate hikes in April followed by a final increase in May.

"We now expect a pause in April to be followed by a final increase of 0.25 per cent at the May meeting," he said.

"Prior to the Governor's surprisingly hawkish response to the December quarter Inflation Report where he effectively signalled consecutive rate hikes in both March and April, Westpac had expected that there would be a pause in April with a final hike in May."

Evans said Governor Philip Lowe has previously been confident about rate hikes but in March was more tentative.

In a speech following the March rate hike, Lowe noted a pause in April would be considered depending on business surveys, the February unemployment data, the February inflation data and retail sales.

Evans believes rates will tighten to 3.85 per cent by May after previously forecasting a 4.1 per cent cash rate.

Governor Lowe cited persistent inflation - currently sitting above 7 per cent - as the primary driver of the bank's decision to continue lifting rates.

The RBA has consistently said it intends to return inflation to between 2 and 3 per cent.

So, Australian governments need to do more this year to help households with the outrageous cost of living, especially energy costs which are set to rise by around 20 per cent for the second year running.

The federal government has promised an extra $1 billion in relief, to be allocated by the states, but only about half of them have revealed new payments so far.

The news with some significant data can be explored here at the following links:

https://www.abc.net.au/news/2023-06-04/australia-economic-crisis-short-run-and-long-run/102436804

https://www.9news.com.au/national/australia-interest-rates-march-decision-2023-cost-of-living-reserve-bank-australia/6643a21c-e52b-4952-8774-7e956c247c48

https://www.9news.com.au/finance/cost-of-living-payments-government-assistance-rebates-state-by-state-guide-australia/3691a45a-cf63-435d-81ae-fb367d051526

Ukraine war requires Australia to adjust its diplomacy

The global and regional tensions highlighted by the war in Ukraine requires Australia to adjust its diplomacy. John McCarthy (*AO and Senior Adviser at Asialink and former Australian Ambassador to the US and several Asian countries*) argues this calls for deepening dialogue with the Asia-Pacific region, Europe, and the Global South.

The anniversary of the Russian invasion of Ukraine gives us pause to reflect on recent global shifts that affect our security.

The first shift is unsurprising: the growth of strategic competition and accompanying tensions in the two main theatres, the North Atlantic and the Indo-Pacific.

The Ukraine war has broken what little trust existed between Russia and the West. Even if a ceasefire is achieved, Europe will be uneasy for decades.

Chinese assertiveness over the past five years has raised the temperature in the Indo-Pacific. Tensions about Taiwan have been central.

The United States has veered from a policy of ambiguity about whether it would defend Taiwan. Some Republican leaders have also questioned the One China Policy – regarded as a sacrosanct pillar of western approaches on China.

To quote a seasoned Singaporean observer, Chan Heng Chee, in the Straits Times on 21 February: "The Chinese are coming to the position that the United States is in reality pursuing a 'One China, One Taiwan policy'."

Chinese policies in East Asia over the past five years or so and the Russian invasion of Ukraine have also stimulated in Japan a new strategic boldness.

The second shift is that developments in the each of the theatres of strategic competition have increasingly impacted on the other.

The "no limits" description of the partnership agreed between Chinese President Xi Jinping and President Putin on 4 February last year may be hype. But the partnership has helped Russia manage the costs of the war. And while the Americans can cope with strategic competition in two theatres at once, it is to China's advantage to have American political energy and resources focussed more on Europe, less on the Indo-Pacific.

And because of its relationship with Russia, China has leverage in any peace process that might develop in Europe. This gives it global clout. It has yet successfully to exploit this capacity. President Xi's 12-point peace initiative of 25 February might not in itself get far. But it could be the first stage in a more active Chinese diplomatic role on Ukraine.

And aspects of China's Ukraine policy may have direct relevance to the Indo-Pacific. One of India's foremost experts on negotiating with China, former Foreign Secretary, Shyam Saran, wrote in the Indian publication The Tribune on 21 February that, "China may well be trying to link its restraint on supplying lethal materials to Russia to American restraint on weapons supplies to Taiwan".

The Europeans have also expanded their strategic reach into the Indo-Pacific. The French have always been here. The British are in AUKUS – even if as much because of the politics of Brexit as because of their strategic interests. Others such as the Germans have also been more visible in our region. Going

in the other direction, Japan, South Korea, Australia and New Zealand attended last year's NATO summit and will likely attend the 2023 meeting.

The third shift has been the revival of the "Global South".

At the G20 meeting in Bali in November 2022, the actual and future Chairs, Indonesia and India, lobbied successfully for a declaration that most members "strongly condemned" the war in Ukraine. True, both countries were probably acting less from altruism than to keep the G20 as a going concern, particularly on their watch. But they did it.

And on 24 February this year, the UN General Assembly passed a resolution which called for Russian withdrawal from Ukraine. It was carried by 141-7 with 32 abstaining. All good.

That said, the developing world is generally averse to sanctions policies and largely sees the Ukraine war as a European affair – one that has proved expensive for them as well as for the combatants and their supporters.

In January this year, Indian Prime Minister Modi hosted a virtual summit of leaders of the Global South – essentially the same grouping with the same objectives as the UN Group of 77 (now 134) developing countries. Much of the discussion was about handling of the global economic issues arising from COVID and from the Ukraine war.

In a recent interview with Nikkei Asia, the Indonesian Finance Minister Sri Mulyani Indrawati, the most accomplished member of the Indonesian Cabinet, spoke of the importance of working closely with India to bolster the role of the Global South in world affairs.

What then should Australia do?

First, the growth in tensions in both major global theatres – but particularly in the Indo-Pacific means that, some individual decisions aside, the government has correctly put heft into that aspect of security policy that encompasses deterrence and combat-readiness, namely relevant alliances and military arrangements and money for weapons and personnel.

But despite the obvious acumen of the Foreign Minister, Ms Wong, the government has been less visibly active in pursuing the second – and equally crucial – aspect of security policy, namely working with others to diminish the risk of hostilities.

Part of the problem is that Australian political style and the maw of much of the Australian media more readily embraces the first aspect. This means that for those on the receiving end of our policy, the muscular side dominates. The perception of our policy can then become the reality. We should seek to redress this imbalance. Less chest beating, more talking.

Second, we have been right in recent decades to channel our diplomatic energy and resources into the region, both Asia and the Pacific. However, the impact of developments in each of the two main strategic theatres on the other has thrown into relief that we need to put more diplomatic grunt into Europe.

Further information can be found at:

https://www.abc.net.au/news/2022-03-07/russia-ukraine-invasion-and-how-it-will-impact-your-budget/100887104

Voice support increases in Essential and Resolve polls

In the latest Essential poll, support for the Aboriginal and Torres Strait Islander Voice to parliament increased slightly to 60-40, from 59-41 in March. But hard "no" support was up two to 26%, soft "no" was down three to 14%, while 27% remained soft "yes" supporters.

Asked about Opposition Leader Peter Dutton and the Liberals' decision to oppose the Voice, 52% said they were playing politics, while 48% thought they had genuine concerns.

On voting intentions, federal Labor had a 52-43 two-party lead, including undecided (down slightly from 53-42 last fortnight). This poll was conducted April 12-16 from a sample of 1,136 people.

Primary votes were 34% Labor (up one), 31% Coalition (up one), 14% Greens (steady), 6% One Nation (steady), 3% United Australia Party (up one), 9% for all others (down one), and 4% undecided (down one).

Prime Minister Anthony Albanese's ratings dropped slightly to 51-36 approval, from 52-35 last fortnight. For the first time, Essential included an approval question on Dutton, finding him at 44% disapproval, 36% approval.

On social media usage, 57% of poll respondents they used Facebook at least once a day, followed by YouTube at 38% and Instagram at 35%. Only 14% used Twitter once a day. By 53-25, respondents did not think their right to privacy was adequately protected in law.

Support for Voice to Parliament

Q. As you may be aware, there will be a referendum held later this year on whether a Voice to Parliament for Aboriginal and Torres Strait Islander people should be enshrined in the constitution. The question at the 2023 referendum will be:

A Proposed Law: to alter the Constitution to recognise the First Peoples of Australia by establishing an Aboriginal and Torres Strait Islander Voice. Do you approve this proposed alteration?

Yes No
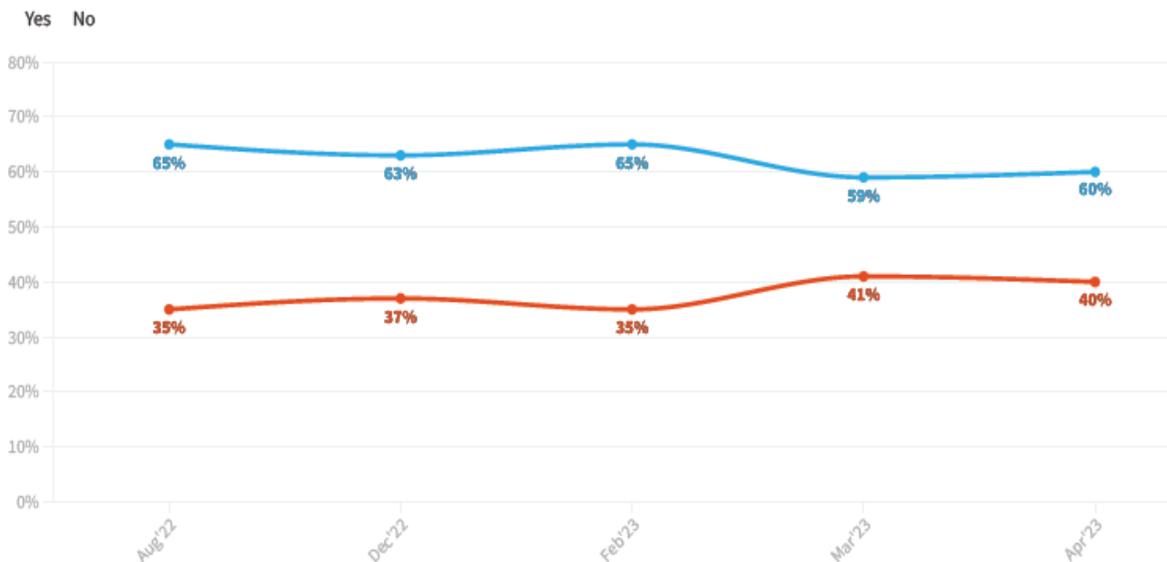
Base: All participants (min. n=1,000)
Our methodology

[Source: https://essentialreport.com.au/reports/18-april-2023]

Resolve poll: Voice support at 58-42

Voters supported the Voice by 58-42 when asked to choose "yes" or "no" with no option for undecided, as part of a Resolve poll for Nine newspapers conducted April 12-16 from a sample of 1,600 people. Support was up one point from 57-43 in March.

In surveys combined from March and April, a majority in each state were in favour, as well as nationally.

Initial preferences were 46% "yes" (steady since March), 31% "no" (down one) and 22% undecided (steady).

In a question on turnout in a referendum, 81% said they were likely to vote, 10% unlikely and 9% were undecided.

Morgan poll: 56-44 to Labor

A Morgan poll, conducted April 10-16, gave Labor a 56-44 lead. This was unchanged from the previous week but a 1.5-point gain for Labor since last fortnight. Primary votes were 37% Labor, 33% Coalition, 12% Greens and 18% for all others.

Newspoll Voice survey over three months

The Poll Bludger reported on April 5 that aggregate data from three Newspoll surveys on the Voice to parliament, conducted between February and April, gave "yes" to the Voice an overall 54-38 lead.

State breakdowns had "yes" leading by 55-36 in New South Wales, 56-35 in Victoria, 49-43 in Queensland, 51-41 in Western Australia, 60-33 in South Australia and 55-39 in Tasmania. The number of people polled per state ranged from 334 in Tasmania to 1,414 in NSW.

A "yes" vote at a referendum requires majority support in at least four of the six states, as well as majority support nationally.

Newspoll has also released its voting intentions demographic data from February to April. The Poll Bludger reported on Saturday that Labor led overall by 55-45, in Victoria by 58-42, in SA by 56-44, and in NSW and WA by 55-45. In Queensland, there was a 50-50 tie.

Queensland remains the most pro-Coalition state after it was the only state to vote for the Coalition at the last election (by a 54-46 margin).

Animal Justice now a good chance to win final NSW upper house seat

The NSW upper house has 42 members, with 21 up for election every four years, so members serve eight-year terms. All 21 are elected by statewide proportional representation with optional preferences. A quota for election is 1/22 of the vote or 4.5%.

With the NSW upper house check count complete for the March 25 election, Labor won 8.05 quotas, the Coalition 6.55, the Greens 2.00, One Nation 1.30, Legalise Cannabis 0.81, the Liberal Democrats 0.78, the Shooters 0.69, Animal Justice 0.48 and Elizabeth Farrelly 0.29.

Both major parties were short of their expected totals in the initial count, with the Coalition expected to win 6.60 quotas and Labor 8.10. As a result, Animal Justice needs to close only a 0.07 quota gap on preferences, instead of the expected 0.12 – see analyst Kevin Bonham's commentary.

Although the final seat is clearly a contest between the Coalition's seventh candidate and Animal Justice, a few parties will take votes that might otherwise reach the Coalition or Animal Justice. This includes Legalise Cannabis, the Shooters, Fishers and Farmers, and Liberal Democrats, as all are well short of a full quota.

So the Coalition will be competing with two other right-wing parties, while Animal Justice will be competing with Legalise Cannabis for left-wing preferences.

Further information interesting reports can be found at the following links:

https://theconversation.com/voice-support-increases-in-essential-and-resolve-polls-203839

https://theconversation.com/why-cant-we-just-establish-the-voice-to-parliament-through-legislation-a-constitutional-law-expert-explains-203652

Commentary

From the Regional Australia Institute

More jobs than people in regions

New report by Regional Australia Institute reveals demand highest for doctors and nurses

Regional job advertisements grew three times faster than in metropolitan Australia at the end of 2022, with demand for doctors and nurses skyrocketing, according to new research by the Regional Australia Institute (RAI).

Speaking at the National Press Club in Canberra today, RAI CEO Liz Ritchie will launch the Institute's latest report, Regional Jobs 2022: The Big Skills Challenge, identifying the biggest gaps in critical roles.

"This report shines a light on the unprecedented challenge playing out in regional Australia, as labour supply struggles to keep up with demand-despite population movement continuing," Liz Ritchie said.

Demand for workers in regions hit record levels in 2022, with December recording a 10% annual increase in the number of roles advertised, outpacing growth in capital cities of 3%.

In October 2022, according to the Internet Vacancy Index (IVI), which is a monthly count of online jobs advertised by Jobs and Skills Australia, regional job vacancies grew to 94,100, which was more than double the pre-pandemic levels.

"Medical Practitioner and Nurse vacancies in regions represented almost half the total national vacancies for this occupation grouping, despite regional Australia representing only one third of the population," Ms Ritchie said.

"The RAI's decadal snapshot shows some regions have recorded five-year vacancy growth rates for Medical Practitioners and Nurses of more than 500%, with the North Coast NSW IVI region looking to fill more than 400 roles," Ms Ritchie said.

"Job vacancy growth year on year shows that the regions are falling further and further behind in trying to secure staff. Without intervention, the gap potentially will widen," Liz Ritchie said.

Regional Jobs 2022: The Big Skills Challenge, identifies the top four most in-demand online advertised roles across regional Australia for December. These include:

- Medical Practitioners and Nurses – 6,166
- General Inquiry Clerks, Call Centre Workers and Receptionists – 5,941
- Carers and Aides – 5,416
- Sales Assistants and Salespersons – 4,527

More than half of all 31 regional IVI areas had Medical Practitioners and Nurses as the most in-demand position - Bendigo High Country (358 positions), Geelong Surf Coast (363), Wimmera and Western (187), Central Queensland (323), Far North QLD (432), Fleurieu Peninsula and Murray Mallee (103), Pilbara Kimberley ((141), and Regional NT (105).

While professional roles (which includes Medical Practitioners and Nurses) account for the largest number of roles advertised in regional Australia (26.7%) and require a skill level commensurate with a bachelor's degree or higher, the remaining three occupation groupings in the top four are occupations that require a minimum Certificate III.

"To strengthen educational pathways in regions to meet the demand for workers, understanding the most in-demand roles, on a regional level, is critical.

"The Dubbo and Western NSW IVI area posted a five-year growth rate of 248% for General-Inquiry Clerks, Call Centre Workers and Receptionists. The Riverina and Murray IVI area saw Carers and Aides (health, education and childcare) advertisements increase by 323% in the same timeframe.

"Each region has its own story to tell and the people they need to ensure it can accommodate the demand in vacancies – which in most areas are seeing three figure percentage increases on five years," Liz Ritchie said.

Preliminary economic modelling undertaken by the RAI indicates that filling these positions would have significant economic impact on both the regional and national economies.

"These roles represent a total of $1.76bn in direct wages paid to residents of regional Australia. Filling them would create an immediate $1.24bn in economic activity. The estimated 1,670 advertised child carer roles in regional Australia can potentially enable 11,690 parents/guardians to participate in the workforce," Liz Ritchie said.

While much of the national attention is focussed on 'filling and skilling' in metropolitan Australia, Regional Jobs 2022: The Big Skill Challenge calls for a greater focus on regions.

"Tight housing markets and childcare access constraints are impacting regions' ability to fill roles with people from outside the area. In 2022, more than 3.7 million regional Australians lived in a 'childcare desert' – equating to one position available for three children," Liz Ritchie said.

Detailed information, including a copy of the full report can be found at:

https://www.regionalaustralia.org.au/Web/Media/Media-Releases/2023/More_jobs_than_people_in_regions.aspx

https://www.regionalaustralia.org.au/common/Uploaded%20files/Files/Regional%20Job%20Updates/The_Big_Skills_Challenge_Report.pdf

Northern Rivers leaders give voice to communities on issues and needs

The leaders are graduates of the Leading Australian Resilient Communities (LARC) program, in which the Northern Rivers is one of 10 regions targeted for the challenges, especially flooding, endured.

The objective of the program – delivered by the Australian Rural Leadership Foundation (ARLF) and Regional Australia Institute (RAI) - is to bring together current and emerging leaders across the region to further develop their leadership skills and build a network that's committed to action and outcomes.

It included a combination of place-based multi-day leadership sessions to identify challenges, opportunities and what underpins them using the latest RAI data for the region. As well, coaching and support for practical, community led projects they decided to pursue.

The local leaders presented their community projects at a graduation ceremony last week with a focus on renewal, giving communities a voice that will be listened to, and enabling community groups to share knowledge and support for more impact.

Thomas Dick explains the latter project, called Bottom Up and Ample Bosoms, is about empowering community-led resilience initiatives.

"It's about fostering connections between a whole range of different organisations on Bundjalung country in the Northern Rivers. There have been community-led initiatives that have sprung up or emerged in response to some of the catastrophic ramifications to climate change," he said.

Melanie Bloor, and president of one such group called Resilient Uki, adds: "What is happening in the emergent community resilience groups is that they have identified their needs and are endeavouring to work out how to fill those independently of each other. We're looking at a process that will be able to share that knowledge between groups so that they can support each other. So, fostering leadership exchange. There'll be a series of workshops to do that and an investigation of how that can be scaled to help other communities both within the Northern Rivers and around Australia."

The Northern Rivers Community Matters project also sets out to ensure local impact by ensuring community concerns are listened and responded to. It will be driven by a group of locals, including subject matter experts, who'll combine their knowledge, skills and networks to support communities on issues impacting them.

"It's establishing a community engagement framework and looking for solutions or providing pathways for people to help in navigating red tape, navigating the processes that they need to go through, and find that funding potentially to fix an issue," Nathan Bourne explains.

Meredith Wray adds: "It's around community issues where the voices aren't being heard. So that's why we have a criteria process to determine which issues we think are important."

The outcome being a network of local leaders committed to their communities – the very objective of the LARC program.

Further information can be found at the links:

https://www.regionalaustralia.org.au/Web/Media/Media-Releases/2023/Northern_Rivers_leaders_give_voice_to_communities_on_issues_and_needs.aspx

From Brookings

How Indonesia and Australia view South Korea's Indo-Pacific strategy

Natalie Sambhi (May 2023)

With the recent six-day visit of South Korean President Yoon Suk Yeol to the United States and the December release of South Korea's Indo-Pacific strategy, Seoul's global ambitions and its burgeoning role have been in the spotlight.

Among these ambitions, South Korea now brands itself as a "Global Pivotal State that actively seeks out an agenda for cooperation and shapes discussions in the region and the wider world." Its expanded vision is vast; its Indo-Pacific strategy speaks of reaching beyond Northeast Asia, Southeast Asia, India, and the United States to the Pacific Islands, the African Coast of the Indian Ocean, Europe, and Latin America. What's less examined, however, is how these bold moves have been interpreted by the Indo-Pacific states. How might Indonesia and Australia view South Korea's intentions to play a bigger role in the Indo-Pacific? For Jakarta and Canberra, who have divergent visions of the regional order, how does the new strategy fit into their respective approaches — and how do they fit into Seoul's?

GOOD NEWS FOR INDONESIA AND SOUTHEAST ASIA?

As an avid promoter of the Indo-Pacific construct and a nonaligned state, there is much for Indonesia to like in South Korea's strategy. For one, the strategy's non-provocative language and emphasis on inclusiveness echoes Indonesian President Joko Widodo's desire for an Indo-Pacific built upon "open, transparent, and inclusive manners based on habit of dialogue." It also "neither targets nor excludes any specific nation," and recognizes China as "a key partner for achieving prosperity and peace" with whom Seoul will "nurture a sounder and more mature relationship." This constructive sentiment bodes well for Jakarta, which vehemently rejects any hint of an Indo-Pacific framework becoming a containment strategy against Beijing.

As the de facto leader of Southeast Asia, Indonesia is particularly encouraged by South Korea's support of the centrality of the Association of Southeast Asian Nations (ASEAN) and the ASEAN Outlook on the Indo-Pacific (AOIP). For Jakarta, ASEAN is not only a critical pillar of the Indo-Pacific architecture but remains the "cornerstone" of its foreign policy. Considering South Korea named Southeast Asia and ASEAN second after its North Pacific neighbours in its list of key partners, Southeast Asian states must capitalize on Seoul's intention to strengthen its relations with both the grouping and individual states. Seoul has taken concrete steps in this direction, announcing the Korea-ASEAN Solidarity Initiative, aimed at improving economic ties, and agreeing to deepen cooperation with ASEAN in the AOIP's four priority areas of maritime, connectivity, economic, and sustainable development cooperation.

That said, the ambitious scope of South Korea's Indo-Pacific strategy threatens Seoul's ability to sustain interest and investment in Southeast Asia. Seoul has made previous attempts to deepen its diplomacy with the region via its New Southern Policy, a 2017 strategy that was refreshed in 2020 and is focused on promoting development and economic cooperation. But now, Southeast Asia and ASEAN will be treated as a subset of the Indo-Pacific, in which Seoul could spread itself dangerously thin.

From Indonesia's perspective, if South Korea were serious about building a "free, peaceful, and prosperous" Indo-Pacific and supporting ASEAN, a significant step would be to strengthen ASEAN

centrality. The grouping is currently facing an existential crisis due to the situation in Myanmar and the glaring lack of progress on ASEAN's Five-Point Consensus, which call for, among other things, "an immediate cessation of violence." Unlike Indonesia, non-ASEAN members like South Korea can take immediate and tangible steps like supporting diplomatic measures in the United Nations that strengthen the National Unity Government in Myanmar or weaken the junta's ability to wield violence on its people. As the current ASEAN chair, Jakarta is well-placed to explore this with Seoul.

Seoul's Indo-Pacific strategy also reiterates the Yoon administration's desire to work with Southeast Asian partners via the Indo-Pacific Economic Framework (IPEF) so that it "evolves into an effective economic forum." With Indonesia, South Korea, and six other Southeast Asian states as members of IPEF, there is potential to deepen intra-ASEAN economic ties while working toward broader regional goals. With 11 mentions of "supply chains," the strategy provides ample impetus to pursue closer ties. Indeed South Korea's growing investment in Indonesia's nickel supplies could provide both the blueprint and lessons for expanding such cooperation with the region.

POTENTIAL GAINS FOR AUSTRALIA AND THE PACIFIC ISLANDS

While Southeast Asia and ASEAN constitute important elements of Australia's own Indo-Pacific vision, key for Canberra is the strategy's strengthening of the South Korea-U.S. alliance at a time of heightened strategic anxiety about Taiwan's future. The intent to deepen Australia-U.S.-South Korea cooperation in areas like supply chains, climate change, and allied security cooperation with Japan will provide further dividends for Australia through greater policy alignment, socialization between officials, and deepening of interoperability.

The strategy also expressly declares its desire to "gradually expand nodes of cooperation with the Quadrilateral Security Dialogue (Quad)," first in areas such as infectious disease, climate change, and emerging technologies. The addition of South Korea's financial and technical support in these areas will certainly be advantageous to Australia's strategic interests while deepening a "security network" between Seoul, Canberra, Washington, New Delhi, and Tokyo.

Of specific interest to Canberra is the strategy's intent to increase engagement with the Pacific Islands, a region where Australia considers itself to be part of "a strong and unified Pacific family." Seoul's planned investment in climate change, health, oceans and fisheries, and renewable energy dovetails with Australia's foreign policy priorities in the Pacific Islands.

A cynical view of South Korea's newfound enthusiasm for the Pacific Islands sees it as an extension of increasing U.S.-China strategic competition in the region. Pacific Island leaders are cognizant of these dynamics but are neither interested in taking sides nor being dictated to by stronger powers. As Solomon Islands Prime Minister Manasseh Sogavare put it, his country is "friends to all, enemy to none." As such, whether nudged by the United States or largely of its own accord, South Korea's decision to turn attention and resources would be welcomed by Australia (and New Zealand). In particular, a constructive dialogue guided by the region's leaders and communities between all Pacific Island states, Australia, New Zealand, and South Korea (possibly even other Indo-Pacific players) would be immensely helpful in narrowing priority tasks and coordinating resources.

Overall, South Korea's Indo-Pacific strategy is bold and ambitious, with good intentions. Seoul clearly intends to work with and support partners from Oceania to Europe and seemingly everywhere in between. Time will tell whether the inherent and admirable optimism in South Korea's Indo-Pacific vision withstands the test of reality, and whether the strategy survives any change of government. Its durability will be critical for regional partners like Indonesia and Australia. Until then, South Korea

will be striving to help create order in the chaos of the Indo-Pacific, being everything, everywhere, all at once.

This commentary's findings have implications for regional development in the Asia Pacific Regions, including Australia and New Zealand.

Read the whole article here at: https://www.brookings.edu/blog/order-from-chaos/2023/05/12/how-indonesia-and-australia-view-south-koreas-everything-everywhere-all-at-once-indo-pacific-strategy/

AUKUS defines an emerging alliance at sea

Bruce Jones and Colleagues (March 2023)

The joint announcement on March 13, 2023, that the partnership between Australia, the United Kingdom, and the United States (AUKUS) has defined a path forward on Canberra acquiring conventionally armed, nuclear-powered submarines is a significant moment for the future of the Indo-Pacific region. Below, Brookings experts assess the implications of the AUKUS partnership on the United States and its allies, China, nuclear non-proliferation, and much more.

Now, following intensive consultations, the trio has delivered a highly credible answer. It will play out in three phases.

The first will see: increased U.S. and U.K. submarine visits to Australian ports; Australian submariners embedded on U.S. and U.K. boats, as well as in their shipyards; a "proportional" Australian investment in U.S. submarine building infrastructure; increased U.S. funding for the same; and the start of a major Australian investment in the personnel and infrastructure the project will require over the long term.

The second phase will see the creation of Submarine Rotational Force West — a joint force consisting of U.S. and U.K. submarines operating out of Australian ports. By the early 2030s, Australia also plans to acquire between three and five Virginia-class submarines, built in the United States.

In parallel, Australia and the U.K., with substantial U.S. technological assistance, will begin work on what will eventually become Phase 3 — a jointly designed and mutually operated new nuclear-powered submarine, given the moniker SSN-AUKUS. The first of these boats will be built in the U.K., with an expected delivery date in the later 2030s, and then Australia is expected to deliver its own build in the early 2040s.

Two key elements of this can make it work. First, the large-scale initial upgrade in the submarine industrial base, through a combination of 2022 funding (at $2.3 billion) by the United States, new U.S. funding (in the 2023 budget), and the Australian investment. At present, the available funding for U.S. submarine builds outstrips the industrial capacity to build them. But the availability of substantial new funding and the long, predictable duration of the commitment should spur industry to expand the capacity to build these boats. Personnel is a slightly trickier question, but at the very least this deal will help retain expertise in the U.K.; whether Australia can identify and train enough people fast enough will be the acid test. Second, because the AUKUS deal builds on a very advanced intelligence-sharing partnership (these are three of the most active members of the Five Eyes intelligence-sharing group) and involves a wide range of high-technology cooperation, the net

upgrade to all three countries' military-industrial and technology bases should create both compounding effects and political/economic dividends that can help sustain the partnership.

Read the whole article here at: https://www.brookings.edu/blog/order-from-chaos/2023/03/15/around-the-halls-aukus-defines-an-emerging-alliance-at-sea/

From University of Sydney, the Warren Centre for Advanced Engineering

Fungi makes meal of hard to recycle plastic

The Warren Centre has recently released some research findings for the communities. A quick summary follows.

Polypropylene has long been recycling's head scratching riddle. A common plastic used for a wide variety of products from packaging and toys to furnishing and fashion, it accounts for roughly 28 percent of the world's plastic waste, but only 1 percent of it is recycled.

Now, thanks to the efforts of researchers at the University of Sydney, the recalcitrant polymer may have met its match. Published today in npj: Materials Degradation, two common strains of fungi were used to successfully biodegrade polypropylene in a laboratory experiment.

Typically found in soil and plants, Aspergillus terreus and Engyodontium album were able to break down polypropylene after it had been pre-treated with either UV light or heat, reducing the plastic by 21 percent over 30 days of incubation, and by 25-27 percent over 90 days.

"Polypropylene is a common plastic used to make a huge variety of everyday products like food containers, coat hangers and cling film, but it only has a recycling rate of only one percent, meaning it is overrepresented in plastic waste and pollution globally," said the study's lead author from the University of Sydney's School of Chemical and Biomolecular Engineering, PhD student Amira Farzana Samat.

The researchers hope their method could one day reduce the vast amount of plastic polluting the environment and lead to a greater understanding of how plastic pollution might biodegrade naturally under certain conditions.

"Plastic pollution is by far one of the biggest waste issues of our time. The vast majority of it isn't adequately recycled, which means it often ends up in our oceans, rivers and in landfill. It's been estimated that 109 million tonnes of plastic pollution have accumulated in the world's rivers and 30 million tonnes now sit in the world's oceans – with sources estimating this will soon surpass the total mass of fish," said Mrs Samat.

The researchers say polypropylene is so infrequently recycled because of its short life as a packaging material and because it often becomes contaminated by other materials and plastics, necessitating new recycling methods that have minimal environmental impact.

Mrs Samat's PhD supervisor, Professor Ali Abbas from the School of Chemical and Molecular Engineering and Chief Circular Engineer at Circular Australia said: "Despite the massive scale of plastic production and consumption, there has been very little attention paid to plastics degradation under environmental conditions, and our understanding of how plastics can be degraded is limited."

"One big question our result has raised is – what are the naturally occurring conditions which can fast track the degradation of plastics? We seek to further explore the role of biological processes offered by fungi and other microorganisms."

Professor Dee Carter, an expert in mycology (the study of fungi) in the School of Life and Environmental Sciences and co-author of the study said: "Fungi are incredibly versatile and are known to be able to break down pretty much all substrates. This superpower is due to their production of powerful enzymes, which are excreted and used to break down substrates into simpler molecules that the fungal cells can then absorb."

"Often, these fungi have evolved to break down woody materials, but this ability can be repurposed to attack other substrates. This is why we find fungi growing on all sorts of man-made materials like carpets, painted furniture, tile grout, shower curtains, upholstery and even car headlights.

"Recent studies suggest some fungi may even degrade some of the 'forever chemicals' like PFAS, but the process is slow and not yet well understood. There is also evidence that the amount of plastic accumulated in the ocean is less than what might be expected based on production and disposal levels, and there is speculation that some of this 'missing' plastic may have been degraded by marine fungi."

How the process worked
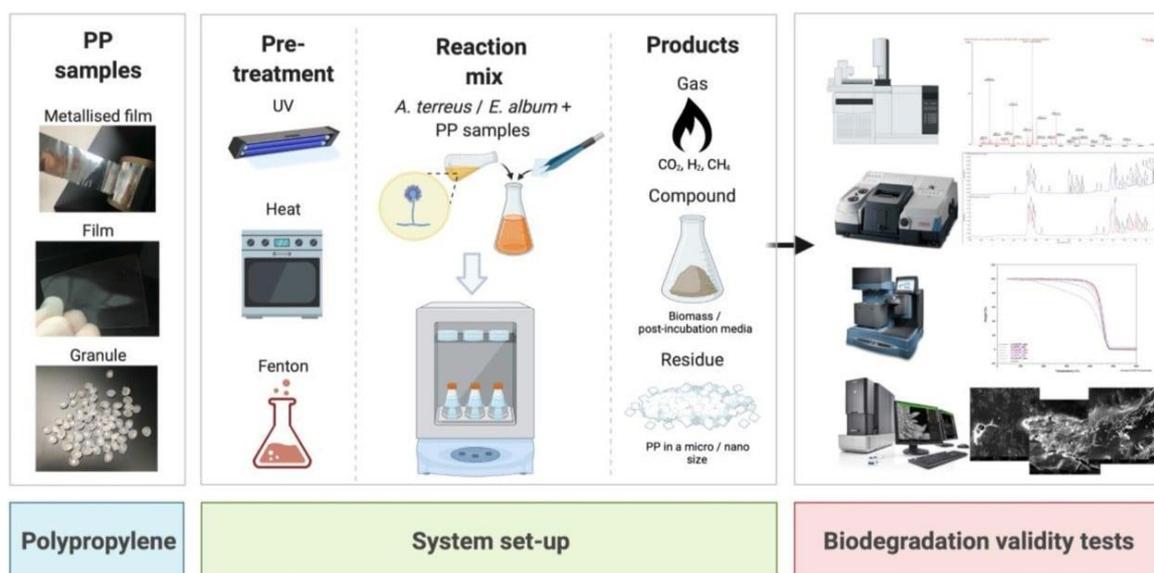
Source: University of Sydney (How the experiment worked to biodegrade polypropylene)

Polypropylene in various forms was initially treated with one of three separate methods: ultraviolet light, heat, and Fenton's reagent – an acidic solution of hydrogen peroxide and ferrous iron often used to oxidise contaminants.

In a petri dish, the fungi were applied separately as single cultures to treated polypropylene. The validity of the biodeterioration was then confirmed through microscopy techniques. While the research didn't evaluate how the plastic was degraded by the fungi or whether it was metabolised, the researchers hope to conduct further research to determine the type of bio-chemical processes taking place.

Next steps

Professor Abbas believes the low rate of plastics recycling globally presents a "massive plastics circularity gap": "We need to support the development of disruptive recycling technologies that improve the circularity of plastics, especially those technologies that are driven by biological processes like in our study. It is important to note that our study did not yet carry out any optimisation of the experimental conditions, so there is plenty of room to further reduce this degradation time."

The researchers will now explore enhancing the overall efficiency in degrading polypropylene before seeking investment to scale the technology and develop a small-scale pilot prototype for commercialisation.

Since completing the study, the team has isolated other microorganisms from the marine environment and used a similar process to degrade marine plastic waste, with preliminary results showing even higher degradation.

Ms Samat said: "We are quite excited about this and have started looking at different ways to improve the degradation process using these microorganisms. Watch this space."

Further details are available at: https://www.sydney.edu.au/news-opinion/news/2023/04/14/fungi-makes-meal-of-hard-to-recycle-plastic.html

From the Gulbali Institute of Agriculture, Water and Environment (CSU)

eDNA research aims to protect Manning River Turtle

A Charles Sturt University early career environmental researcher aims to help save endangered turtle species by developing environmental DNA (eDNA) sampling methods that can be used by citizen scientists, not just trained researchers.

Dr Jessica Tout-Lyon in the Charles Sturt Gulbali Research Institute of Agriculture, Water and Environment said anything that has DNA or leaves DNA in the environment can be studied.

Her previous research has focused on using eDNA to study the ecology of coral reefs and potential pathogenic bacteria during coral bleaching events.

Dr Tout-Lyon said over 50 per cent of turtle species are at risk of extinction, making them one of the most threatened vertebrate groups globally.

"The only two freshwater species − the Manning River Turtle (Myuchelys Purvisi) (pictured left) and the Bellinger River Turtle (Myuchelys georgesi) − that are endemic to NSW (that is, found nowhere else in the world) are also classified as being endangered," she said.

"The ability to apply emerging and citizen science-friendly technologies such as eDNA has the potential to revolutionise the conservation and management of turtles."

She said the Manning River Turtles' distribution in the environment is greatly reduced due to habitat loss and feral animal predation, and the increasing time and high costs (up to six-times more) associated with their detection using traditional ecological surveys, such as snorkelling and trapping, limits research efforts.

Source: CSU

Dr Tout-Lyon and Dr Elise Furlan from the University of Canberra, and their other collaborating colleagues, are designing and developing species-specific molecular tools, known as primers, to be able to identify and detect the DNA of endemic and endangered freshwater turtle species in the wild.

"These tools will allow us to detect the DNA turtles leave behind in their environment, which are predominantly river systems," Dr Tout-Lyon said.

Dr Tout-Lyon explained that before COVID not many people would understand how the team uses the technology, but thanks to COVID, the technology and methods the team uses are now a household name.

"Once the water samples are collected from the environment - in this case where we think or know these turtles exist - we conduct similar lab work to the process used to test for COVID in wastewater or to confirm its presence in an infected person using PCR," she said.

"We firstly filter the water sample to capture the DNA in the water; this can be done in-situ in the field, which is what I have done for the current field work, with my five-month-old baby boy (pictured) in tow.

"Then we extract the DNA from the filter and target the DNA we are interested in (the turtles) by using the species-specific primers we are developing.

"PCR is then used to amplify the amount of DNA we have in our sample, which is then sent to be sequenced to confirm that what we have detected is in fact our target species of interest."

The focal species for the research include the local (Manning River catchment) endemic and endangered Manning River Turtle (Myuchelys purvisi), the Bell's Turtle (Myuchelys belli) and, a native but introduced species (Emydura macquarii) that is now thought to be hybridizing with the two endemic Myuchelys species.

"When compared to traditional ecological surveys, the use of eDNA in aquatic ecology as a sampling tool for assessment and monitoring is becoming a favoured technique," Dr Tout-Lyon said.

"It is non-invasive, highly sensitive, reduces the sampling effort, time and costs, and has been shown to detect cryptic species or those in remote and otherwise difficult to survey locations.

"It allows researchers to be able to detect the DNA of endemic and endangered turtle species by taking a water sample from a river system.

…

The results of the research are expected towards the end of 2023, and the technology will be used by MidCoast Council and UNE to conduct regular research into the presence and distribution of the two endemic species and to inform on-ground conservation and management practices.

Dr Tout-Lyon will also lead an all-female research team to explore the use of eDNA in detecting estuarine fish populations on the Mid North Coast under extreme weather events such as drought, fire and flood, and has recently applied for a L'Oreal UNESCO Women in Science Fellowship to explore the way in which turtles shed DNA.

"Unlike other vertebrate phyla, turtles' hard keratinised outer surface is thought to inhibit their ability to leave traces of DNA in the surrounding environment compared to soft-bodied organisms, such as fish or mammals, and is termed by Adams et al., (2019) as the 'Shedding Hypothesis'," she said.

"We know the team of researchers at James Cook University used eDNA in 2022 to successfully re-discover the endemic Australian Irwin's turtle (Elseya irwini) in Queensland, so there's more to explore here."

Further details are available at: https://news.csu.edu.au/feature/edna-research-aims-to-protect-manning-river-turtle

From CEDA

Disrupting disadvantage 3: Finding what works

By Melinda Cilento, the Chief Executive of CEDA (April 2023)

Australia must overhaul how it evaluates government programs to stop money being wasted on services and policies that don't deliver, according to the Committee for Economic Development of Australia (CEDA).

Finding what works, the third report in CEDA's Disrupting Disadvantage series, found 95 per cent of Federal Government programs over the past decade had not been properly evaluated.

"The community rightfully expects that taxpayer funds are used to effectively improve economic and social outcomes for all citizens, but too often this is not the case," CEDA Chief Executive Melinda Cilento said.

"The Albanese Government has committed to improve practice in this area, including the likely introduction of an Evaluator-General.

"We must take steps now to improve evaluation, starting with major community services."

CEDA analysed 103 federal, state and territory program evaluations over the past decade covering a range of policy areas, using Auditor-General performance reports.

The 20 federal programs analysed cost more than $200 billion over the decade. We found 95 per cent, or 19 of 20, had not been appropriately evaluated.

Of the 20 federal programs:

A quarter (5 of 20 programs) had no evaluation framework; and

Seventy per cent (14 of 20) had either an incomplete, inconsistent or poor evaluation framework.

Australian governments spend around $64 billion per year on community services such as disability, aged care, social supports and child-protection services (excluding welfare payments).

Based on our finding that 95 per cent of programs over the past decade had not been properly evaluated, at least $61 billion of community services spending a year is unlikely to be properly evaluated.

Over the past decade, federal and state government spending on community services has increased by roughly five per cent each year.

"We can't keep increasing spending on these programs while they fail to make tangible progress on reducing poverty and disadvantage," Ms Cilento said.

CEDA's recommendations to overhaul federal evaluation practices include:

- The Albanese Government's planned Office of the Evaluator-General should foster and champion an evaluation culture among government departments and external providers;

- Incentivising evaluation, including legislating the review of existing major Commonwealth funded programs at least every five years;

- Requiring evaluation frameworks to be submitted as part of budget processes, including appropriate resourcing for evaluation and data collection plans;

- Improved data access and availability to enable better evaluations; and

- Better governance and embedding an evaluation culture within the public sector.

The recent royal commissions into aged care, disability and robodebt highlight the risks of poor or non-existent evaluation.

"Demands on government services keep rising even as budgets are under more pressure than ever," Ms Cilento said.

"Meeting community expectations in a fiscally responsible way requires robust and consistent evaluation and learning from the evidence.

"If we want to end the cycle of reviews and inquiries that gather dust on politicians' desks, evaluation must be integrated into government processes."

Further details and the full report are available at:
https://www.ceda.com.au/ResearchAndPolicies/Research/Government-Regulation/DD3

From the Productivity Commission

National School Reform Agreement Report: Still lessons to be learned to improve student outcomes

Productivity Commission (January 2023)

The Productivity Commission's Review of the National School Reform Agreement (NSRA) recommends redesigning the agreement to focus more attention on lifting students' academic results and supporting students' wellbeing.

"Governments have boosted funding for schools and are implementing reforms to lift student outcomes. However, so far, this effort has had little impact on literacy and numeracy results. In the next agreement, the Commission recommends governments commit to firm targets to lift students' results — targets do not guarantee success, but they create a clear direction for reform and make governments accountable," Commissioner Natalie Siegel-Brown said.

"Each year, almost 90,000 students do not meet minimum standards for reading or numeracy in NAPLAN. Aboriginal and Torres Strait Islander students, students in outer regional and remote Australia, and students of parents with low educational attainment are three times more likely to fall behind than other students. The Commission recommends that each state and territory should set a target to reduce the share of students who are falling behind," Ms Siegel-Brown said.

The current agreement sets goals to lift the outcomes of students from 'priority equity cohorts' — Aboriginal and Torres Strait Islander students, students living in regional, rural and remote locations, students with disability and students from educationally disadvantaged backgrounds — but a lack of data and reporting means jurisdictions are not accountable. The Commission recommends that, under the next agreement, governments fill the data gaps, outline their programs to lift students' results and report annually on progress.

To ensure Australia has a high quality, high equity education system the next agreement must focus on addressing the different educational needs of particular cohorts, in addition to effective teaching and school leadership and supporting student wellbeing.

"Effective teaching is the single most influential 'in-school' factor for creating an effective learning environment. Compared to many countries, our teachers work longer hours but have less time for activities that make a real difference in the classroom. Teacher shortages also mean we are asking many teachers to teach subjects they are not trained to teach," Ms Siegel-Brown said.

"Governments have announced reforms to address these issues. The Commission is suggesting further reforms, which could help ease these pressures on teachers."

"Many students experience challenges to their wellbeing and can have difficulty engaging at school. We recommend the next intergovernmental agreement recognise wellbeing as a priority and governments take steps to support all schools to adopt effective wellbeing strategies," Ms Brown said.

Key points:

- All Australian governments have endorsed the national goal of a high quality, high equity education system and have a long history of collaborating on reforms to pursue this goal.
  - → The most recent vehicle for national collaboration — the National School Reform Agreement (NSRA) — outlines eight National Policy Initiatives (NPIs) to lift outcomes in student achievement, attainment and engagement.

- The NSRA's initiatives have done little, so far, to improve student outcomes.
  → Some NPIs are complete but will take time to produce results, while others have not yet led to actual reforms.
  → Two important NPIs — the Unique Student Identifier and Online Formative Assessment Initiative — have been delayed. In December 2022, Education Ministers announced progress in addressing sticking points.

- Even so, the NSRA is a sound platform for intergovernmental collaboration.
  → The objective, outcomes and many of the NSRA's sub-outcomes are still relevant and should continue to set the direction of reforms in the next school reform agreement. A new outcome on student wellbeing should be added, as wellbeing is both a desired outcome of schooling, and a means of improving learning outcomes.

- The next school reform agreement should include firm targets for improving academic achievement for all students, including students from priority equity cohorts, in each jurisdiction.
  → New state-level targets would provide jurisdictions with greater discretion about how they improve achievement (compared to NPIs), while strengthening accountability for results (compared to national performance indicators that are directional and open ended).
  → The basis of each new target should be common to all jurisdictions; however, there should be scope for the Commonwealth and each jurisdiction to negotiate the level of the target.

- All jurisdictions face common reform challenges — addressing these should be the focus of the next school reform agreement. Governments should advance reforms to:
  → **support quality teaching and effective school leadership**: priorities could include reducing low-value tasks and out-of-field teaching, disseminating best practice, and producing evidence-backed resources that teachers and leaders trust and use — the last of these could be the basis of new NPIs.
  → **support all students to achieve basic** levels of literacy and numeracy: tens of thousands of students do not achieve basic levels of literacy and numeracy each year. The next school reform agreement should include specific targets and measures to support these students.
  → **reduce differences in achievement across students**: many students identified as priority equity cohorts in the NSRA, along with other students (such as those in out-of-home care), face significant challenges. Governments should consider augmenting the priority equity cohorts, and adopt new approaches, developed and implemented in consultation with the relevant parties, to lift outcomes for all students.
  → **promote wellbeing**: many children and young people struggle with poor wellbeing because of experiences in and outside their schools. Teachers need more support to help students to manage these issues and achieve their potential.

- Greater flexibility in progressing reforms should be accompanied by increased accountability for and transparency of results.
  → Along with better use of targets, bilateral agreements will need to be more of a focal point for jurisdictions to advance reforms, and annual performance reporting will need to be improved.

Access the full report here: https://www.pc.gov.au/inquiries/completed/school-agreement/report

From the Business Insider Australia

Building for the future

By Insider Studios with KONE (April 2023)

• It's not too late to fight back against the climate emergency by creating livable and eco-friendly cities for the future.
• The answer lies in modernizing and repurposing our existing buildings and designing urban areas that adapt to people's changing needs.

The year is 2040, and the urban environment is a tale of two cities. Both are mostly high-rise communities, growing fast and densely populated, but they represent two very different realities from a climate and sustainability perspective.

KONE, a global leader in the elevator and escalator industry, studies urban megatrends and uses anonymized data on how people move around the built environment. This is done in order to understand how to make cities livable for people, both for today and for future generations. Two extreme scenarios, depicting different paths for cities, have emerged from KONE's most recent research.

Let's call the first city the Gray Scenario. It is struggling and sprawling. It is hungry for energy and dirty with emissions.

Source: https://www.businessinsider.com/ (Getty/Kone)

People live in a treeless and gray environment, an unmitigated urban heat island of food deserts and flash floods. They are divided by uneven opportunities, with residents of luxury air-conditioned

condos kept apart from tenants in badly clad tenements that swing from sweaty to shivering, season to season. Gated communities separate the haves from the have-nots.

Meanwhile, the city in the Green Scenario is thriving and resilient. It is a low-carbon, highly efficient haven of clean power.

People live in a biodiverse and green city that is climate-adapted, smog-free, and walkable, with living walls and vertical farms. Residents are brought together in mixed-use developments with local shops and diverse neighborhood networks. Social and physical mobility are prized, and the city's smart tech is easy to use and affordable, making the metropolis more inclusive and connected.

Further details are available at:

https://www.businessinsider.com/sc/climate-and-sustainability-are-the-focus-of-refurbishing-buildings?utm_source=npu&utm_medium=studios_onsite&utm_campaign=kone

THE CONVERSATION

How close are we to reading minds? A new study decodes language and meaning from brain scans

Christina Maher, University of Sydney

The technology to decode our thoughts is drawing ever closer. Neuroscientists at the University of Texas have for the first-time decoded data from non-invasive brain scans and used them to reconstruct language and meaning from stories that people hear, see or even imagine.

In a new study published in Nature Neuroscience, Alexander Huth and colleagues successfully recovered the gist of language and sometimes exact phrases from functional magnetic resonance imaging (fMRI) brain recordings of three participants.

Technology that can create language from brain signals could be enormously useful for people who cannot speak due to conditions such as motor neurone disease. At the same time, it raises concerns for the future privacy of our thoughts.

Language decoded

Language decoding models, also called "speech decoders", aim to use recordings of a person's brain activity to discover the words they hear, imagine or say.

Until now, speech decoders have only been used with data from devices surgically implanted in the brain, which limits their usefulness. Other decoders which used non-invasive brain activity recordings have been able to decode single words or short phrases, but not continuous language.

The new research used the blood oxygen level dependent signal from fMRI scans, which shows changes in blood flow and oxygenation levels in different parts of the brain. By focusing on patterns of activity in brain regions and networks that process language, the researchers found their decoder could be trained to reconstruct continuous language (including some specific words and the general meaning of sentences).

Specifically, the decoder took the brain responses of three participants as they listened to stories, and generated sequences of words that were likely to have produced those brain responses. These word sequences did well at capturing the general gist of the stories, and in some cases included exact words and phrases.

Actual stimulus	Decoded stimulus
I got up from the air mattress and pressed my face against the glass of the bedroom window expecting to see eyes staring back at me but instead finding only darkness	i just continued to walk up to the window and open the glass i stood on my toes and peered out i didn't see anything and looked up again i saw nothing
i didn't know whether to scream cry or run away instead i said leave me alone i don't need your help adam disappeared and i cleaned up alone crying	started to scream and cry and then she just said i told you to leave me alone you can't hurt me anymore i'm sorry and then he stormed off i thought he had left i started to cry
that night i went upstairs to what had been our bedroom and not knowing what else to do i turned out the lights and lay down on the floor	we got back to my dorm room i had no idea where my bed was i just assumed i would sleep on it but instead i lay down on the floor
i don't have my driver's license yet and i just jumped out right when i needed to and she says well why don't you come back to my house and i'll give you a ride i say ok	she is not ready she has not even started to learn to drive yet i had to push her out of the car i said we will take her home now and she agreed

Source: Tang et al. / Nature Neuroscience Get the data   Created with Datawrapper

The researchers also had the participants watch silent movies and imagine stories while being scanned. In both cases, the decoder often managed to predict the gist of the stories.

For example, one user thought "I don't have my driver's licence yet", and the decoder predicted "she has not even started to learn to drive yet".

Further, when participants actively listened to one story while ignoring another story played simultaneously, the decoder could identify the meaning of the story being actively listened to.

How does it work?

The researchers started out by having each participant lie inside an fMRI scanner and listen to 16 hours of narrated stories while their brain responses were recorded.

These brain responses were then used to train an encoder – a computational model that tries to predict how the brain will respond to words a user hears. After training, the encoder could quite accurately predict how each participant's brain signals would respond to hearing a given string of words.

However, going in the opposite direction – from recorded brain responses to words – is trickier.

The encoder model is designed to link brain responses with "semantic features" or the broad meanings of words and sentences. To do this, the system uses the original GPT language model, which is the

precursor of today's GPT-4 model. The decoder then generates sequences of words that might have produced the observed brain responses.

The decoder could also describe the action when participants watched silent movies. Tang et al. / Nature Neuroscience

The accuracy of each "guess" is then checked by using it to predict previously recorded brain activity, with the prediction then compared to the actual recorded activity.

During this resource-intensive process, multiple guesses are generated at a time, and ranked in order of accuracy. Poor guesses are discarded and good ones kept. The process continues by guessing the next word in the sequence, and so on until the most accurate sequence is determined.

Words and meanings

The study found data from multiple, specific brain regions – including the speech network, the parietal-temporal-occipital association region, and prefrontal cortex – were needed for the most accurate predictions.

One key difference between this work and earlier efforts is the data being decoded. Most decoding systems link brain data to motor features or activity recorded from brain regions involved in the last step of speech output, the movement of the mouth and tongue. This decoder works instead at the level of ideas and meanings.

One limitation of using fMRI data is its low "temporal resolution". The blood oxygen level dependent signal rises and falls over approximately a 10-second period, during which time a person might have heard 20 or more words. As a result, this technique cannot detect individual words, but only the potential meanings of sequences of words.

More on this story is available at: https://theconversation.com/how-close-are-we-to-reading-minds-a-new-study-decodes-language-and-meaning-from-brain-scans-204691

CONFERENCES and STUDY OPPORTUNITIES

ANZRSAI 2023 Conference

The ANZRSAI 46th Annual Conference will be held in RMIT University, Melbourne in collaboration with the Regional Studies Association 2023 Summer Conference. Further details are available at the ANZRSAI website, and also https://www.regionalstudies.org/events/2023-australasia/

2023 RSA Winter Conference

The Regional Studies Association Winter Conference 2023 presents a timely opportunity to discuss and debate these important issues, to establish the need and nature of future research imperatives in the field, and to assess options for practitioners and policymakers in working towards better regional futures.

Special Sessions
As part of the 2023 Winter Conference, we welcome proposals for Special Sessions. Special Sessions are a great way to bring together presenters to discuss and highlight a particular topic to develop or further extend your network. Please submit your proposals by 10th July 2023. We offer two types of Special Sessions:

1. Open Special Session – the session organiser proposes a topic and provides a short description/call for submissions. Delegates can submit their abstract for this session when they register for the conference.
2. Closed Session – the session organiser proposes the complete session including all speakers. Other delegates may not submit their abstracts for this session.

Date & Location: London, UK, 9 Nov 2023 - 10 Nov 2023

More details are at https://www.regionalstudies.org/events/2023-winter-conference/

Regional Studies Blog

Professor Paul Dalziel, Executive Officer, ANZRSAI has recommended the Regional Studies Association Blog, which has been running since 2010. Each post is an easy-to-read piece between 500 and 750 words on a topical issue in regional studies.

The link is https://www.regionalstudies.org/category_news/rsa-blog/. A recent contribution that is relevant to ANZRSAI as we plan for the new post-CoVID normal is the following item: Moving towards a new conference model? The rocky road to virtual conferencing, by Daniela Carl and Alex Holmes. Ashleigh Weeden talks about the 'right to be rural' during the CoVID epidemic in a contribution entitled COVID-19 and Cottage Country: Exploring place, power, and policy in the 'right to be rural'.

CURRENT RESEARCH ABSTRACTS

ANZRSAI Abstract Alerts

To contribute to ANZRSAI Abstract Alerts email the editors a title, abstract, and citation.

Yogi.Vidyattama
Yogi.Vidyattama@canberra.edu.au

We would like to draw your attention to the abstracts from Australasian Journal of Regional Studies and a YouTube Channel 'Professor Joseph Drew's World of Local Government'

For the latter it can be found in:
https://www.youtube.com/channel/UCXn5CI2x5h1cgEsaT8nLK9g/videos

The whole purpose of the channel is to help local government help other people. So, please consider subscribing and sending the link on to colleagues.

In a few weeks' time Prof. Joseph Drew will start uploading videos by some of his colleagues from around the world which will provide people with new global insights into what can be done to make LG even stronger.

Government spending and credit market: Evidence from Italian (NUTS 3) provinces

Andrea Cipollini, Francesco Frangiamore

Abstract: This study examines the effects of government spending shocks on the Italian credit market using NUTS 3 data over the sample period 2011–2018. The empirical methodology is based on a local projection IV and the identification of a public spending shock is achieved by constructing a Bartik instrument. The empirical evidence shows a mild positive effect of 1% increase in government spending relative to GDP on the growth of the volume loans relative to GDP. However, the empirical findings show that government spending does not help to ameliorate neither the "size bias," that is the financial constraints which small firms face relative to larger ones, nor the "home bias" in lending related to the process of bank consolidation in Italy.

Resilience and economic structure: The case of the Chilean regions during the Asian crises and the Great Recession of 2008

Cristian Delgado-Bello, Andrés Maroto Sáchez, Miguel Atienza Ubeda

Abstract: This paper analyses the effects of the sectoral structure on the economic resilience of Chilean regions during the shocks of the 1998 Asian and 2008 financial crises by employing cycle dissection, phase-differentiated spatially extended shift-share analysis, and regional analysis indices. Regions with more diversified structures exhibited better performance during the crises. Certain service sectors moderated the impacts of the crises in the resistance phases, and in turn, were drivers during the recovery phases. Remarkably, agriculture slowed the recovery of the southern regions. Some of these results were induced by the high demographic and economic concentration in the metropolitan region of Santiago.

Dynamic returns to scale and geography in U.S. banking

Anthony J. Glass, Karligash Kenjegalieva

Abstract: We observe spatial cost dependence among medium-sized and large U.S. banks (1998Q1–2020Q4). We contribute to the literature by accounting for this using an accessible dynamic spatial econometric cost model. For a movement along a bank's output expansion path, we calculate the cost returns that spillover to/from the bank. The noticeable

impacts of the 2020 COVID pandemic are on the spillover cost returns and not the own returns. These spillover returns suggest the pandemic led to the smallest (largest) banks becoming suboptimally smaller (bigger). A number of banks with high-ranking spillover returns have geographically concentrated branches and/or specialize in particular activities.

Assessing optimization techniques for improving water quality model.

Md Galal Uddin, Stephen Nash, Azizur Rahman & Agnieszka I. Olbert

Abstract: In order to keep the "good" status of coastal water quality, it is essential to monitor and assess frequently. The Water quality index (WQI) model is one of the most widely used techniques for the assessment of water quality. It consists of five components, with the indicator selection technique being one of the more crucial components. Several studies conducted recently have shown that the use of the existing techniques results in a significant amount of uncertainty being produced in the final assessment due to the inappropriate indicator selection. The present study carried out a comprehensive assessment of various features selection (FS) techniques for selecting crucial coastal water quality indicators in order to develop an efficient WQI model. This study aims to analyse the effects of eighteen different FS techniques, including (i) nine filter methods, (ii) two wrapper methods, and (iii) seven embedded methods for the comparison of model performance of the WQI. In total, fifteen combinations (subsets) of water quality indicators were constructed, and WQI values were calculated for each combination using the improvement methodology for coastal water quality. The WQI model's performance was tested using nine machine-learning algorithms, which validated the model's performance using various metrics. The results indicated that the tree-based random forest algorithm could be effective for selecting crucial water quality indicators in terms of assessing coastal water. Deep neural network algorithm showed better performance for predicting coastal water quality more accurately incorporating the subset of the random forest.

Subsurface fertilization boosts crop yields and lowers greenhouse gas emissions: A global meta-analysis

Saiful Islam Bhuiyan, Azizur Rahman, Isac Loladze, Shumon Das & Paul J. Kim

Abstract: The subsurface application (SA) of nitrogenous fertilizers is a potential solution to mitigate climate change and improve food security. However, the impacts of SA technology on greenhouse gas (GHG) emissions and agronomic yield are usually evaluated separately and their results are inconsistent. To address this gap, we conducted a meta-analysis synthesizing 40 peer-reviewed studies on the effects of SA technology on GHG and ammonia (NH_3) emissions, nitrogen uptake (NU), crop yield, and soil residual NO_3-N in rice paddies and upland cropping system. Compared to the surface application of N, SA technology significantly increased rice yields by 32 % and crop yield in upland systems by 62 %. The largest SA-induced increases in crop yield were found at low N input rates (<100 kg Nha −1) in rice paddies and medium N input rates (100–200 kg Nha −1) in upland systems, suggesting that soil moisture is a key factor determining the efficiency of SA technology. SA treatments increased yields by more at reduced fertilizer rates (~30 % less N), a shallow depth (<10 cm), and with urea in both cropping systems than at the full (recommended) N rate, a deeper depth (10–20 cm), and with ammonical fertilizer. SA treatments significantly increased NU in rice

paddies (34 %) and upland systems (18 %), and NO 3-N (40 %) in paddyland; however, NO 3-N decreased (28 %) in upland conditions. Ammonia mitigation was greater in paddyland than in upland conditions. SA technology decreased the carbon footprint (CF) in paddyland by 29 % and upland systems by 36 %, and overall by 33 %. Compared with broadcasting, SA significantly reduced CH 4 emissions by 16 %, N 2O emissions by 30 %, and global warming potential (GWP) by 10 % in paddy cultivation. Given SA increased grain yield and NU while reducing NH 3, CF, and GWP, this practice provides dual benefits – mitigating climate change and ensuring food security.

Regional Studies

Regional resentment in the Netherlands: A rural or peripheral phenomenon?

Sarah de Lange, Wouter van der Brug & Eelco Harteveld

Abstract: We study 'regional resentment', or the feeling that one's region is not treated rightly by citizens and elites from other regions, in a European context. Is this mainly a rural or a peripheral phenomenon, or do these two contextual characteristics matter equally? We present three survey items to measure regional resentment, field it among a geocoded representative sample of 8000 Dutch citizens stratified by region and urbanity, and show that they create a valid scale. Regional resentment differs between urban and rural areas, but is especially strong in peripheral and deprived areas, and amongst citizens with strong place-based identities.

Regional inequality in multidimensional quality of employment: insights from Chile, 1996–2017

Mauricio Apablaza, Kirsten Sehnbruch, Pablo González & Rocío Méndez

Abstract: This paper proposes a multidimensional synthetic index for measuring the quality of employment using the Alkire–Foster method. The results generated by this index highlight important differences between Chile's regions, but also a process of convergence, which has been mostly driven by regulatory changes and public policy rather than economic growth. The paper shows how much a synthetic index can contribute to regional analysis and how it can inform policymakers by focusing attention on the most vulnerable workers in regional labour markets.

The Review of Regional Studies

Regional Infrastructure Effects on the Life Satisfaction of Rural and Urban Residents. A Case Study for Ecuador

Grace Guevara-Rosero

Abstract: In developing countries, many households lack basic household services and the provision of utility infrastructure is uneven across regions, leaving lagged regions behind. This lack of infrastructure in specific places can affect the welfare of its inhabitants. This paper aims to measure the influence of household basic services and sub-national infrastructure activities on individual subjective well-being in Ecuador. To determine how important the geographical context is for individual welfare, a hierarchical

ordered logistic multilevel model is conducted. The results show that the individual heterogeneity is explained in 7% by the variation across cantons. There are 52 cantons that are above the average life satisfaction and 43 cantons below it. Findings regarding infrastructure evidence that sub-national utility projects and road infrastructure have a positive significant effect on the life satisfaction of rural residents whereas it is not significant for urban residents, indicating the diminishing marginal utility of urban people. Once a satiation point is achieved, marginal utility increases are lower. As for household services, access to the internet has a higher positive welfare effect than access to sewerage and access to water via pipelines.

Increase in Inbound Tourists and Long-Term Decline of Rural Economy in Japan: A Multi-Regional Computable General Equilibrium Analysis

Tomoru Hiramatsu

Abstract: Growth in inbound tourism is expected to stimulate the Japanese economy because expenditure incurred by tourists could compensate for the decrease in consumption owing to the country's declining population. This study conducted a simulation analysis using a multi-regional computable general equilibrium model to examine the economic impact of inbound tourists on 47 Japanese prefectural level regions. As inbound tourists visit all the regions, their economy grows in the short term. However, the impact is greater in the urban areas, which receive a higher number of tourists than the rural areas. Moreover, over the long term, people migrate from rural to urban areas where there is higher growth, leading to further growth and commercialization of urban areas. Therefore, rural regions could still suffer even if tourism leads to overall economic growth. For the development of rural regions, it is necessary to attract inbound tourists specifically to these areas..

Regional Science Policy and Practice

Spatial contagion during the first wave of the COVID-19 pandemic: Some lessons from the case of Madrid, Spain

María Hierro, Adolfo Maza

Abstract: This paper analyses the magnitude of the spatial transmission of COVID-19 through the municipalities of the region of Madrid during the first pandemic wave using a spatial contagion index. The study also provides additional insights into the main factors contributing to the spread of the virus in both time and space by estimating a novel conditional spatial contagion index. Our results reveal high values of spatial contagion before and during the national lockdown enacted on 15 March 2020, becoming medium/low since then. Furthermore, the study confirms the leading role of inter-municipal mobility and population density in spatial contagion.

Urbanization and COVID-19 Prevalence in India

Kala S. Sridhar

Abstract: The research questions we answer in this paper pertain to the socio-economic determinants of coronavirus disease 2019 (COVID-19), the relationship between urbanization, urban primacy, the proportion of households in slums, urban poverty, health infrastructure, open spaces in cities and COVID prevalence, in India. We find that urbanization, higher workforce participation,

higher population density and higher income lead to increased Covid prevalence. We find a positive relationship between urban primacy, slum households and COVID-19, and a negative association between health infrastructure, parks and COVID-19. Cities should develop and maintain not only hospital infrastructure such as beds, but also parks in the post-pandemic world.

Papers in Regional Science

Volume 102, Issue 1 (April 2023)

A joint spatial econometric model for regional FDI and output growth

Tamás Krisztin, Philipp Piribauer

Abstract: This paper studies the joint dynamics of foreign direct investments (FDI) and output growth in European regions by using spatially augmented systems of equations modeling framework that incorporates third-region and spillover effects. The joint framework is used to study the dynamic impacts of regional human capital endowments, which demonstrates the importance of explicitly accounting for an endogenous relationship. The relationship is highlighted in a stylized projection exercise, where the long-run impacts are pronounced in Eastern Europe and capital cities. Overall, ignoring the relationship of regional economic performance and FDI distorts the implied transmission mechanism, which is of utmost importance for policy makers.

Are riskier cities more compact? An empirical study of the 11 largest census metropolitan areas in Canada, 2016

Xiaoxuan Sun, Diana Mok, Jinfei Wang

Abstract: Why are some cities more compact than others? We argue that riskier housing markets have a costlier real option; developers would require greater compensation to build now—thus, developers are being incentivized to delay, giving rise to more compact cities. We test this hypothesis cross-sectionally for Canada's 11 largest census metropolitan areas. We interpret satellite imageries and estimate a hierarchical spatial autoregressive model to account for both the hierarchical and the spatial structure of our data. Our results show that, on average, a one-percentage-point increase in price risk reduces urban land coverage in the fringe by about 0.7 percentage point.

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GEOGRAPHIC EQUITY IN VOCATIONAL EDUCATION AND TRAINING MARKETS: INTENTIONAL FAILURE OR BENIGN NEGLECT?

Don Zoellner & Alice Springs

Abstract: This article explores outcomes resulting from three decades of national competition and new public management policies favouring increased user choice in vocational education and training markets. Large data sets describing system-wide numbers of enrolments, the number of enrolments in the top 20 training packages, the various fields of education, level of relative remoteness/access to services, Indigenous status and level of relative socioeconomic disadvantage are interrogated. If the introduction of contestable markets has delivered the anticipated benefits in access, equity and choice, it would be expected that a larger number of students from each equity group and region would show improvements in the measures described. Unfortunately, detailed results from three states identify an inability of the marketised national training system to produce a nation of lifelong learners who experience equitable access by exercising

a wide variety of choices as originally anticipated; calling into question 30 years of bi-partisan commitment to vocational education and training reform.

CUMULATIVE CAUSATION REVISITED IN THE CONTEXT OF CONTEMPORARY SOUTHEAST QUEENSLAND ECONOMIC REGIONAL DEVELOPMENT: CONGRUENCE OR DIVERGENCE?

Andrew Fern, Michael Hefferan & Olav Muurlink

Abstract: The Swedish economist, Gunnar Myrdal, first postulated his Cumulative Causation Theory (CCT) in the mid-1950s. It presented a multi-cause explanation for differential growth and regional development patterns. Within any such region, it predicted the likely emergence of one activity node that would dominate the long-term economic, political and community character of the entire area. In the intervening period, the theory has been widely adopted as a reasonable explanation of growth and development patterns across many western countries. However, given the scale and compounding nature of contemporary change, it is reasonable to reconsider its current relevance and impact. This paper forms part of a wider, continuing study into the development of Australian regions and businesses within rapidly changing environments. That reflects on both Cumulative Causation Theory (CCT) and on the appropriate role of government in such matters into the future. The paper draws on examples from sub-regions within South East Queensland. Although these sub-regions are diverse in physical characteristics and economic structures, this paper observes that key elements of CCT still resonate. It is hoped that this research will assist government in the formation of better targeted regional support into the future.

EVALUATION OF A NEW SIMPLIFIED POPULATION PROJECTION MODEL: A

CASE STUDY OF LOCAL GOVERNMENT AREA PROJECTIONS IN TASMANIA

Tom Wilson & Irina Grossman

Abstract: Preparing local area population projections with state-of-the-art demographic models can be a challenging, time-consuming and costly task. Alternative simpler models can produce projections quickly and easily, but at the cost of less output detail, less flexibility in creating scenarios, and sometimes lower accuracy. This paper presents an evaluation of a new modelling approach which blends the conceptual sophistication of state-of-the-art cohort-component models with the low data requirements of simple models. A key feature is that no locally-specific fertility, mortality, or migration input data is necessary. The new model is tested by producing 'projections' of local government area populations by age and sex in Tasmania over recent periods, with the results then compared to actual populations. The model is shown to produce reasonably accurate projections, and out-perform a simple benchmark model. The strengths and weaknesses of the new approach are discussed.

ABOUT ANZRSAI

ANZRSAI Council Notes

Council has planned for the 2023 conference in Melbourne at RMIT University and improving access to and ranking of AJRS and the website. Conference participants gain access to support, encouragement, and relevant experience. AJRS offers an opportunity for publication. Council acknowledges Tony O'Malley's contributions to ANZRSAI and proposes his name as a lifetime member of ANZRSAI.

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