

# Australian NCGP Reform - Dynamic Walkthrough

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*A guided run that teaches the model one lever at a time, then in combination*

iMORSE

Audience: decision-makers and advisers

Estimated time: 45 minutes

## Before you start: the terms

**The levers.** You control seven things. Five are the reforms, each a switch from 0 (today's setting) to 1 (fully reformed, phased in from 2027):

- remove salaried mid-career and senior fellowships and redirect that money to projects;
- turn on the Initiate channel, the dedicated early-career fellowship scheme plus early-career salary eligibility in all project grants, which recruits and retains early-career researchers;
- turn on Lead & Mentor, which sustains senior and mid-career mentoring capacity and feeds the higher-degree pipeline;
- lift dedicated Indigenous funding from about 1 per cent to 5; and
- simplify 15 schemes to 7.

Two are contested assumptions:

- the dispersal-versus-concentration effect on output, where a positive value means spreading funding across more, smaller projects raises output and a negative value means concentrating it on established performers does;
- the labour-market pull, where a higher value means researchers are drawn out of academic research faster. Each lever's full definition and its direction are printed under the sliders in the simulator, so you never have to guess which way is 'more'.

**The presets.** Four buttons set whole scenarios at once.

**'Full reform (all seven schemes)'** turns on everything - fellowship removal, the Initiate and Lead & Mentor scheme channels, the Indigenous step and scheme simplification.

**'Reform, funding redistribution only'** turns on the reform but leaves the Initiate and Lead & Mentor schemes off, to isolate what the schemes add over simply moving money to projects.

**'Reform, keep fellowships'** turns on everything except fellowship removal.

**'Full reform, concentration view'** runs the full reform under the opposite output assumption. Use a preset to jump to a configuration, then adjust one slider from there to see what that single change does.

**The two views.** The simulator has a validation view and a forward view. The rule of this walkthrough is simple: earn trust before you gain foresight. This mimics how models should be used in projects.

So we begin on the validation view and only move the levers once the model has shown it behaves like the real program.

## **Step 1: Read the validation backcast first**

Open the simulator and stay on the left, validation view. Do not touch a slider yet. This view runs the calibrated model over documented history from 2010 and is deliberately locked, because its only job is to earn your trust.

Look at what it reproduces.

The early-career share of the workforce sits around the observed level. Average project cost climbs on the real path the ARC recorded. Industry collaboration rises across the period, as it did in reality when industry cash grew from a third to two-thirds of collaborative funding. Indigenous researcher numbers track their slow observed rise. None of these were drawn by hand; the model produced them while being driven by the real historical inputs.

A structure that behaves like the real program before 2026 has earned the right to be listened to after it. Fix these shapes in your mind. Then switch to the forward view, where the levers are live and two scenarios, A solid and B dashed, overlay on every chart.

## **Step 2: Run the defaults and meet the squeeze**

In the forward view, leave every lever at today's setting and observe the outcomes – do not select any scenario buttons. This is the no-reform world. Watch the headline chart: funded projects keep falling, from roughly 2,480 today down to about 1,800 by 2036, and the engaged workforce contracts with them. This decline is not caused by the reform; it is the problem the reform exists to answer. A rising fellowship share and a flat real budget, against costs that keep climbing, mean the same money buys fewer projects each year, and fewer projects support fewer researchers. Every reform you try from here is judged against this falling baseline, not against a healthy one. That framing matters: a change that merely arrests a decline can be as valuable as one that produces growth.

### Step 3: remove the fellowships, and watch the second effect

Now move only the fellowship-removal lever to 1 and leave everything else at default. Predict first, before you read the curves: freeing the fellowship money should let the budget fund more projects. It does. Funded projects recover to a peak of about 2,745 around 2032, easing to roughly 2,590 by 2036, well above the falling baseline. This is the reform's central promise on project volume, and the model supports it. Yet the Research-impact index chart directly below tells a quieter, harder truth: even as projects climb, the impact index keeps falling - from about 277 to about 226 by 2036. Recovering project volume slows the decline in research impact; it does not reverse it. But now look at another chart you did not set out to change: mid-career precarity. It climbs sharply - the very lever you moved to help projects raises the insecurity of the mid-career researchers who staff and lead those projects, and with it the attrition that quietly thins their ranks. And look at the early-career line: it barely moves. Redirecting fellowship money to projects, on its own, does almost nothing for early-career numbers. Hold that thought - it is what the next step is for.

### Step 4: Turn on the scheme channels, and find the early-career engine

Keep the fellowship-removal slider at 1, exactly where Step 3 left it, and now move two more sliders to 1: 'Initiate + ECR salaries (early-career recruitment)' and 'Lead & Mentor (preserve senior mentoring)'. Leave every other slider at default. Watch the early-career chart. In Step 3, fellowship removal on its own left the early-career line drifting down to about 2,180 by 2036; with these two schemes added it climbs instead to about 3,440, and the early-career share rises from roughly 19 to 25 per cent. This is the reform's early-career ambition being delivered, and the key lesson is where it comes from: not from the fellowship money you moved in Step 3, but from these schemes actively recruiting early-career researchers (Initiate) and preserving the senior mentors who train them (Lead & Mentor). Watch the workforce chart too: instead of contracting, the engaged workforce now grows, to about 13,900 by 2036 - close to the 'up to 20 per cent more researchers' the ARC's own modelling claims. To prove where the gain lives, set those same two sliders ('Initiate' and 'Lead & Mentor') back to 0, leaving fellowship removal at 1: the early-career line falls straight back to about 2,180 and the workforce resumes contracting. The early-career gain lives entirely in the schemes.

### Step 5: Lift Indigenous funding, and watch the delay

Reset the sliders to baseline (use the 'Reset to baseline' button), then move only the 'Lift Indigenous funding 1% to 5%' slider to 1. Indigenous researcher numbers rise by around 60 per cent by 2036, from roughly 290 toward 460. The ambition is reachable. But read the shape of the rise, not just its endpoint: it lags the money by years. Capability is a slow-building stock. It needs PhD completions, career development and, above all, mentors who are themselves established Indigenous researchers, and none of those can be bought in a single budget. So a five-fold funding step cannot be absorbed at once; the money runs ahead of the people it can

support, and the curve catches up only gradually. This is the single clearest illustration in the model of why a demand-side reform can be right and still be slow.

### **Step 6: Simplify the schemes, and keep it in proportion**

Reset to baseline again, then move only the 'Simplify 15 schemes to 7' slider to 1. The effect is real but small, and it shows up, marginally, on the 'Research-impact index' chart (and its tile): fewer schemes lower administrative burden, which returns a little researcher time, which lifts the index only slightly - from about 200 to about 201 by 2036, with the funded-project count unchanged. It is worth doing, but it is a tidy-up, not a growth engine, and it is useful to see its true size before it is oversold in either direction. Keep this proportion in mind when you later combine levers: the big moves in this model come from money and from the workforce schemes, not from administrative structure.

### **Step 7: Test the contested assumption**

Click the 'Full reform (all seven schemes)' preset, then move only the 'Dispersal-vs-concentration effect on output' slider from its positive default (0.3) down through zero to negative (say -0.3). Watch carefully what does and does not move. The other charts barely change (if you set Scenario B to the full reform, leaving all sliders unchanged, and then go to Scenario A, make the suggested change, and hover, you will see a very slight change in the 2036 numbers) - the funded-project count holds near 2,470 and funding concentration hardly shifts - because this lever does not decide how many projects the budget buys. What moves is the 'Research-impact index' chart (and its tile), because this lever decides whether the money, once spent, produces more by being spread or by being concentrated: in this calibration the index rises from about 224 to about 229 as you slide from dispersal toward concentration. This is the one objective place in the simulator to test the argument at the centre of the whole reform. The model does not tell you which way this relationship runs in the real world; nobody can yet. It lets you set it, and see how much of your conclusion depends on the setting. If your judgement about the reform flips when you move this slider, that dependence is itself the finding.

### **Step 8: synthesis - set A against B and find the trap**

Now combine, which is where the interesting behaviour lives. Put 'Full reform (all seven schemes)' in scenario A and 'Reform, funding redistribution only' in scenario B, and read where the solid and dashed lines diverge. On funded projects they sit on top of each other, both near 2,470 - because the project recovery comes from the fellowship money, which both scenarios share. But on the early-career and workforce charts they separate cleanly: A lifts early-career researchers to about 3,435 and grows the workforce, while B leaves early-career flat at about 2,175 and the workforce contracting. That is the first lesson in two lines: projects come from the money, early-career renewal comes from the schemes. Now switch B to 'Reform, keep fellowships' and read the other trade. Funded projects in B fall back to about 1,680 while A

holds 2,470 - the whole of that gap is the fellowship money - but A also carries a sharp rise in mid-career precarity that B does not. There is the trap: the only setting that recovers project volume is the one that unsettles the mid-career workforce, while the early-career gain and the Indigenous gain are available either way. Finally switch B to 'Full reform, concentration view'. Now every other chart line sits together - even the funded-project count barely moves - because the only thing this scenario changes is the output assumption. That assumption has its own line: on the 'Research-impact index' chart the solid (A) and dashed (B) lines part, modestly, from about 224 under full reform to about 229 under the concentration view. So the output assumption changes the value of the reform without changing its project count. And carry one thing out of all three comparisons: on the Research-impact index chart, impact falls in every scenario - even full reform only slows the slide, from about 277 to about 224 by 2036, against about 200 with no reform. Recovering projects and renewing the early-career pipeline buy a slower decline in research impact, not a recovery of it.

## **Step 9: Reflect before you decide**

Step back from the sliders. The model has shown you five things you can now hold together.

The pre-reform path was falling, so standing still is not a neutral option.

Fellowship removal is what recovers projects, and it does so at a cost to mid-career security that the headline figure hides.

The early-career ambition is real but rests entirely on the Initiate and Lead & Mentor schemes recruiting and mentoring - not on the money shuffle - and its size is an assumption you can turn.

The Indigenous ambition is reachable but paced by capability, not by money.

And the argument about concentration versus dispersal, which the reform cannot avoid, changes the worth of the whole exercise without changing its project count.

None of this you what to choose. It tells us what we are choosing between, and it lets us see, in shapes we moved with our own hands, how much of the answer rests on assumptions still in dispute.

Read shapes, not points; the levels are illustrative and the behavioural parameters are the real uncertainty, but the directions, the plateaus and the crossings you have just watched are the message the model exists to deliver.

That discipline - watch the history, move one lever, predict, then combine and read the divergence - is the value of looking at policies and decisions from a systems perspective.