

Assessing the Effectiveness of Fiscal Policy in Addressing Labour Productivity Stagnation in Australia

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Introduction

Labour productivity in Australia, measured as real GDP per hour worked, has stagnated since 2015, current labor productivity is only 1.08% higher than 2015-2019 average (Graph 1). This stagnation is a significant problem as it limits the growth of real GDP per capita and real wages, which has heavily impacted the living standard of Australians¹. Empirically, as seen in graph 2, Australia's labour productivity growth being lower than UK, US, New Zealand, Canada, OECD, and the Euro Area coincided with its real wage growth being lower than all of those economies and its real GDP per capita being lower than most of those economies.

This paper first establishes the extent of the slowdown, then examines the drivers — capital deepening, human capital, and multifactor productivity. While Australia's productivity stagnation is well-documented, less attention has been paid to whether fiscal interventions have mitigated or exacerbated these trends. This paper addresses that gap.

We found that the current long run productivity slowdown is significantly associated with capital per hour (CPH) and multifactor productivity (MFP) slowdown. The CPH slowdown is significantly associated with private investment slowdown due to increased global uncertainty and risk aversion, weak economic expectation, declining competitiveness, and heavy government intervention. The MFP slowdown coincided with declining competition, RnD investment slowdown and lowering contribution towards GDP. This paper also found that public investment is less effective than private investment, even though there is lack of evidence for crowding out effect.

Furthermore, political incentives and structural rigidities have limited the effectiveness of fiscal spending, with large-scale projects such as the NBN yielding only modest productivity gains despite significant cost overruns, while chronic underinvestment in vocational education and training (VET) has weakened the human capital pipeline.

Graph 1. Australia Labour Productivity



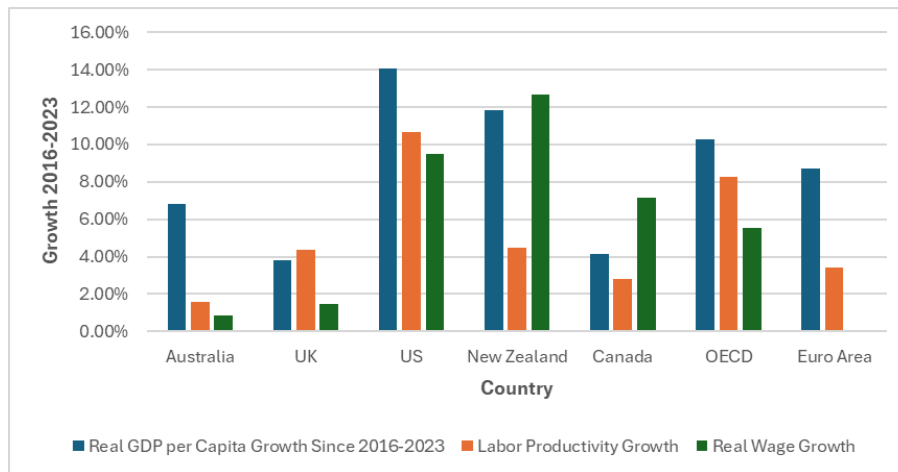
Source: RBA Table I², Framing (NUS x USydney)

Note: 2015-2019 is used as a benchmark as there was a labour productivity bubble during Covid-19 that may skew the average.

¹ Reserve Bank of Australia, 2023

² Australian Bureau of Statistics, 2025

Graph 2. Cross-Country Real GDP per Capita, Labour Productivity, and Real Wage Growth



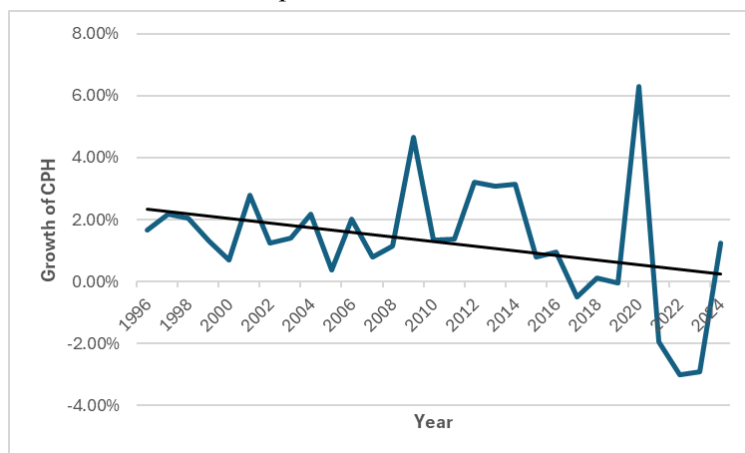
Source: OECD³, Framing (NUS x USydney)

Causes of Labour Productivity Stagnation

According to Australia’s productivity committee, there are **three factors** affecting labour productivity slowdown: **human capital, capital per hours worked (CPH), and multifactor productivity (MFP)**⁴. In this section, we will explore if there exists a slowdown in those factors as well as the theoretical and empirical link between these factors and labour productivity stagnation. We will also explore the cause of the slowdown of those factors.

Empirical Existence of the Slowdown

Graph 3. Growth of CPH

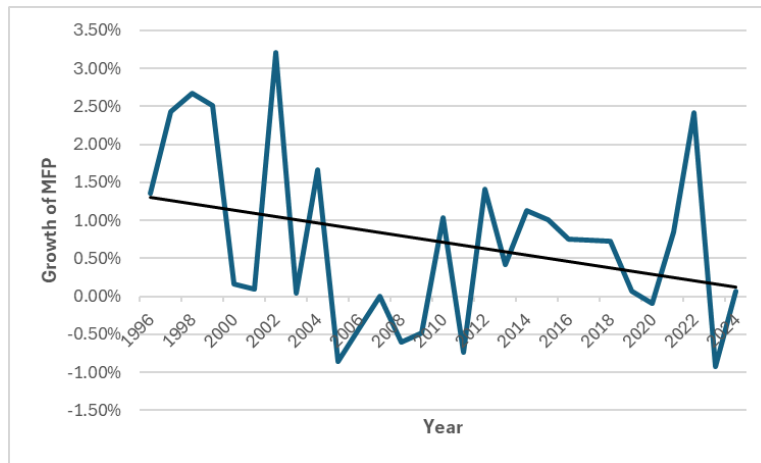


Source: RBA Labor Account Table 1, RBA National Account Table 56, Framing (NUS x USydney)

Graph 4. Growth of MFP

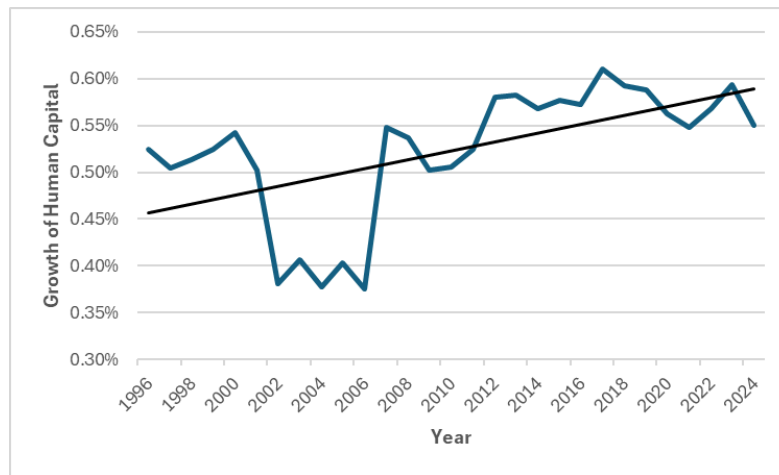
³ OECD, 2010–present

⁴ Productivity Commission, 2023



Source: ABS Estimates of MFP Table 2⁵, Framing (NUS x USydney)

Graph 5. Growth of Human Capital



Source: ABS Estimates of MFP Table 9⁶, Framing (NUS x USydney)

The graphs reveal a downward trend in the growth of CPH and MFP and an upward trend in the growth of human capital despite a plummet in 2001-2006. Hence, only CPH and MFP are experiencing a slowdown. The reason for this slowdown will be elaborated in later parts.

⁵ Australian Bureau of Statistics, 2023–24

⁶ Australian Bureau of Statistics, 2023–24

Theoretical Background

According to the Lucas Growth Model⁷, output is generated via a production function with a functional form:

$$Y = AK^\alpha(HL)^{1-\alpha} \text{ (eq. 1)}$$

Where Y refers to output, A refers to MFP, K refers to physical capital, H refers to human capital, and L refers to labour hours. Modifying the production function to derive labour productivity:

$$\frac{Y}{L} = AH^{1-\alpha}\left(\frac{K}{L}\right)^\alpha \text{ (eq. 2)}$$

$\frac{Y}{L}$ refers to output per labour hours, the measure of labour productivity. $\frac{K}{L}$ refers to CPH. Modifying the production function into growth equations:

$$g_{\frac{Y}{L}} = g_A + (1 - \alpha)g_H + \alpha g_{\frac{K}{L}} \text{ (eq. 3)}$$

The equation 3 above states that the growth in labour productivity is caused by the growth in MFP, the growth in human capital, and the growth in CPH. Hence, the stagnation of those factors will cause labour productivity slowdown.

Empirical Evidence

Using equation 3 as a baseline, we get this regression model:

$$D.\ln(\text{labor productivity}) = b_0 + b_1 D.\ln(\text{MFP}) + b_2 D.\ln(\text{human capital}) + b_3 D.\ln(\text{CPH}) + u \text{ (eq. 4)}$$

Graph 6. Regression of equation 4

| Linear regression | | Number of obs | = | 29 | | |
|-------------------------|-----------|---------------------|-------|--------|----------------------|----------|
| | | F(3, 25) | = | 36.00 | | |
| | | Prob > F | = | 0.0000 | | |
| | | R-squared | = | 0.7696 | | |
| | | Root MSE | = | .00781 | | |
| D. ln_productivit~x | Coef. | Robust Std. Err. | t | P> t | [95% Conf. Interval] | |
| ln_mfp_index D1. | .7224828 | .1038391 | 6.96 | 0.000 | .5086221 | .9363435 |
| ln_human_capital D1. | -1.147725 | 1.210781 | -0.95 | 0.352 | -3.641374 | 1.345924 |
| ln_cap_per_hrs D1. | .5606099 | .0971398 | 5.77 | 0.000 | .3605468 | .760673 |
| _cons | .0067267 | .0064992 | 1.04 | 0.311 | -.0066587 | .0201121 |

Source: RBA Labor Account Table 1, RBA National Account table 1 & 56, ABS Estimates of MFP Table 2& 9, Framing (NUS x USydney). 1995 - 2024 data. Note: all variables are either stationary or I(1) but cointegrated.

The regression above shows that growth of CPH and MFP have a significant positive relationship with growth of labour productivity, as predicted in theory. On the other hand, growth of human capital has an insignificant negative relationship with growth of labour productivity, contradicting the theory's prediction. As seen in graph 7, the insignificant negative relationship

⁷ Lucas, 1988

persists even on direct regression of human capital and labor productivity, hence multicollinearity does not fully explain this unexpected result. This unexpected result may reflect measurement limitations in ABS estimates, the lag between education investment and productivity gains, or a skills mismatch between VET/university graduates and industry needs

Graph 7. Direct regression of growth of labour productivity and growth of human capital

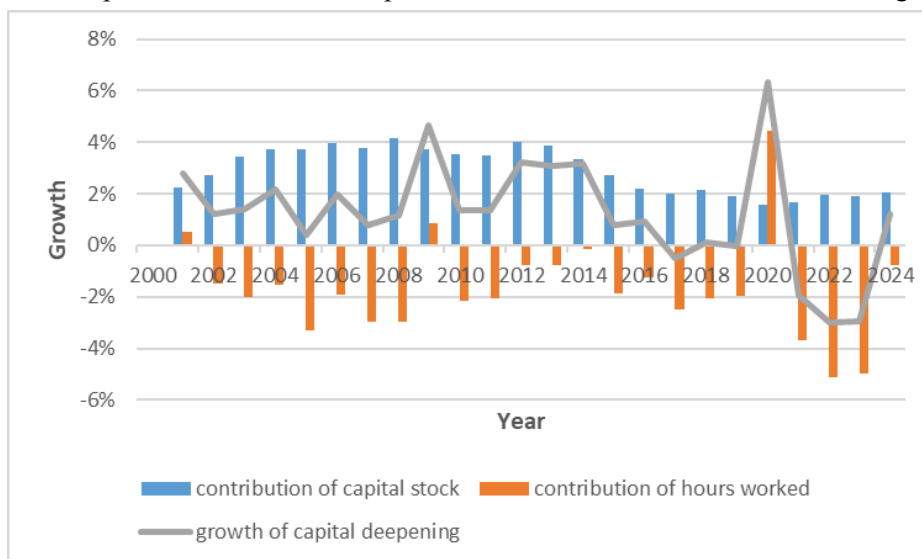
| Linear regression | | Number of obs | = | 29 |
|-------------------|--|---------------|---|--------|
| | | F(1, 27) | = | 1.79 |
| | | Prob > F | = | 0.1925 |
| | | R-squared | = | 0.0540 |
| | | Root MSE | = | .01523 |

| D. | ln_productivit~x | Coef. | Robust Std. Err. | t | P> t | [95% Conf. Interval] |
|------------------|------------------|-----------|------------------|-------|-------|----------------------|
| ln_human_capital | D1. | -5.179247 | 3.87477 | -1.34 | 0.192 | -13.12962 2.771125 |
| | _cons | .0399699 | .0200352 | 1.99 | 0.056 | -.0011389 .0810787 |

In conclusion, the current long run labor productivity slowdown can be explained by the concurrent long run MFP and CPH slowdown. The insignificance of labor productivity shall be explored in future research.

Explaining CPH Slowdown

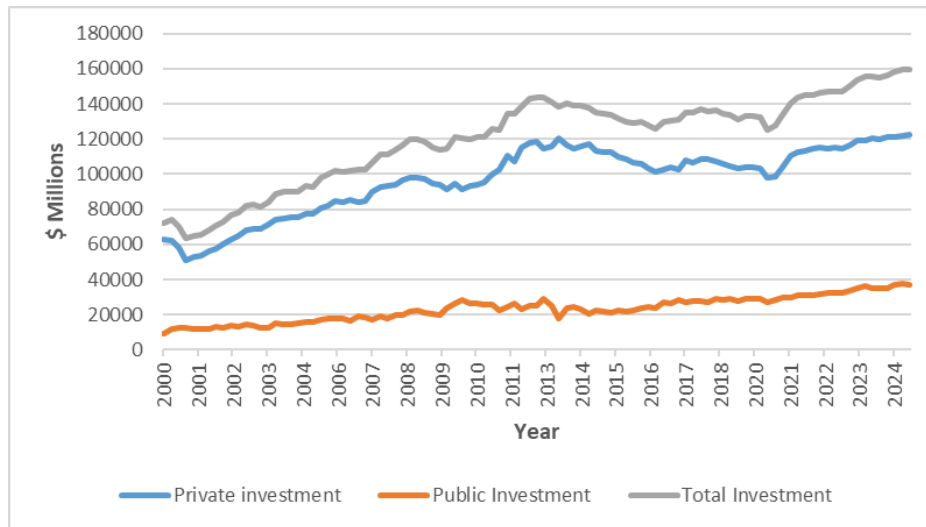
Graph 8. Contribution of capital stock and hours worked towards CPH growth



Source: RBA Labor Account Table 1, RBA National Account table 56, Framing (NUS x USydney)

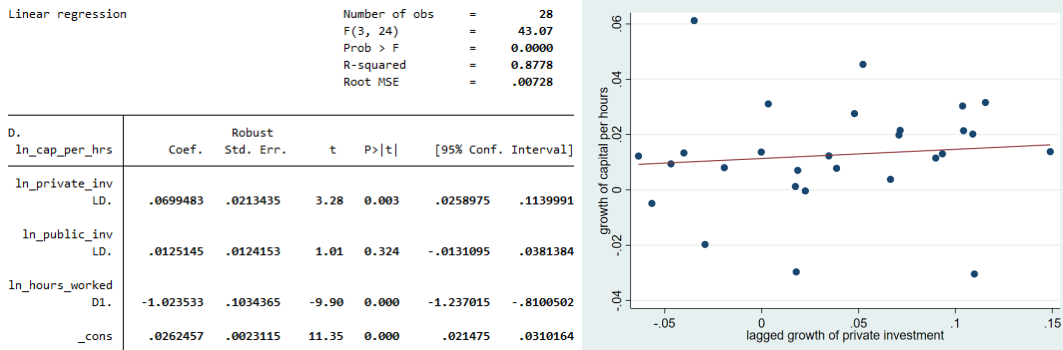
The CPH slowdown happened due to falling capital stock (graph 8) which coincided with falling investment rates driven by falling private investment (graph 9).

Graph 9. Public, Private, and Total Investment



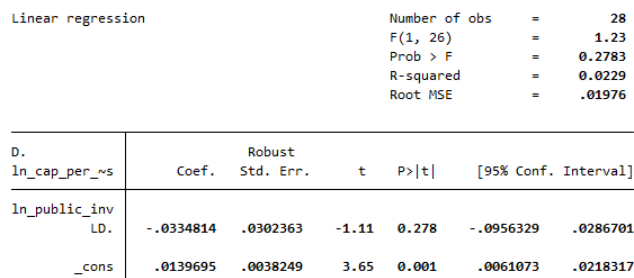
Source: RBA National Account Table 2, Framing (NUS x USydney)

Graph 10. Regression between growth of CPH, lagged growth of private investment, lagged growth of public investment, and hours worked



Source: RBA Labor Account Table 1, RBA National Account table 2 & 56. 1995 - 2024 data, Framing (NUS x USydney)

Graph 11. Direct regression of growth of CPH and growth of public investment



Graph 12. Regression between growth of private investment and growth of public investment

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. reg D.ln_private_inv D.ln_public_inv, robust
```

| D. ln_private_~v | Coef. | Robust Std. Err. | t | P> t | [95% Conf. Interval] | |
|----------------------|-----------|---------------------|-------|-------|----------------------|----------|
| ln_public_inv D1. | -.0384425 | .1090402 | -0.35 | 0.727 | -.2621744 | .1852894 |
| _cons | .0382858 | .0117573 | 3.26 | 0.003 | .0141618 | .0624097 |

| | | | |
|-------------------|---------------|---|--------|
| Linear regression | Number of obs | = | 29 |
| | F(1, 27) | = | 0.12 |
| | Prob > F | = | 0.7272 |
| | R-squared | = | 0.0033 |
| | Root MSE | = | .05962 |

Source: RBA National Account table 56. 1995 - 2024 data, Framing (NUS x USydney)

Empirically, as seen in graph 10, lagged growth in private investment is significantly positively associated with growth in CPH. The relationship between public investment and CPH is positive but statistically insignificant. Multicollinearity does not fully explain the insignificance as it still persists in direct regression (graph 11). This might indicate that private investment is more effective than public investment in capital deepening.

However, we do not have enough evidence of the crowding out effect. As seen in graph 12, even though growth in public investment is associated with a negative growth in private investment, it is statistically insignificant. Hence, even though public investment is less effective statistically, it does not go too far to crowd out private investment. A plausible hypothesis might be the cancelling out between its complementary and crowding out effect towards capital, which shall be explored in future research. However, this result might still indicate that public policy should be directed towards fostering private investment rather than direct investment from the public sector.

Explaining Private Investment Stagnation

There are some hypotheses about the causes of private investment stagnation in Australia. Evans et. al. (2024) postulated that an increase in risk premium after the global financial crisis due to global uncertainty and risk aversion explains the stagnation in private investment⁸. Jones (2021) postulated that weak current and expected economic growth is perceived by firms as a signal of low demand, leading to less motivation to invest⁹. Farhi and Gourio (2019) theorised that growing market power of firms and reduction in competition lessens the incentive for firms to invest¹⁰. The Productivity Committee (2025) stated that low growth of multifactor productivity reduces the marginal product of capital and hence incentive to invest¹¹. Bradley et. al. (2025) state that heavy government intervention at ever-more-granular levels of the economy discouraged investment¹².

Explaining MFP Slowdown

Generally, the MFP is regarded as a residual variable for effects not captured by capital, labor, and human capital. However, economists often attributed it towards technology. According to the Treasury (2023), declining competition as signalled by falling entry and exit rates (graph 13) is

⁸ Evans, Kamil, Thiris, Lipp, & de Fontenay, 2024

⁹ Jones, 2021

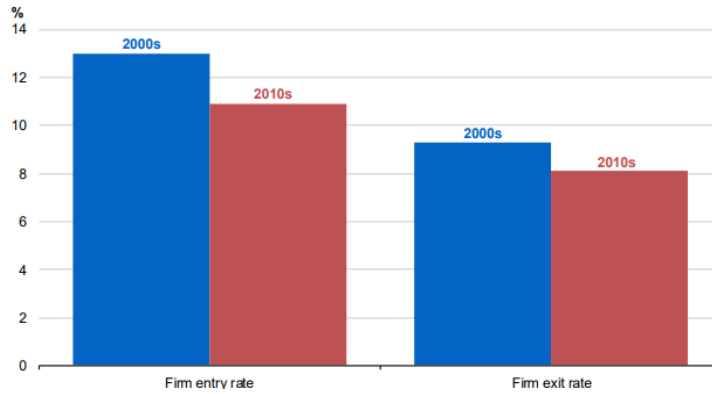
¹⁰ Farhi & Gourio, 2019

¹¹ Productivity Commission, 2023

¹² McKinsey & Company, 2022

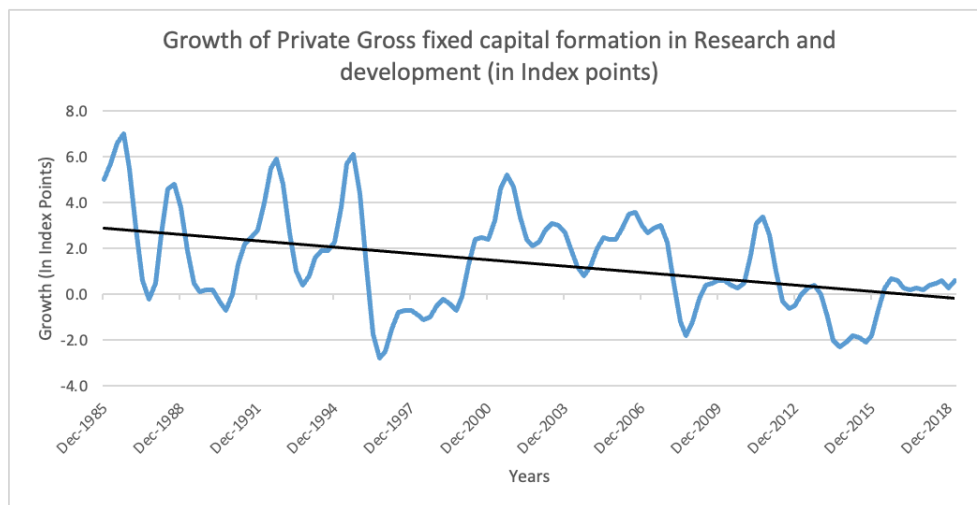
causing slower adoption of new technology. Conventionally, investment in research and development is also the driver of MFP growth, and it is also experiencing a slowdown in growth (graph 14) as well as a declining contribution towards GDP growth, which results in MFP slowdown.

Graph 13. Firm entry and exit rates



Source: Treasury Working Future: The Australian Government’s White Paper on Jobs and Opportunities¹³

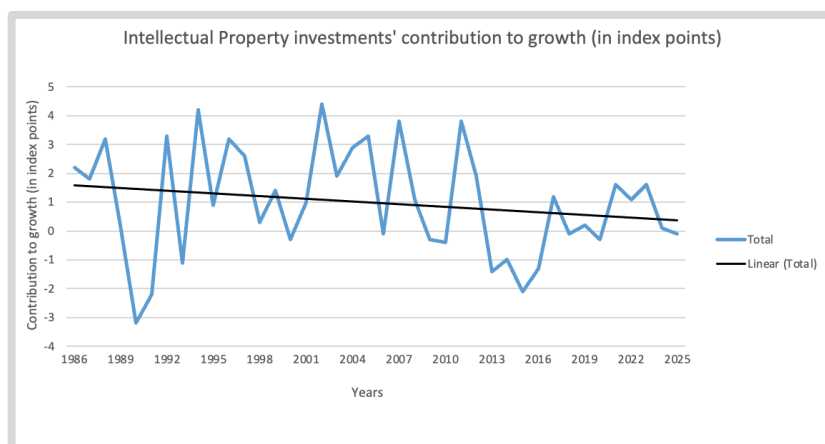
Graph 14. Growth of Private Investment in RnD



Source: Australian Bureau of Statistics (ABS), Framing (NUS x USydney)

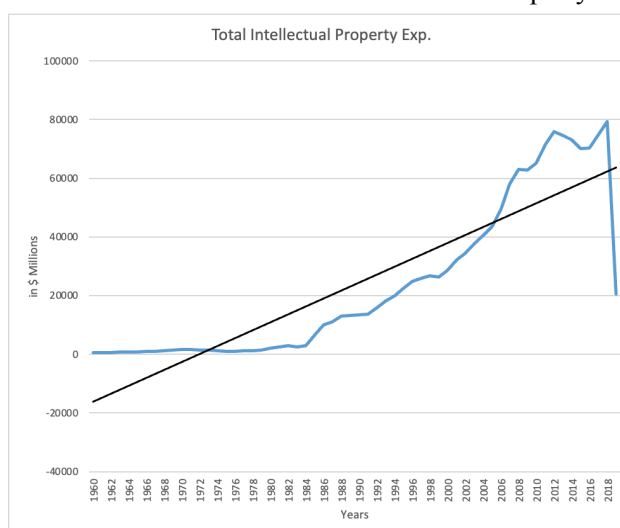
Graph 15. Contribution of Intellectual Property Investments toward growth (in index points)

¹³ Australian Department of the Treasury, 2023



Source: Australian Bureau of Statistics (ABS), Framing (NUS x USydney)

Graph 16: Private Investment into Intellectual Property Products



Source: Australian Bureau of Statistics (ABS), Framing (NUS x USydney)

The divergence between the sharp rise in private IP investment (Graph 16) and its falling GDP contribution (Graph 15) mirrors the pattern in Australia's declining multifactor productivity, indicative of the decreasing returns to capital deepening. While IP assets expand the capital base, the subdued output response suggests that the economy's combined use of labour and capital has become less efficient. This could reflect long gestation lags in R&D, diminishing marginal returns to certain intangible assets, or resource allocation into ventures with limited near-term payoff. In productivity terms, capital input is growing, but output growth is not keeping pace, a hallmark of MFP weakness.

Constraints on Fiscal Policy

From the previous section, we have seen how public investment has been less effective than private investment in conducting capital deepening. Its expected complementary role by providing the foundational environment towards private investment (ie. through transport, digital networks, skill development facilities) is also absent. These underperformances of fiscal policy in successfully addressing Australia's long-term productivity stagnation can be understood by the presence of key constraints. Namely, these include political and institutional factors, competing priorities and structural hurdles.

Political Constraints

Over the last decade, it has been found that effective public investment has often been curbed in favor of short term political incentives or disagreements, disrupting the potential for meaningful long-run productivity reform. For instance, the 2017 Budget, under the leadership of Malcolm Turnbull proposed the National Energy Guarantee, a scheme designed to create a cohesive energy policy that improved energy affordability by placing the burden on energy retailers to meet reliability & emissions targets¹⁴. Despite being commended as guaranteed to “make the energy system cleaner...and give investors certainty” about infrastructure development,¹⁵ The scheme was abandoned in 2018 due to internal political divisions and a lack of total consensus. Following Turnbull’s ‘ousting’, the NEG has instead served to highlight the presence of firm divisions within Australia’s dominant parties regarding its energy future.¹⁶ Alternatively, criticism surrounding the 2022 March Budget, released strategically before the federal election in May, revealed that the Morrison government’s headline infrastructure policy of \$17.9 billion in new infrastructure projects contained nearly \$10 billion in markedly inefficient allocations.¹⁷ Specifically, Infrastructure Australia revealed that only 21 of the 144 infrastructure projects were on IA’s productivity priority list and instead allocated to electorate spanning locations, diminishing the potential of efficient capital deepening and instead demonstrating politicised spending.¹⁸ Whilst only exploring two isolated occasions, such incidents of politicised spending of fiscal policy demonstrates the existence of a firm political constraint when it comes to effective reform, disabling meaningful responses to Australia’s stagnating long-run productivity.

Structural Constraints

In a similar vein, Australia’s structural constraints such as its concentrated market structure and decreasing economic dynamism have inhibited the effectiveness of fiscal policy in addressing productivity stagnation. As indicated by the treasury, declining entry and exit rates alongside rising industry concentration have reduced competitive pressures, weakening incentives to innovate and reallocate resources productively.¹⁹ A key example is the 2015-16 Budget’s Digital Transformation Agenda, which saw a \$250 million investment into establishing the Digital Transformation Agency as well as the growing digitisation of key government services, ultimately designed to boost productivity across federal operations.²⁰ Despite this nominal promise to boost productivity, the increased funding reinforced relationships with established ICT contractors with very limited procurement reforms or any opportunities for new firms to enter. As revealed in the ICT Report, it was recommended that the offers under the DTA be made flexible and competitive as opposed to relying on single large contractors given the risk of locking out new firms and inhibiting productivity gains.²¹ Similarly, the 2022 October Budget’s establishment of the \$15 billion National Reconstruction Fund (NRF) was designed to ‘crowd-in’ private investment in high-value sectors such as manufacturing and clean energy.²² However, in a position echoing the DTA, the NRF’s reliance on incumbent firms in

¹⁴ Climate Council, 2017

¹⁵ Sydney Morning Herald, 2017

¹⁶ Lo, 2018

¹⁷ Australian Government, 2022

¹⁸ Martin, Evershed, & Nicholas, 2022

¹⁹ Duretto, Majeed, & Hambur, 2022

²⁰ Australian Government, Digital Transformation Office, 2015

²¹ Digital Transformation Agency, 2017

²² Australian Government, 2022

industries with limited contestability risks reinforcing existing market power as opposed to fostering competition or innovation, once again preventing productive reform.²³ As such in these incidents we come to gain a broader understanding of the equally corrosive effect of structural constraints inhibiting effective productivity reform.

Case Studies of Fiscal Policy in Practice

The limits of fiscal policy in lifting productivity can be seen in long-term government programs. The National Broadband Network (NBN) illustrates how large-scale investment was undermined by cost overruns and political compromise, yielding only modest productivity gains relative to its size. Meanwhile, the decline of Vocational Education and Training (VET) enrolments reflects chronic underinvestment in the skills pipeline — a case of fiscal policy failing to prioritise areas that directly build human capital. Together, these cases show how public investment has often been misallocated or poorly targeted, limiting its ability to address the drivers of labour productivity stagnation.

The National Broadband Network (NBN)

The National Broadband Network (NBN) was established in 2009 by the Australian Government as a “Government Business Enterprise (GBE) with a clear direction – to design, build and operate a wholesale broadband access network for Australia.”²⁴ The initial central policy objectives of the NBN network was to “deliver significant improvement in broadband service and quality...[increase broadband speed] and reshape the telecommunications sector [for all Australians]...” The Australian Government initially [budgeted] \$29.5 billion in equity funding to NBN Co Limited (NBN Co) for [its] rollout...by 2020.”²⁵ However, by late 2018 the estimated final cost was \$51 billion²⁶, with an additional \$9.5b allocated to finalise and upgrade the network between 2020²⁷ and 2025.²⁸ This cost is considered operational only in the underlying cash balance within the Budget, as the funding is conducted through the debt issuance program.

According to a report by Accenture, the returns to productivity on this fiscal spending is outlined as a “0.14% annual contribution to multifactor productivity growth (MFP)...[over the period 2012 to 2022],” or a 1.4% contribution over the decade, which accounts for a quarter of all MFP growth during the period²⁹, rendering the aforementioned impacts crucial in improving Australia’s stagnating productivity growth.

Furthermore, a 2021 report by Frontier Economics, prepared for the Department of Infrastructure, highlights the NBN’s impacts on businesses, with “average firm productivity across all industries [approximately] 2.0% [annually],” with a notable 3.4% average firm productivity gain for the health care and social assistance industry,³⁰ a sector which has been trailing behind in terms of productivity growth.³¹

²³ The Australian, 2025

²⁴ NBN Co, 2009

²⁵ Parliament of Australia, 2016

²⁶ Financial Review, 2018

²⁷ 9News, 2020

²⁸ ITNews, 2021

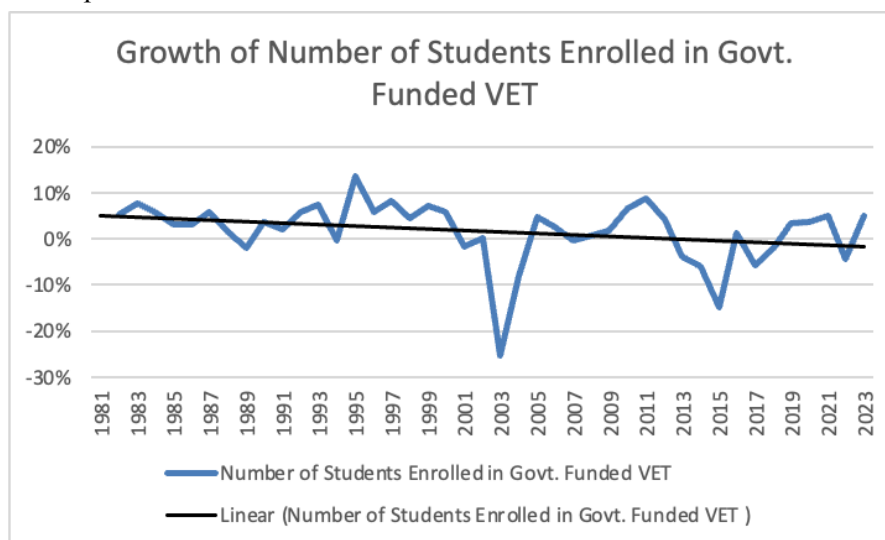
²⁹ Accenture, 2024

³⁰ Frontier Economics, 2021

³¹ Wilson, 2025a

The Vocational Education and Training (VET) Programs

Graph 18: Growth of Number Students Enrolled in Govt. Funded VET



Source: National Centre for Vocational Education Research³², Framing (NUS x USydney)

The given data illustrates the annual growth rate of students enrolled in government-funded Vocational Education and Training (VET) programs in Australia from 1981 to 2023. While individual years display fluctuations, the overall trend, represented by the downward-sloping linear line indicates a long-term decline in growth. This suggests that, over time, fewer students are enrolling each year compared to previous decades.

Relating this data to the endogenous growth model, a stagnating or shrinking VET sector slows the accumulation of new skills and reduces the flow of human capital into the economy, undermining innovation and technological progress. It also undermines innovation spillovers, as fewer workers with vocational training enter industries where incremental process improvements drive MFP. The economy's ability to thus sustain labour productivity growth from within is weakened, making it more reliant on external inputs or immigration for skilled labour.

This declining growth rate may point to broader structural changes in Australia's skills development pipeline, such as shifting demand for qualifications, increased competition from private training providers, reduced public funding, or changing perceptions of VET compared to university education. Over time, such a trend could have implications for workforce readiness, particularly in industries that rely heavily on vocational training.

Conclusion

This paper has shown that Australia's long-run labour productivity slowdown is driven primarily by weak capital per hour (CPH) and multifactor productivity (MFP), while human capital has played a limited role. Fiscal policy has not effectively reversed these trends: public investment has proven less effective than private investment in deepening capital, with political short-termism and structural market concentration further limiting its impact. Case studies reinforce this outcome — the NBN highlighted inefficiency and cost overruns that delivered only modest productivity gains, while underinvestment in VET reflected a failure to channel resources into the skills pipeline.

³² National Centre for Vocational Education Research, 2023

Looking forward, fiscal policy should shift from direct crowd-in attempts toward enabling investment in skills, infrastructure, and competition. Tying fiscal outlays to productivity-linked performance metrics (such as VET funding conditional on employment outcomes) can improve efficiency. Institutional reforms, such as a semi-independent productivity board for fiscal policy, could also insulate long-run reforms from electoral cycles and enhance credibility.

References

- Accenture. (2024, January). *The economic and social impact of investment in the nbn network: Key insights report*. NBN Co. <https://www.nbnco.com.au/content/dam/nbn/documents/about-nbn/reports/reports-and-publications/centure-2024-economic-and-social-impact-insight-report.pdf.coredownload.pdf>
- Australian Bureau of Statistics. (2023–24). *Estimates of industry multifactor productivity, 2023–24* (Catalogue no. 5260.0.55.002). https://www.abs.gov.au/statistics/industry/industry-overview/estimates-industry-multifactor-productivity/2023-24/52600550021_2024.xlsx
- Australian Bureau of Statistics. (2025, March). *Australian national accounts: National income, expenditure and product, Key aggregates* (Catalogue no. 5206.0.01). https://www.abs.gov.au/statistics/economy/national-accounts/australian-national-accounts-national-income-expenditure-and-product/mar-2025/5206001_Key_Aggregates.xlsx
- Australian Department of the Treasury. (2023). *Working future: The Australian government's white paper on jobs and opportunities*. <https://treasury.gov.au/employment-whitepaper/final-report>
- Australian Government. (2022, October). *Budget October 2022–23: Building a better future*. Commonwealth of Australia.
- Australian Government, Digital Transformation Office. (2015, May 12). *The digital transformation agenda in the 2015–16 federal budget*.
- Climate Council. (2017). *National Energy Guarantee: Factsheet & media briefing paper*. Climate Council.
- Digital Transformation Agency. (2017, May). *Report of the ICT procurement taskforce*. Commonwealth of Australia.
- Duretto, Z., Majeed, O., & Hambur, J. (2022, October). Overview: Understanding productivity in Australia and the global slowdown. *Treasury Round Up 2022*. Australian Department of the Treasury.
- Evans, S., Kamil, J., Thiris, J., Lipp, J., & de Fontenay, C. (2024). *Why are investment hurdle rates so high? Risk or market power?* (Productivity Commission Staff Working Paper). Canberra: Productivity Commission.
- Farhi, E., & Gourio, F. (2019). *Accounting for macro-finance trends: Market power, intangibles, and risk premia* (NBER Working Paper No. 25283). National Bureau of Economic Research. <https://doi.org/10.3386/w25283>
- Financial Review. (2018, September 1). NBN Co hopes for enterprise saviour after \$2 billion blowout. *Australian Financial Review*.
- Frontier Economics. (2021). *The economic impacts of new NBN investments on business*. Report prepared for the Department of Infrastructure, Transport, Regional Development and Communications.

ITNews. (2021). Gov to give NBN Co up to \$3bn to complete FTTN overbuild. *iTnews*. <https://www.itnews.com.au>

Jones, B. (2021, June 2). *Uncertainty and risk aversion – before and after the pandemic* [Speech]. Reserve Bank of Australia. <https://www.rba.gov.au/speeches/2021/sp-so-2021-06-02.html>

Lo, C. (2018, October 17). Australia's energy future in the balance: A deeper look at the NEG. *Power Technology*. <https://www.power-technology.com>

Lucas, R. E. (1988). *On the mechanics of economic development*. Paris School of Economics. <https://extranet.parisschoolofeconomics.eu/docs/darcillon-thibault/lucasmehanicseconomicgrowth.pdf>

Martin, S., Evershed, N., & Nicholas, J. (2022, March 28). Budget 2022: Analysis reveals Morrison government funnelling billions into must-win marginal seats. *The Guardian*. <https://www.theguardian.com>

McKinsey & Company. (2022). *Five big tests for Australia's productivity agenda*. <https://www.mckinsey.com/au/our-insights/five-big-tests-for-australias-productivity-agenda>

National Broadband Network Co. (2009). *About NBN Co*. <https://www.nbnco.com.au>

National Centre for Vocational Education Research. (2023). *Historical time series of government-funded vocational education and training from 1981 to 2023*. NCVER. <https://www.ncver.edu.au/research-and-statistics/data/all-data/historical-time-series-of-government-funded-vocational-education-and-training-from-1981-to-2023>

OECD. (2010–present). *National accounts: Expenditure per capita (NMAINI)* [Dataset]. OECD Data Explorer. <https://data-explorer.oecd.org>

Parliament of Australia. (2016, April). *National Broadband Network – Impact on the budget*.

Productivity Commission. (2023). *Productivity before and after COVID-19* (Research Paper). Canberra: Australian Government. <https://www.pc.gov.au/research/completed/productivity-before-after-covid/covid-productivity.pdf>

Reserve Bank of Australia. (2023, September). *Recent trends in Australian productivity*. *RBA Bulletin*. <https://www.rba.gov.au/publications/bulletin/2023/sep/recent-trends-in-australian-productivity.html>

Rudd, K. (2020, September 23). Kevin Rudd lashes out at Morrison over NBN plan. *9News*. <https://www.9news.com.au>

Sydney Morning Herald. (2017, October 17). Out of the ashes of failed attempts: Finally a chance to put the climate wars behind us. *Sydney Morning Herald*. <https://www.smh.com.au>

The Australian. (2025, August 7). Future 'not made with handouts', warns former competition boss. *The Australian* (summary in BeyondWords news).

Wilson, J. (2025a). *Research note: Unpacking Australia's poor productivity performance*. Ai Group. <https://aigroup.com.au>