Economics and Markets Research

AI in Australia

national australia bank

Key points

AI in Australia – a global context

- There are a number of measures that have been created to look at the relative ranking across different countries. **Australia tends to rank close to the middle of the pack on these measures**.

The economic impact of AI

- **In Australia, the adoption of AI is evident in economic data**. Imports of Automated Data Processing equipment have surged in recent months and data centres are making a noticeable contribution to growth in business investment (with the pipeline of work growing rapidly).
- **Widespread adoption of AI is expected to lift total factor productivity**, but economists' estimates are very varied on the magnitude of this impact.

The distributional consequences of AI

- **Shifts in relative wage outcomes are likely** as AI adoption diffuses. There may be shifts in the split of surplus between labour and capital over time.
- **At an industry level, there are also likely to be some sectors that do relatively better** (those with scope to adopt AI widely). At the top of the list are IT, Finance and Insurance and Professional Services.

The impact of AI on the Australian labour market

- **There are likely to be different crosscurrents impacting the labour market as AI adoption widens**. Some jobs will be lost, new jobs will be created and many will be augmented by AI. In addition, stronger productivity growth, if realised, will lift real wages and aggregated demand (and also labour demand).
- We conclude that **~15% of jobs in Australia are highly or significantly exposed to AI**. This broadly concurs with analysis that "routine cognitive" jobs comprise around 20% of total employment in Australia.
- Our analysis suggests that **the impact of AI is now evident in labour market data in Australia**. Jobs growth in occupations that are highly or significantly exposed to AI has been softer since late 2022 (when Chat GPT was introduced).

Introduction

In customer visits so far this year, there have been two questions which have been asked a lot more often than others. The first relates to the impact of government spending on the economy, inflation and the level of interest rates. The second relates to Artificial Intelligence (AI) and how we see the adoption of this technology impacting the Australian economy.

Generative Artificial Intelligence (or Gen AI) refers to a class of artificial intelligence systems that can create new content, such as text, images, audio, code, or video, based on patterns learned from large datasets. Unlike traditional AI, which focuses on analysing or predicting outcomes, Gen AI is designed to produce *original* outputs that mimic human creativity and reasoning. Recent advances, particularly in large language models and diffusion models, have made these systems more powerful and accessible, enabling applications across business, research, education, and everyday tasks. As adoption grows, generative AI is increasingly seen as a transformative technology with the potential to reshape productivity, innovation, and decision-making, and with it, economies and societies.

A new layer is now emerging in the form of agentic AI. Rather than simply generating outputs, agentic systems can interpret goals, break them into steps, and take action across tools, data, and environments. In effect, they shift AI from responding to prompts to carrying out tasks.

As such, we suspect this won't be the last time we put pen to paper on the topic. In this note we tackle the second of our most popular customer questions. The note is structured as follows: first, we take a look at how Australia compares to global peers on a number of measures related to AI. Second, we make some broad observations about the impact of AI on economic variables. We then offer some thoughts on the distributional aspects of AI; that is, potential winners and losers. And finally, we present some new analysis on the impact of AI on the Australian labour market.

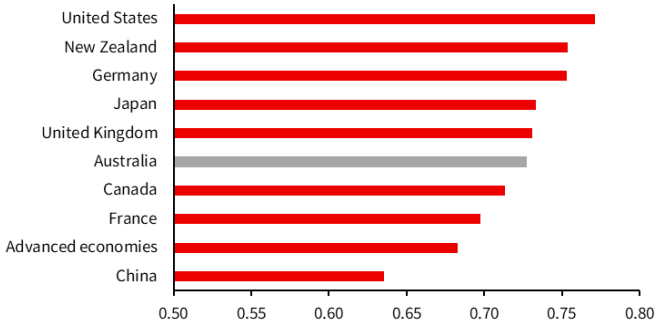
It goes without saying that the topic of AI is a large one, and as such, there are aspects to the topic that we do not cover in the note (for example, how society may change in response to widespread adoption of AI and how governments may respond to any society-wide changes). However, we draw readers' attention to a number of other pieces of NAB research which are related to the topic, in particular, A Primer on Data Centres (see here) and our own research on AI and Australian SMEs (see here).

Authors: Sally Auld and Taylor Nugent

Benchmarking Australia and AI in a global context

In this section, we take a look at how Australia compares to other Developed Market (DM) economies in terms of AI adoption. A good place to start is the IMF's AI preparedness index. This essentially comprises the sum of four key dimensions: digital infrastructure, human capital, technological innovation, and legal frameworks. As the chart below shows, **Australia ranks close to the middle of the pack, and is higher than the DM average**. The caveat with this chart is that the data are from 2023, so may be somewhat out of date.

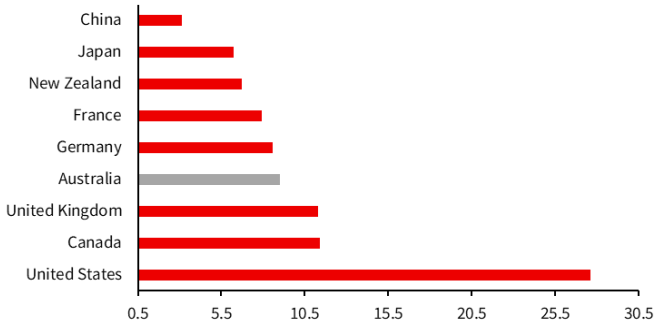
AI preparedness Index



Source: IMF and NAB.

The Stanford Global AI Vibrancy tool (see here), which provides a more up to date and arguably more detailed measure of relative AI "vibrancy", places Australia at #24 (out of 32 countries). **On a per capita basis, our ranking improves to #18 and is consistent with our broadly "mid-pack" positioning** using IMF analysis above. The top five countries on an absolute measure are the US, China, India, South Korea and the UK. The broader index (see here for more information) uses 42 indicators related to AI and collectively assesses specific AI activity from 2017-2024. In per capita terms, Australia's ranking has jumped around over the past decade; our highest rank has been #12, while our lowest rank is our current rank of #18.

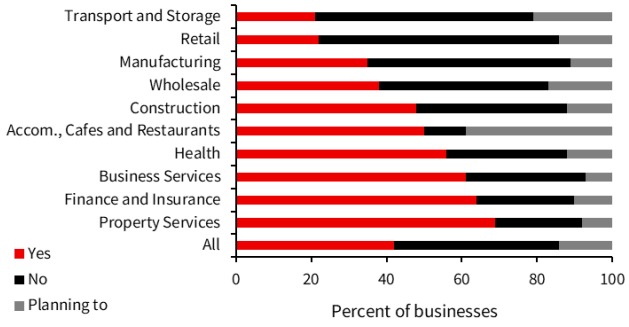
Global AI Vibrancy Ranking (per capita)



Source: Stanford University Human-Centred Artificial Intelligence and NAB.

The Australian government also provides some information on the extent of AI adoption across the SME sector (see here), and we have also published our own research on this topic earlier this year (see here). **Our research showed that 42% of Australian businesses are using AI, with a further 14% planning to use AI**. Some sectors have emerged as clear leaders in AI adoption, with industries with strong digital foundations or analytical workflows leading adoption. Property Services stands out with a high 69% utilisation rate, followed closely by Finance & Insurance Services (64%) and Business Services (61%).

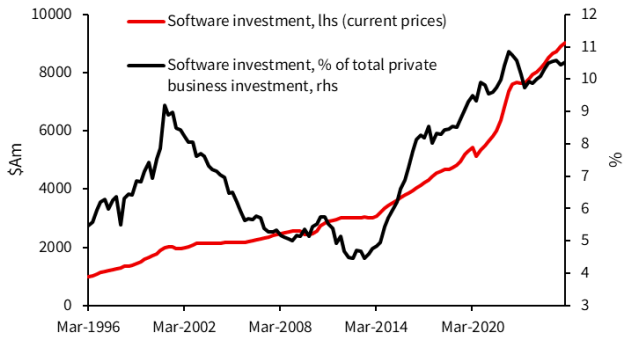
Currently using AI tools in business (%)



Source: NAB.

Beyond industry usage, it is also interesting to observe the impact of AI on the broader economy. The chart below shows that software investment is running at around 10% of business investment, with the increase in software investment broad-based across industries, but dominated by the business services sector (including finance, insurance and professional services). In large part this investment includes capitalised software on business' balance sheets, while the use of AI and AI tokens is included as an intermediate input (expenditure). This suggests that the full expenditure will be understated by headline measures.

Software investment

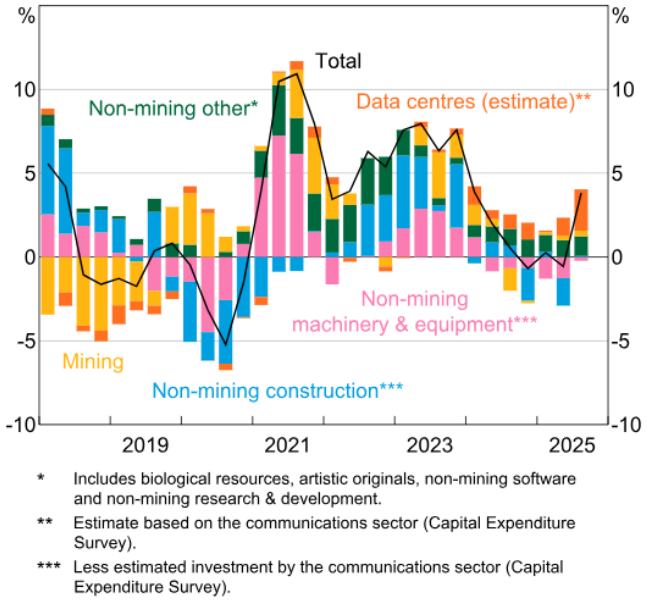


Source: ABS and NAB.

One additional investment dynamic beyond software has been the build out of data centres. In a speech earlier this year, the RBA noted that the impact of data centre build out is now quite evident as a driver of private business investment and hence private final demand. In the chart below, the orange bars show the contribution of data centre build out to overall growth in private business investment. While such investment is lumpy, the contribution has been especially evident in the last couple of years. The most recent capex survey suggests that non-residential investment capex plans

have been upgraded of late, implying further contributions to the growth in business investment are likely in coming years.

Business Investment (yoy % growth with contributions)



Source: RBA.

Some broad observations about the impact of AI

AI is widely seen as a General-Purpose Technology with transformative potential, on par with past innovations like electricity or computing. Many economists across both the public and private sectors have been attempting to assess how AI adoption might reshape economic growth, productivity, labour markets, inflation dynamics, and the income distribution, especially in advanced economies such as Australia.

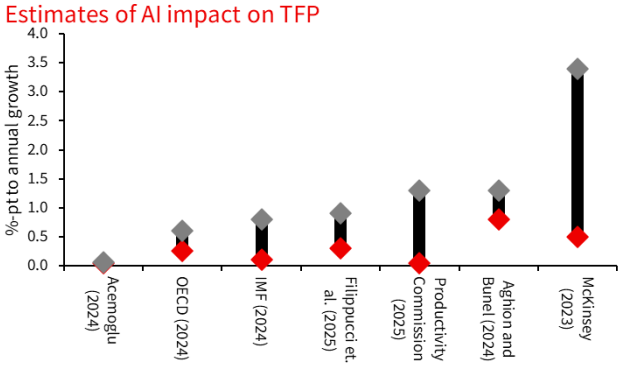
Of course, estimates vary widely, so in the analysis that follows, we provide a brief summary of the main frameworks used to understand AI's economic impact. The focus is on the medium-term (5–10 years) and highlights areas of both consensus and uncertainty.

Broad consensus:

AI is expected to raise productivity and economic growth in advanced economies over the medium to long term, but the magnitude and timing of these gains are highly uncertain. All major sources – from central banks to consultancies and academic studies – emphasize that AI's full benefits will unfold gradually, with significant lags. In the near term, most analyses foresee only incremental improvements to growth and productivity, rather than an immediate revolution in GDP or productivity statistics. But it may be fair to acknowledge that these estimates may under-estimate and pre-date recent innovations in Gen AI, which have accelerated faster than most anticipated. Regardless, over a 5–10 year horizon, however, even modest accelerations in productivity growth can cumulate to meaningful gains in output and living standards.

Looking further out, AI has potential to materially lift the economy's long-run trajectory, especially if it enables new innovations, but estimates diverge on how large that effect could be. The chart below shows the variation in estimates of the impact of AI on annual growth in total factor productivity (TFP), and display the range, high and low estimates for each estimate. TFP is effectively the additional output that exists after the growth in the input of labour and capital is accounted for. In a practical context, it often reflects the impact of organisational improvements, network effects, technological progress and more efficient use of resources.

Estimates of AI impact on TFP



Source: NAB.

No "instant productivity boom", yet:

Despite the rapid proliferation of tools like ChatGPT (which reached millions of users in record time), **it is too early to detect a broad productivity acceleration in economic data**. The President of the San Francisco Fed noted in early 2026 that "…*most macro-studies of productivity growth find limited evidence of a significant AI effect*" to date, likely because adoption is still in its infancy and concentrated in specific use cases. Similarly, U.S. Federal Reserve officials observed in 2025 that the emergence of AI had not yet produced a visible surge in aggregate productivity or a break from the post-Global Financial Crisis trend of sluggish productivity growth. **In Australia, despite a strong 80% rise in business information technology investment over the past decade, overall productivity growth remains modest**, perhaps suggesting the payoff from new tech investments has not yet fully materialized.

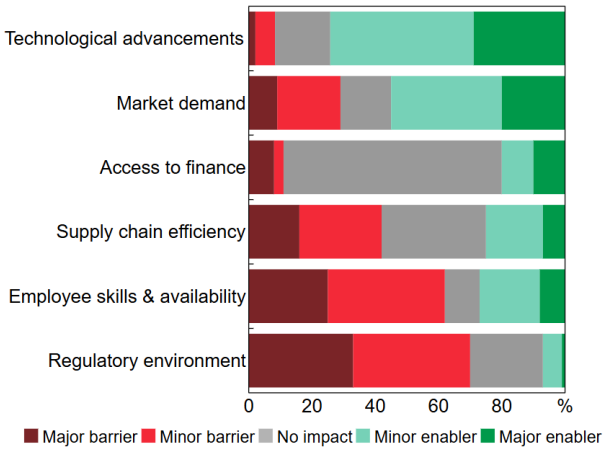
In a speech last year, FOMC Governor Lisa Cook offered a few reasons as to why the adoption of AI might be slower than anticipated:

- The workforce needs to be trained to take advantage of the technology, and this takes time;
- It takes time for knowledge to diffuse through organisations, especially if a "learning by doing" dynamic; and
- When technology is changing rapidly, organisations are often cautious in choosing which technology to invest in.

In Australia, there is no reason why the adoption of AI shouldn't enhance measured productivity growth. But it would be misguided to think that AI was the only solution to

improving Australia's lacklustre productivity growth. A recent survey by the RBA notes that firms see a number of factors as headwinds to higher productivity growth (see chart below). Employee skills and the regulatory burden are viewed as more significant barriers to better productivity outcomes than technological advancements. This cautions against over reliance on AI to be the "white knight" of Australia's productivity issues.

Factors impacting productivity, share of firms reporting over the past 5 years



Source: RBA

Disinflationary and bullish for rates?

In the next few years, the supply-side improvements from AI (higher efficiency, new capabilities) are expected to slightly outpace any surge in demand, implying a disinflationary bias initially. Put simply, as AI makes workers and businesses more productive, the economy can produce more goods and services with the same or less input, easing price pressures. However, this assumes that the impact of AI on the supply side of the economy doesn't represent a "j-curve"; that is, if workers take time to learn and adjust, it might take longer before supply side benefits are realised.

Unsurprisingly, central bankers stress that ultimate inflation outcomes depend on how demand responds and how quickly labour markets adjust. If people and firms do anticipate future AI-driven income gains, they may increase current spending and investment, boosting demand in tandem with supply – a scenario in which the initial impact of AI could be mildly inflationary until supply expands fully. The historical pattern with past general-purpose technologies (such as ICT) was an initial disinflationary phase – consistent with many consumers and businesses not immediately ramping up spending in anticipation of productivity gains, so the first effect of a technology shock was to increase productive capacity more than demand. In either case, as the AI adoption becomes more pervasive, expanded economic capacity and rising incomes are expected eventually to spur higher aggregate demand. Over time, AI could put upward pressure on inflation and interest rates if investment booms and rising incomes lead to demand outpacing the economy's new potential.

Policymakers thus face the challenge of separating one-off level effects from true changes in trend growth. Most current inflation forecasts treat AI's near-term impact as modest – for example, the Reserve Bank of Australia (RBA) has not factored in any substantial AI-driven disinflation in its formal projections, given the uncertainties and the still-small scale of AI investment relative to the whole economy.

There is also the possibility that AI changes inflation dynamics: beyond the balance of supply and demand, AI might alter how prices are set and transmitted, with ambiguous effects on inflation volatility. This may require central banks to reconsider their reaction functions (that is, how policy responds to a given shock to output or inflation). The Bank of Canada observes (see here) that AI-empowered firms (especially in e-commerce and digital sectors) already adjust prices more frequently in response to cost changes. As AI tools for dynamic pricing spread to more companies (including smaller retailers), prices could become more flexible and synchronized, with faster pass-through of shocks (such as exchange-rate moves or commodity price swings) into consumer prices. The RBA has recently released research along a similar theme (see here), although the paper doesn't directly attribute lower price rigidity to the impact of AI.

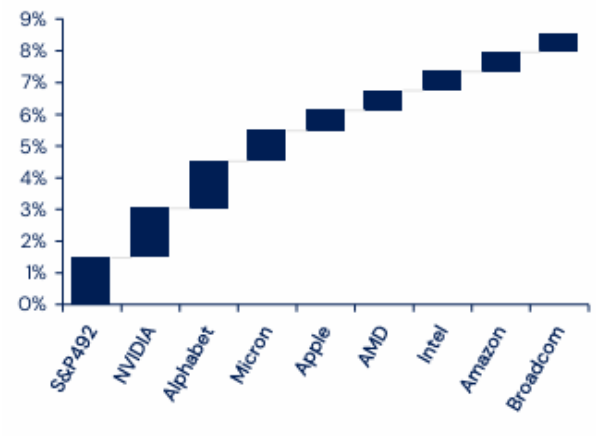
Typically, the disinflationary impact of AI, should it eventuate, is seen to be bullish for the term structure of interest rates. It is possible this occurs at the longer-end of the curve via a structural compression in inflation risk premia. However, this ignores the possible impact on rates at the front end of the curve – **if productivity is structurally higher, then by extension, so is r* (the real neutral rate of interest). This could lift the level around which policy rates settle in the medium term.** All else equal, this suggests a potentially more nuanced outcome, with dynamics biased towards flatter yield curves driven by higher short-end rates.

Bullish for tech stocks?

An in-depth analysis into the valuation and earnings forecasts of tech companies leveraged to AI is well beyond the scope of this note. And we would also observe that this sector is not large in the local stock market. However, we refer readers to some worthwhile analysis by our colleagues in the JBWere and NAB Private Wealth CIO office on this topic. The authors observe that **so far this year, the S&P 500 has still produced an underlying total return of 8.5%** (in USD, at the time of writing). **However, their analysis suggests that over 80% of these gains are driven by just 8 companies perceived to benefit from AI** – NVDIA, Micron, Broadcom, Intel, AMD, Alphabet, Amazon and Apple (see Chart).[1]

[1] See Bertram and Oh, *Portfolio Strategy – Monthly Update*, May 2026.

8 AI stocks drive YTD performance of the S&P500



Source: JBWere.

Over the same period, they observe that aggregate 2026 S&P 500 earnings expectations have been revised up 8.4%, leaving the overall multiple on the S&P 500 at 22x earnings—a very high multiple by historical standards, but no higher than at the start of the year. **However, only ~40% of the earnings revision is attributable to the 8 companies that have driven more than 80% of the returns**.

Moreover, of that upward revision, consensus expects it will incrementally drive negative aggregate free cashflow, as earnings are more than offset by additional capital spending. Indeed, **the capex boom in AI has transformed previously capital-light businesses with considerable free cash flow metrics businesses into significant capital consumers with negative or at best – compressed – free cash flow**.

As the authors conclude:

"*Despite growing concerns around a potential "bubble" in the NASDAQ and the technology sector, the current environment differs materially from the 2000 cycle. To the extent that risks exist today, they are less centred on elevated listed corporate valuations and more on the durability and sustainability of earnings. Particularly with the record margins that are currently underpinning them. We do worry that there is an apparent inconsistency in the market's implicit requirement that the intensity of AI capex from the hyperscalers must ultimately reduce to support the cashflows underpinning their long-term valuations. Yet at the same time the recipient beneficiaries of the same spending are arguably priced on the assumption that it will continue*."

The distributional impact of AI – winners and losers

While economists often concentrate on the efficiency gains of AI, there are potentially significant distributional consequences. Indeed, one concern that many hold with the rise of AI is the risk that without careful policy decisions, AI may amplify income and wealth inequalities. Who owns AI capital is also relevant to this discussion, given the equity performance of AI leveraged stocks and the increasing presence of AI companies in public and private debt markets. There are several dimensions to this concern:

- **Skill and wage polarization or a relative repricing of labour**: AI could increase the relative demand (and wages) for high-skill workers who can build, manage, or complement AI systems – such as data scientists, AI engineers, and professionals who leverage AI in creative and complex tasks. At the same time, workers whose skills involve routine cognitive or manual tasks may see their roles devalued or eliminated, exerting downward pressure on middle-skill jobs and wages (a continuation of the "hollowing out" of middle-income jobs observed in many countries in recent decades). This can widen the gap between high earners and middle/lower-wage workers. In some labour markets, there may be a large relative shift in wage outcomes, with those jobs or professions impacted by AI earning lower wages relative to jobs or professions less exposed. **In simple terms white collar vs. blue collar wage relativities may shift in favour of the latter**.
- However, some recent research cited by FOMC Governor Barr (see here) has observed that the effect of AI assistants can often lead to the largest productivity uplift in less experienced low paid workers. If so, AI could see their real wage increase relative to others.
- **Labor share and profit concentration**: From a macro perspective, if AI mainly substitutes for labour without a proportional increase in new tasks for labour, it could further shift income from labour to capital owners. Some economists (notably Daron Acemoglu) warn of "excessive automation", where **firms using AI to cut costs and headcount without improving overall productivity ultimately manifests as a declining labour share of GDP** and weaker wage growth even as total output rises. There is early evidence that large firms adopting advanced automation can indeed increase output and profits without commensurate increases in employment (another version of the "winner takes all" dynamic), consolidating market power.[2] **This could lead to higher inequality between firms and greater industry concentration, unless AI tools become easily accessible to smaller players**.
- **Consumer impacts**: On the positive side, as AI drives costs down, **consumers may benefit from lower prices and new/improved products (an increase in real incomes)**. For example, AI-enabled drug discovery and medical diagnostics could eventually make healthcare cheaper and more effective. Policymakers note that if

[2] For example, private-sector research highlights that a small set of AI-leading firms could capture an outsized share of the value. A Goldman Sachs analysis found that for companies in an "AI beneficiaries" basket, median long-term earnings could be 72% higher than baseline due to AI (through efficiency and new revenue), versus a 19% boost for the median Russell 1000 firm39 40. In other words, a few firms – likely those with proprietary data, superior algorithms, and large capital investments – might reap massive productivity and profit gains.

AI-driven productivity gains mainly go to profits and high-skilled earnings, overall consumption growth could lag output growth, since higher-income households tend to save more of their income. This is another channel through which inequality can dampen the broad macro benefits of AI, underscoring the importance of inclusive policies (education, training, competition enforcement, labour market support) to spread AI's gains widely.

- **The owners of AI capital are more exposed in a world where expectations of AI disappoint**. This might be due to electricity constraints, regulatory impost or even the exhaustion of training data. In this instance, the redistribution is less about impact on the real economy, and more about the impact on the financial sector if demand falls short of the investment in capacity.

In summary, it is possible that the distributional consequences of AI adoption will be meaningful. In the end, governments are likely to play some sort of role in smoothing distributional impacts, should they be significant. For the owners of AI capital, the impact will be down to whether the technology lives up to its (very high) expectations.

Thus far, our analysis has considered the impact of AI at an aggregate economy level. But **it is also possible that AI is diverse in its impact at an industry level**. We outline some brief dot points below, listing industries in order of likely AI uplift (from highest to lowest).

- **Finance & insurance (High):** AI fits naturally into analytics, document and workflow heavy work (risk/compliance, reporting, customer operations), so productivity gains are likely to arrive earlier and scale faster here than in most sectors.
- **ICT / software (High):** Large share of work is "digital text/code" making it highly exposed to Gen AI (coding, testing, documentation, support) and easier to embed into toolchains and workflows.
- **Professional services (High):** Law / accounting / consulting benefit because core tasks involve drafting, analysis, research, summarisation and document production, with strong scope for augmentation at scale.
- **Pharma / R&D-intensive sectors (Medium-High):** Upside is concentrated in R&D and knowledge workflows (accelerating research, documentation, discovery support), though realisation depends on integration and adoption pace.
- **Retail (frontline) (Medium):** Biggest gains are typically in marketing/personalisation, customer support and back-office operations; frontline service remains constrained by in-person time, limiting overall uplift.
- **Manufacturing (Medium):** AI can lift productivity via design, planning, quality, and predictive maintenance, but many large gains require complementary operational tech, so diffusion can be slower/uneven.
- **Healthcare (Medium):** Strong potential in administration (documentation, scheduling, coding) and decision support, but direct care is constrained by safety / liability / regulation and real world context, so gains are mixed and governance dependent.
- **Construction (Low–Medium):** GenAI can help with planning / estimating / compliance, but on-site physical execution and coordination constraints mean smaller near-term productivity gains unless paired with complementary tech and process redesign.
- **Agriculture (Low–Medium):** Most production is physical and environment-dependent; AI helps more through precision / ag-tech complements (sensing / vision / automation) and planning than through Gen AI alone.
- **Hospitality / personal services (Low):** Core output is delivered via in-person labour time; AI mainly improves back-office tasks (rostering, training, customer communications), so aggregate uplift is smaller.

A good sense check for this is to look at recent data on the percentage of job ads in each industry that mention AI:

Industry	% of job ads with AI*
IT, Media and Communications	8.8
Financial and Insurance	4.2
Professional, Scientific and Tech	4.1
Education and Training	2.5
Arts and Recreation Services	2.3
Wholesale Trade	1.4
Utilities	1.3
Manufacturing	1.3
Property Services	1.2
Construction	1.0
Admin., Support and Other Services	0.9
Public Administration and Safety	0.9
Transport, Postal and Warehousing	0.9
Mining	0.8
Retail	0.8
Health Care and Social Assistance	0.6
Agriculture	0.4
Accommodation and Food Services	0.3

Source: see here; *%, January to May 2025.

The impact of AI on the labour market

Thinking through the big picture dynamics

In a recent research note (see here) the RBA noted that literature on the impact of new technology on employment suggests **there are broadly four channels through which technology adoption can affect a firm's demand for labour, and in turn, aggregate labour demand**.

- **Displacement**. This channel sees jobs previously completed by labour replaced by automation, reducing labour demand.
- **Reinstatement**. This channel sees new roles created as a consequence of the emergence of new technology and as such is a new source of labour demand.
- **Augmentation**. This channel involves labour using new technology in a complementary fashion (lifting productivity) and possibly leads to an increase in demand for workers.
- **Productivity (real income effects).** This channel sees firms passing on the benefits of higher productivity related to tech adoption via to lower final prices and higher wages. All else equal, this leads to higher real incomes, which in turn lift aggregate demand (and eventually, lifts labour demand).

So at a macro level, three of the channels work to increase labour demand, while one acts to reduce it. Clearly it is the net effect that matters for aggregate labour market demand, and the subsequent interaction with labour supply dynamics (aging population) that determines overall labour market outcomes. Nonetheless, the RBA's research observed that:

"***Importantly, the international evidence suggests that the labour-creating effects of technology have generally outweighed the labour-replacing effects over time*** *(Hötte, Somers and Theodorakopoulos 2023; Abel et al 2025). Over recent decades, annual hours worked per working age person in Australia have been little changed overall, despite concerns that widespread adoption of technology would lead to a substantial decrease in the availability of work (Borland and Coelli 2023)*." (our emphasis)

A closer look at the Australian Labour Market and the impact of AI

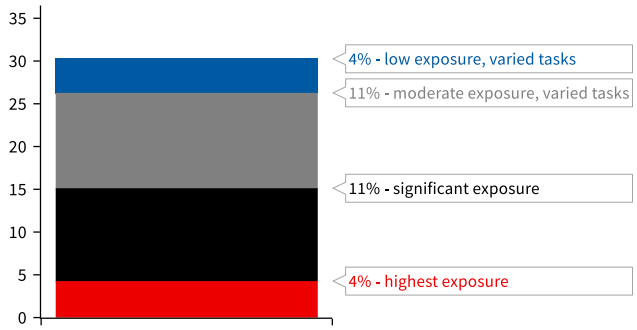
The International Labour Organization has published a useful approach to measuring generative-AI exposure at the occupational level. Occupations are treated as bundles of tasks, and automatability using Gen AI is scored for individual tasks. **Exposure to Gen AI at the occupation level is summarised in two dimensions**; **1)** average exposure of tasks performed in an occupation; and **2)** how varied that score is across tasks.

Our analysis takes the ILO framework and translates it onto Australian labour market data (at the ANZSCO four-digit occupation level).

- **Jobs with the highest exposure to GenAI** are those that include tasks that are highly automatable and have little variation between tasks. These are occupations that are at greatest risk of displacement, as GenAI is a substitute for the human labour component. Clerical and administrative roles are more likely to reflect these characteristics.
- **Jobs with minimal exposure to Gen AI** comprise tasks that are mostly not susceptible to GenAI automation. Blue collar jobs and many community and personal service roles fit this description.
- **In the middle** there are jobs with some tasks with high exposure, but high variability between the tasks performed day to day. This describes many professional roles.
- **Occupations with moderate to high exposure (like lawyers and analysts) but varied tasks are likely to drive within-occupation productivity gains**. GenAI will complement the human input, taking care of some tasks while people working in those roles spend more of their time on other parts of the role.
- **Between-occupation reallocation, in contrast, will see some occupations displaced over time**. Occupations comprising tasks that have a high level and little variation in their exposure to AI (like payroll/accounting clerks and web developers) are most vulnerable to displacement.

For Australia, our analysis suggests about 15% of jobs have significant or high exposure to GenAI. We note that this broadly concurs with analysis that "routine cognitive" jobs comprise around 20% of employment in Australia (see here).

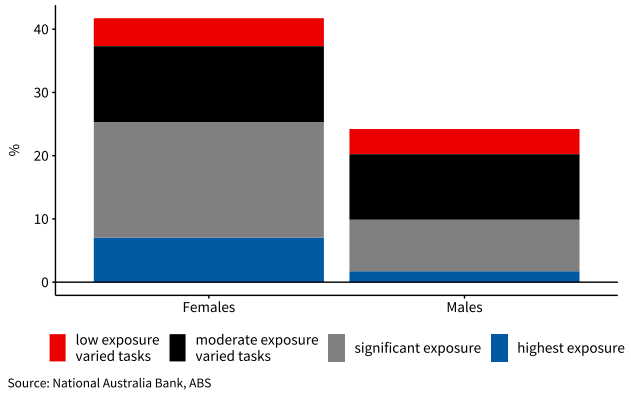
Share of Workforce by GenAI exposure



Source: National Australia Bank

Note that this chart *does not* imply that the remaining 70% of the workforce have no exposure to AI. Rather, it highlights that because most occupations have tasks that require human input, the impact of Gen AI is likely to be transformative, instead of destructive. Tasks that cannot (yet) be automated by Gen AI may still be able to be augmented by Gen AI. **A recent report from Jobs and Skills Australia (see here) found that almost 90% of jobs in Australia had medium to high exposure to augmentation**.

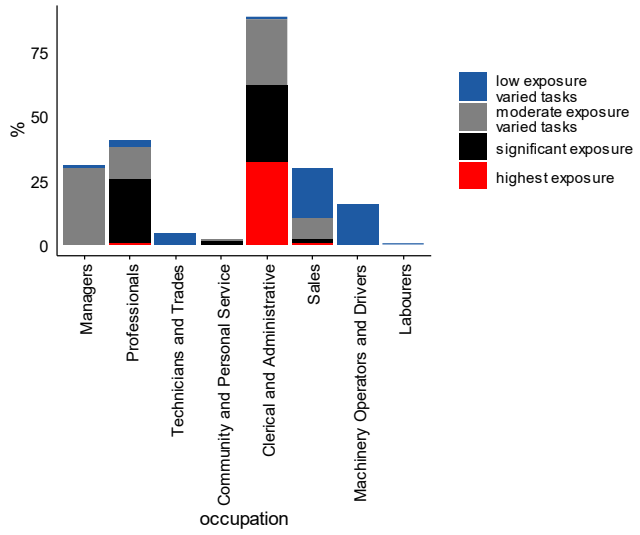
Share of employment exposed to AI by sex



Source: National Australia Bank, ABS

We can also observe exposure via industry. The chart below highlights the percentage of roles in a particular profession that have some level of exposure to displacement by GenAI. **The most exposed jobs are found in the Clerical and Administrative sector**, the least exposed in the Community and Personal Service sector and Labourers.

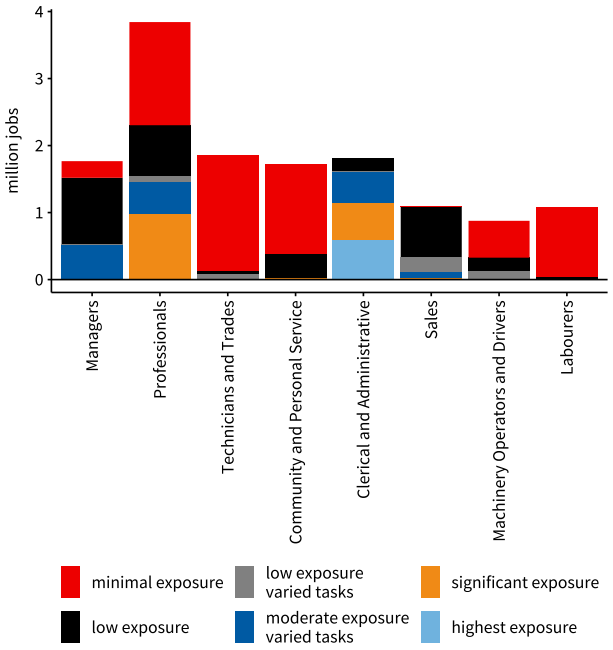
Exposure to GenAI at a sector / profession level, % of sector with some exposure



Source: National Australia Bank, ABS

For broader impact on the labour market, we possibly care more about the absolute number of jobs that have exposure. **The chart below shows that although the Professional sector only has ~40% of jobs with some level of exposure to GenAI, the absolute number of jobs with high, significant or moderate exposure is elevated (~1.5m), on par with that in Clerical and Administrative positions**.

Exposure to GenAI at a sector / profession level

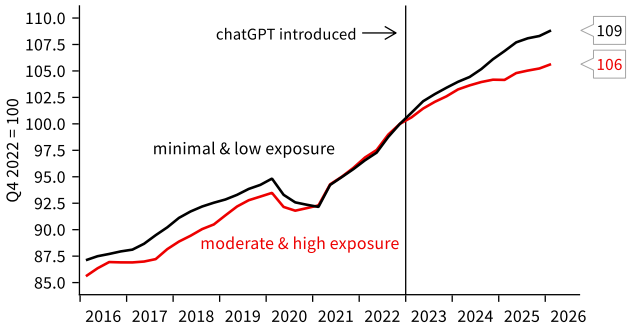


Source: National Australia Bank, ABS

What can we observe in the data to date in Australia?

Employment growth in Australia has shown clear underperformance in the past couple of years in occupations that have moderate or high exposure to AI. The chart below shows that employment in occupations with the moderate and high exposure is 6% above its 2022 level. In contrast, jobs with low and minimal exposure have seen 9% employment growth over the same period.

Employment by GenAI exposure



Source: National Australia Bank, ABS

Disentangling the employment impact of Gen AI in Australia is complicated because the introduction of the technology at the end of 2022 coincided with the post pandemic trough in the unemployment rate (3.4% in Q4 2022). The introduction of Gen AI overlapped a broader post-pandemic labour market transition, including a cooling that was relatively more pronounced in white-collar occupations as the broader economy slowed (for more on this dynamic, see our research note The white collar job market has loosened).

AI adoption by firms has been only gradual and the labour intensity of initial adoption and integration into work

streams means we don't attribute all this slowdown in white collar employment to AI. It would be reasonable to expect displacement to be more obvious more quickly for entry level positions, and other work, including by e61[3], has not found any evidence of clear underperformance in entry level roles in the most exposed occupations in Australia.

That said, **while the causal link with AI is difficult to establish, the underperformance in AI exposed occupations since 2022 is clear**.

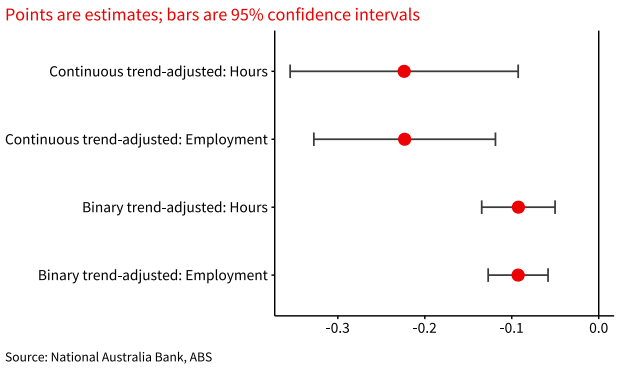
To investigate this issue further, we conducted further modelling (using a trend-adjusted difference-in-difference approach) to test the significance of recent under-performance. We show the results for four specifications, where we analyse shifts in hours worked and employment for both a binary and a continuous specification. The binary specification compares 2 buckets of occupations, high and low exposure. The continuous specification compares all occupations according to the average exposure score of the occupation. The results are consistent across specifications, and robust to varying windows of time.

Our key findings are as follows:

- After adjusting for pre-existing trend differences (the binary specification), **highly AI-exposed occupations have employment (and hours worked) around 9% lower relative to low-exposure occupations in the post-2022 period; and**
- The continuous specification suggests that **for each additional 10% of an occupation's tasks that are automatable by current GenAI capabilities, employment has been 2% slower compared to minimally-exposed occupations**.

The chart below shows a graphical representation of these findings. The dot represents the estimated coefficient on the interaction between AI exposure and labour market outcomes, and the line reflects the 95% confidence interval around the estimate. For the continuous specification, the coefficient is the effect on log employment (or hours) of a 100% increase in the number of tasks that are automatable. For the binary specification it is the effect of high exposure relative to low exposure.

Estimated Post-2022 Relative Change by Specification



Source: National Australia Bank, ABS

Overall, our analysis suggests that there is a proportion of the Australian labour market that is exposed to displacement, and that evidence is emerging of an AI-related slowing in employment in some sectors. Some caution is warranted, given other concurrent trends in the Australian labour market at the time of Chat GPT's release. We think this summary from a recent RBA Bulletin note is apt:

"*AI and other automation tools may have a more pronounced effect on workforce composition than some other types of technology, though it is currently too early to tell the size and timing of such an impact on the Australian workforce, particularly as Australia is at a relatively early stage of AI adoption. Skills shortages and uncertainty around AI's developmental trajectory also present key uncertainties*."

Nonetheless, **there is some tentative evidence that we are observing slower employment growth in industries and occupations that have high exposure to Gen AI in Australia**. With time, the positive productivity benefits of AI can both support demand for labour and create new job opportunities. For now, evidence of slower employment growth in occupations with elevated AI exposure suggests that it may take time for the offsetting benefits from additional labour demand to flow through.

[3] See https://e61.in/what-ai-job-loss-predictions-get-wrong-about-technological-change/

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