

FROM STUDY TO WORK: THE EFFECT OF EXTENDING POST-STUDY WORK RIGHTS

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Executive Summary

Post-Study Work Rights (PSWRs) are granted through temporary visas that allow international students to remain and work in the host country after graduation. These visas aim to enhance international graduates' employment prospects, facilitate labour market integration, and increase the retention of skilled migrants. Moreover, PSWRs improve the host country's attractiveness as an international study destination, thereby benefiting its education sector. Given their multiple objectives, PSWRs have become a key tool for governments.

However, their success depends not only on granting work rights, but also on the duration of those rights. The policy design of PSWRs involves a fundamental trade-off. On one hand, longer PSWRs can attract more international students and provide them with a greater window to find suitable employment, enhancing their integration and long-term contribution. On the other hand, extended rights may increase competition for a limited pool of permanent residency places, prolong migrants' time in temporary status, and inflate expectations without necessarily improving long-term outcomes.

This research note investigates the economic consequences of extending PSWRs durations, using a major reform in Australia's Temporary Graduate Visa (TGV) program as a natural experiment. We employ a Difference-in-Regression Discontinuity and a Difference-in-Difference approach to assess the impact of extending work rights on international students' choices and labour market outcomes.

We assess the impact of the reform on two groups of students: incumbent students - who were unexpectedly exposed to the reform - and entrant cohorts, who made educational decisions after the policy was introduced. This distinction is crucial to isolate the effect of extending PSWRs from changes in student composition and to understand both the immediate behavioural response and longer-term selection effects.

We find that:

- **For incumbent students:**
 - **Longer PSWRs significantly increased international graduates' likelihood of remaining in Australia** immediately after graduation, driven by increasing uptake of the Temporary Graduate Visa.
 - **However, these graduates did not experience improved immediate labour market outcomes**—such as higher earnings or better-quality employment—and were ultimately less likely to secure permanent residency within three years.
- **For entrant cohorts:**
 - **Extended PSWRs enhanced Australia's attractiveness as a study destination**, leading to a substantial rise in international university student enrolments.
 - **These additional students typically moved into higher-status occupations**, indicating improved career matching facilitated by extended work rights.
 - **Yet, these occupational advancements did not consistently translate into higher wages**, likely reflecting increased labour market competition and existing structural barriers for temporary migrants.

These findings underscore a key policy tension. While extending PSWRs was effective in increasing international student enrolments, encouraging more graduates to remain in Australia, and attracting higher-quality entrant cohorts, it did not lead to clear improvements in international graduates' labour market outcomes.

These mixed results reflect a fundamental policy mismatch: the number of temporary migrants entering on Graduate Visas has increased, but the number of permanent residency places has remained relatively fixed. As a result, longer PSWRs have intensified competition for permanent visas, prolonging uncertainty for migrants.

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From Study to Work: The Effect of Extending Post-Study Work Rights on Labour Market and Migration Outcomes

Australia is one of the world's leading destinations for international students, with international education representing the country's third-largest export sector (Australian Bureau of Statistics, [2024](#)). In 2024 alone, over 850,000 international students were enrolled in Australian institutions (Department of Education, [2025](#)).

Policy settings that govern what happens after graduation—particularly the availability of Post-Study Work Rights (PSWRs)—play a critical role in shaping international students' decisions to study in Australia, as well as their longer-term labour market outcomes and migration pathways. PSWRs allow international graduates to remain in the host country for a fixed period after completing their studies, enabling them to gain local work experience (Box 1 provides an overview of the literature on PSWRs). These programs have become a key policy lever for attracting and retaining skilled migrants (Dustmann & Görlach, [2016](#); Trevena, [2019](#)), because:

- **They provide graduates with valuable local work experience**, enhancing their employability and making the country a more attractive destination for both education and career development.
- **They target individuals who have already invested in and integrated into the host country's education system**, increasing the likelihood of long-term settlement and economic contribution.¹
- **They help retain younger, skilled migrants**—an increasingly important objective for countries seeking to offset demographic pressures and sustain economic growth.
- **They create a structured pathway from student status to skilled migration**, which can be more effective than other routes in addressing shortages in high-skill sectors.²
- **They function as information-gathering tools**: by observing graduates' labour market performance during the post-study period, governments can better assess candidates for permanent migration. This dynamic screening process enables the system to select for qualities not easily observed at the point of entry—such as resilience, adaptability, and actual labour market success.

In Australia, PSWRs are granted through the Temporary Graduate Visa (TGV), Subclass 485. Introduced in 2007, the TGV allows international graduates to live, work, and study in Australia for a limited time following graduation. As of 30 April 2025, there were approximately 222,460 TGV holders in Australia (DHA, [2025](#)).

Since its introduction, the TGV has undergone several major reforms. Box 2 provides an overview of key policy changes. In recent years, the Australian government has increasingly used it as a migration policy lever to meet strategic workforce and population goals (DHA, [2024](#)).

Despite the importance of PSWRs, key questions remain unanswered. How long should PSWRs be? Does the duration of PSWRs influence whether international students stay in Australia after graduation, and how well they integrate into the labour market? And do longer PSWRs make Australia a more attractive destination for prospective students, potentially influencing who chooses to study in Australia?³

In this note, we leverage a significant reform that extended the duration of PSWRs in Australia to examine how longer PSWRs affect international student enrolment, graduate retention, labour market outcomes, and Australia's appeal as a study destination. This reform provides a clear and exogenous policy change, crucial for robust causal inference and for understanding the direct impacts of extending post-study work rights.

1 Compared to migrants with only a high school degree, migrants with an undergraduate degree earn 11% more, those with a master's degree earn 17% more, and PhD holders earn 41% more (Varela & Breunig, [2024](#)).

2 In Australia, 39% of individuals that arrived on a temporary student visas in 2006-07, transitioned to permanent residency by 2016-17 (Centre for Population, [2023](#)).

3 Although the Department of Home Affairs' Migration Strategy asserts that "extra time on a graduate visa does not improve graduates' career outcomes," there is no detailed evidence using individual-level data on how PSWRs extensions influence migration decisions or labour force participation (DHA, [2023](#)).

Box 1: Literature Review - Post Study Work Rights

International Literature

Post-study work rights have become a standard feature across major international education destinations (Trevena, 2019), serving as a critical bridge between study and employment for international graduates. Evidence suggests these rights significantly influence student decision-making: in the United Kingdom, 36% of prospective students who chose alternative destinations cited the absence of post-study work opportunities as a decisive factor (Hobsons EMEA, 2015).

However, the labour market outcomes of PSWRs programs vary considerably across countries. In Canada, despite having established post-study work pathways, many international graduates find themselves in low-skilled positions (Chiose, 2016), raising concerns about skill under-utilisation and integration effectiveness.

The United States offers important insights into how the duration of work rights affects both student enrolment and outcomes. Following the 2008 extension of Optional Practical Training (OPT) periods for STEM graduates, researchers documented a range of positive effects.^a Studies found increased enrolment in STEM courses (Amuedo-Dorantes et al., 2019; Kim, 2021) alongside improvements in the quality of incoming students (Amuedo-Dorantes et al., 2022). The policy change had broader economic benefits as well, contributing to enhanced regional innovation (Neufeld, 2019) and greater retention of international graduates in the U.S. workforce (Demirci, 2019).

Australian literature

Australia's immigration system has two distinctive features that shape its approach to skilled migration. First, both demonstrated skills and Australian work experience are crucial for points-based permanent residency. Second, Australia applies one of the most stringent and complex frameworks for defining 'skilled' occupations among comparable countries, including the US and UK (Beine et al., 2016).

Australia's position as a destination for international students is also unique in scale. By 2020, Australia's tertiary student inflow as a percentage of total enrolments exceeded both the UK and US (OECD, 2020), underlining the need for Australia-specific policy analysis.

Labour market outcomes for graduate visa holders reveal complex patterns. While research shows widespread challenges—with many graduates working in hospitality and service industries (Boucher & Davidson, 2019) and only half securing full-time employment (Coates et al., 2023)—success varies significantly by field of study. Information Technology graduates, for instance, find field-relevant employment more quickly than their Business or Engineering counterparts (Tran et al., 2023). This variation partly stems from employer uncertainty about graduate visa conditions, leading many to prefer permanent residents (Tran et al., 2019).

Despite these challenges, post-study work rights deliver significant benefits to Australia. Research shows the program contributes to regional innovation, as evidenced by increased patent applications (Crown et al., 2020). More broadly, effectively attracting and retaining high-quality international students generates economic returns while promoting innovation and cultural diversity (Crown et al., 2020; Damelang & Haas, 2012; Varela et al., 2021).

^a Optional Practical Training (OPT) is a temporary work authorisation program in the United States that allows international students on an F-1 visa to work in their field of study after completing their degree.

Post-Study Working Rights in Australia

Australia introduced Post-Study Work Rights in 2007 with the Skilled Graduate Stream (SGS), which allowed recent graduates to remain in the country for 18 months, conditional on skills nomination and assessment. In March 2013, following recommendations from the Knight Review, the government introduced the Temporary Graduate Visa (TGV), with two distinct streams:

- **Graduate Work Stream (GWS):** Provided 18 months of stay for eligible vocational education and training (VET) and university graduates, conditional on skills nomination and assessment.
- **Post-Study Work Stream (PSWS):** granted longer stays; two years for Bachelor's and Master's (coursework) graduates, three years for Master's (research) graduates, and four years for PhD graduates. This stream also removed the skills assessment requirement.

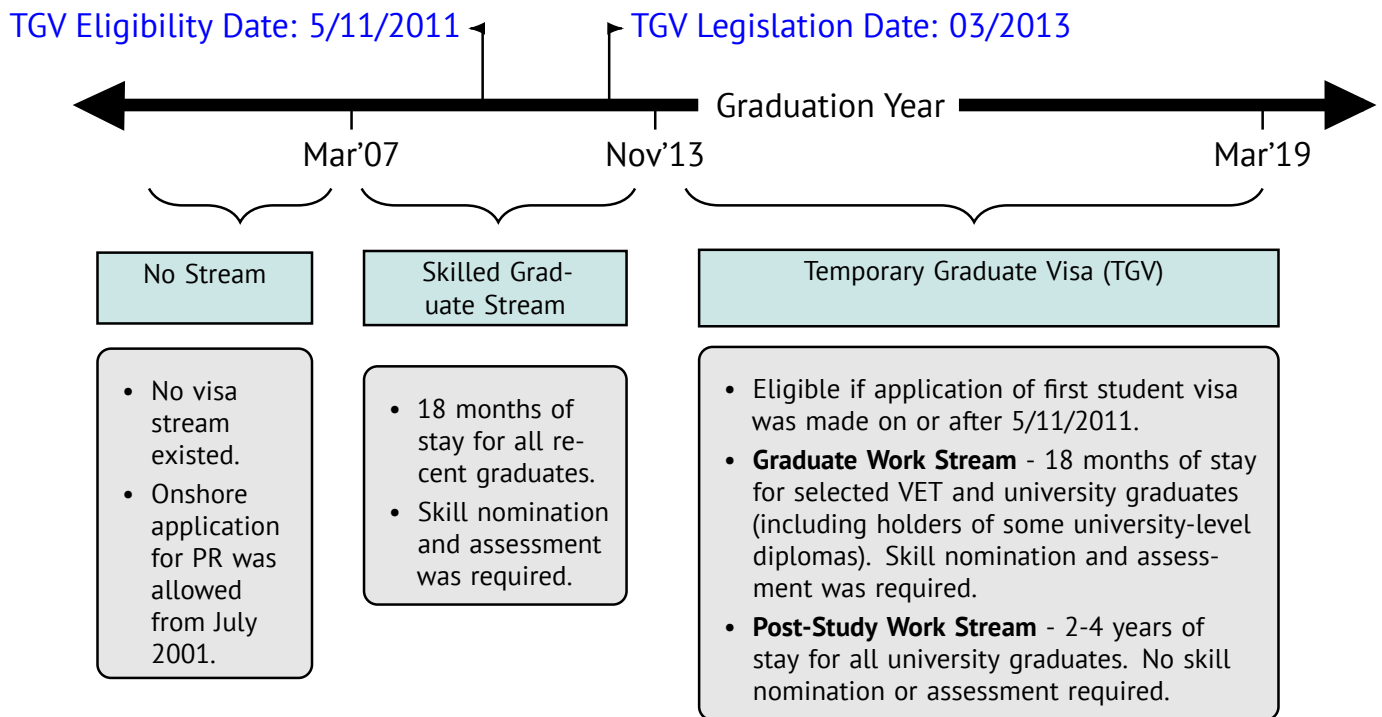
As a result, the 2013 legislation significantly extended PSWRs durations for university graduates. **Crucially, eligibility for the Post-Study Work Stream was limited to students whose first student visa application was lodged on or after 5 November**

2011.⁴ Figure 1 illustrates the timeline and structural changes in the TGV framework. Appendix A.6 provides selected scenarios outlining eligibility under the TGV.

Therefore, to qualify for the extended stay under the Post-Study Work Stream, students had to meet two key conditions:

- Their qualification before applying for the TGV must be a Bachelor's degree or higher.
- Their first student visa application must have been lodged on or after 5 November 2011.

Figure 1: Timeline and Structure of the Temporary Graduate Visa Changes



The 2013 legislative change created a natural experiment, dividing students into three distinct groups based on the timing of their student visa applications:

1. **Category 1:** Students who applied before 5 November 2011 were subject to the previous system and eligible for only 18 months of PSWRs.
2. **Category 2:** University students who applied between 5 November 2011 and March 2013 made their study decisions assuming the old rules but ultimately benefited from extended PSWRs—at least six additional months.
3. **Category 3:** University students who applied after March 2013 were fully aware of the new TGV settings and expected to receive a minimum of 24 months of PSWR.

The introduction of PSWRs—paired with a clearly defined eligibility cutoff date—provides a opportunity to estimate the causal impact of a six-month extension in post-study work rights on three key outcomes: (i) international graduates' likelihood of remaining in Australia after graduation, (ii) their labour market performance, and (iii) their probability of obtaining a long-term visa.

Importantly, this setting also allows us to distinguish between policy effects on incumbent students — who were unexpectedly exposed to the reform — and on entrant cohorts, who made educational decisions after the policy was introduced.

⁴ Other general eligibility requirements included: holding a valid student visa at the time of application; being under 50 years of age; meeting health, character, and English language criteria; and satisfying the Australian Study Requirement (minimum two years of full-time study at a CRICOS-recognised institution).

Box 2: Evolution of the Temporary Graduate Visa (485)

Australia's Temporary Graduate Visa (TGV) policy has evolved significantly since its introduction, reflecting shifting priorities in the nation's approach to skilled migration. The following highlights key policy developments, from its initial launch to recent adjustments in visa durations and eligibility criteria.

- In 2007, the TGV (Subclass 485) was introduced, establishing a formal post-study work pathway for international graduates (Australian Government, 2023).
- In 2013, significant reforms expanded the program with the introduction of the Post-Study Work stream which extended the stay period on TGV (Australian Government, 2013).
- In 2019, a second graduate visa was introduced for TGV holders who completed their studies in regional areas (Australian Government, 2019).
- In 2021, the length of stay for graduates from Masters by coursework and Vocational Education and Training (VET) programs was extended (Australian Government, 2021).
- In 2022, following the Jobs and Skills Summit, the TGV duration was extended by an additional two years for graduates in fields with documented skills shortages (Australian Government, 2022).
- By mid-2024, the two-year extension granted in 2023 for targeted fields was rescinded (Australian Government, 2024b).
- Later in 2024, further modifications took effect, allowing Bachelor's (including Honours) and Master's (coursework or extended) graduates to stay for up to two years, while Master's by research and doctoral graduates can stay up to three years. Due to provisions in the Australia-India Economic Cooperation and Trade Agreement, Indian nationals with a Bachelor's degree (including Honours) will be granted two years, unless they hold a First Class Honours degree in STEM (including ICT), in which case they will be granted three years. Master's and PhD graduates from these streams are eligible for up to three and four years, respectively (Australian Government, 2024a).

These changes demonstrate how the Australian government has actively used post-study work rights as a policy lever to address evolving economic needs and strengthen international partnerships.

Policy Effects on Incumbent Students: Measuring the Impact of Longer Post-Study Work Rights

Comparing students in Categories 1 and 2—those who applied for their student visa just before or just after 5 November 2011, but before the policy was legislated—allows us to isolate the effect of the PSWRs extension from changes in student composition. Students in Categories 1 and 2 made their application decisions in the absence of the upcoming policy change. As a result, any observed differences in post-graduation outcomes can be causally attributed to the additional six months of PSWRs, rather than to self-selection by students aiming to maximise post-study stay opportunities.

Indeed, at the time of application, both groups expected to receive 18 months of post-study work rights. However, only those who applied on or after 5 November 2011 ultimately became eligible for a longer stay. Because the cutoff date was unknown to applicants, we can reasonably assume that students on either side of the threshold are comparable in both observable and unobservable characteristics, after adjusting for seasonal variation in visa applications.

This design enables us to identify the impact of extending PSWRs on international students' retention and labour market integration. Since both groups believed they would be eligible for the same duration of post-study stay, we hold constant any potential selection effects on who chooses to study in Australia.

In econometrics, this approach is called Regression Discontinuity (RD). Yet, a conventional RD is not quite the most suitable approach in this case, as it does not account for seasonal patterns in student admissions in Australia. The timing of international student applications is influenced by graduation cycles in different countries, leading to country-specific application trends at certain times of the year.⁵ As a result, a standard RD design may confound the effect of the extended stay period with seasonal application patterns, making it challenging to isolate the true impact of the policy change.

The solution for this problem is to use a Difference-in-Regression Discontinuity (Diff-RDD) approach, comparing the outcomes of students before and after the cut-off in the affected year, 2011, compared to the previous year, 2010. The 2010 cohort at

⁵ For instance, in our data, there was a disproportionately high number of Malaysian students applying just after the cut-off date of November 5, 2011, compared to just before it.

the discontinuity serves as a seasonality-only control group, as students applying around this time were unaffected by the policy change, whereas the 2011 cohort is influenced by both seasonality and the policy change. This design allows us to disentangle the effect of extended PSWRs from seasonal variations in student applications, providing a more precise estimate of the policy's impact.⁶

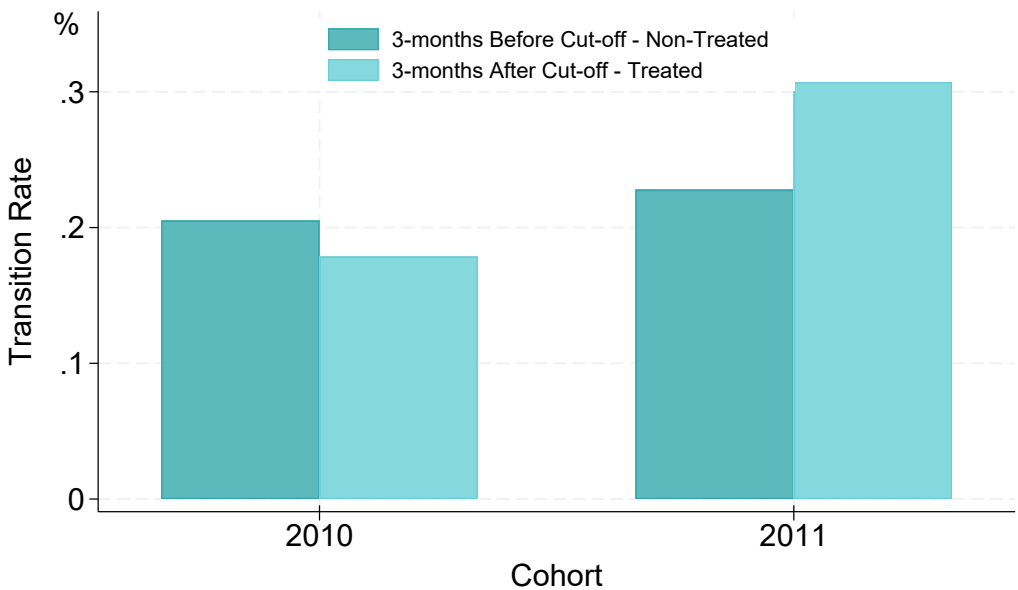
The Effects of Extending PSWRs on Temporary Graduate Visa Uptake

We begin by examining whether the extension of PSWRs increased international student retention – namely, the likelihood that an international student transitions from a student visa to a Temporary Graduate Visa after completing their studies. As discussed earlier, international students are a key pipeline for Australia's skilled migration program and long-term population planning.

Figure 2 plots the transition rate from a student visa to a TGV for two cohorts of international students: those who applied for a student visa in 2010 and those who applied in 2011. The transition rates are shown for those students applying in the three months before November 5 (in dark blue) and those applying for a student visa in November 5 or the three months after (in light blue). As explained above, comparing these two cohorts helps control for seasonality in student visa applications throughout the year.⁷

For students applying for a visa in 2010 (2010 cohort), transition rates declined slightly by approximately 3 percentage points (from 21% to 18%) for those applying after the (pseudo) November cut-off. These changes represent seasonal changes. In contrast, for the 2011 cohort, there was a significant increase in the number of students transitioning from a student visa to a TGV, indicating a stronger preference to remain in Australia after completing their studies. The transition rate rose by 8 percentage points, from 23% to approximately 31% for those applying after November 5.⁸ This result highlights that, for the incumbent cohort, a six-month extension of PSWRs increased the likelihood of transitioning from a student visa to a Temporary Graduate Visa, suggesting that longer work rights encourage more graduates to remain in Australia after completing their studies.

Figure 2: Transition Rate from Student Visa to Temporary Graduate Visa



Source: ABS; Department of Home Affairs; e61 Institute

⁶ We also use previous cohorts as alternative control groups.

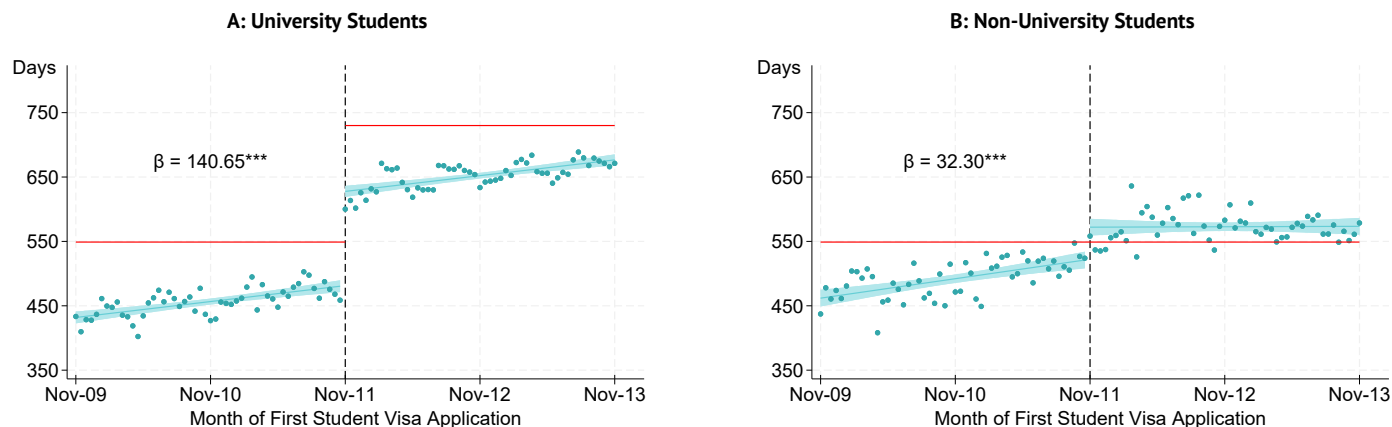
⁷ The three-month bins correspond to 90 days rather than 96 days, which is our preferred bandwidth. As a result, by construction, the treated cohort of 2011 starts at November 5, 2011, while the pseudo-treated cohort of 2010 starts at November 10, 2010.

⁸ Our transition rate measures the right to stay in Australia, rather than physical presence. Some migrants may have obtained a Graduate Visa but subsequently re-migrated to their home country or elsewhere.

The Effects of Extending PSWRs on Time Spent on a Temporary Graduate Visa

While the PSWRs allow international students to remain in Australia longer, not all students choose to do so. For the additional time to have a meaningful impact on the international student, they must be willing to take advantage of it. Figure 3A illustrates the average number of days *University Students* spent on their graduate visa, binned by the week of their first student visa application. Similarly, Figure 3B presents the same data for *Non-university Students*, who were not subject to the longer PSWRs.

Figure 3: Days Spent on Temporary Graduate Visa



Source: ABS; Department of Home Affairs; e61 Institute. β represents the coefficient capturing the difference in the number of days spent on the Temporary Graduate Visa (TGV) between migrants who applied for their first student visa after versus before the eligibility cutoff date of November 5, 2011.

International students enrolled in a university degree who applied for their student visa before 5 November 2011 remained in Australia for an average of 450 days after completing their studies (Figure 3A). These students were entitled to a maximum of 550 days of PSWRs. In contrast, those who applied within two years after the 5 November cutoff—who were eligible for up to 732 days of PSWRs—remained in the country for an average of 590 days, about 140 days longer than their earlier counterparts.

Hence, the additional stay period granted under the policy was effectively utilised: more students transitioned from a student visa to a Temporary Graduate Visa, and they remained in Australia for a longer period on average.

While *University Students* experienced an average increase of 140 days in their graduate visa duration following the cut-off date for extended PSWRs, the increase for *Non-university Students* was significantly smaller—approximately 32 days or about 23% of the increase observed for University Students.⁹

The graphs in Figure 3 results support the validity of our empirical approach, as the visa application date serves as a clear and well-defined cut-off for identifying the treated cohort. The sharp discontinuity in stay duration at the policy threshold reinforces our identification strategy, ensuring that differences in outcomes can be attributed to the policy change.

Figure 3 also shows that a similar discontinuity was not present in November 2010, confirming the validity of the 2010 cohort as a control group in the Diff-RDD estimation.¹⁰

In the next section, we examine how the extended stay may have influenced students' subsequent labour market outcomes, including their employment opportunities, earnings, and other long-term prospects.

⁹ Although the maximum stay for *Non-university Students* should not exceed 18 months (approximately 550 days), we still observe weekly averages beyond this limit on the right side of the cut-off in Figure 3B. This discrepancy arises because our treatment identification is based on the course level recorded in the Confirmation of Enrolment (CoE) for the last student visa. Some students classified as receiving a shorter stay may have bundled diplomas with other degrees to extend their stay. Consequently, in our Difference-in-Differences (DiD) analysis, our estimates serve as a lower bound, as some treated students may have inadvertently been included in the control group.

¹⁰ Figure 3 provides clear evidence that the increase in visa stay duration at the discontinuity is observed only for the 2011 cohort, with no corresponding jump for the 2010 cohort. To further substantiate this pattern, Appendix A.5.1 presents similar figure comparing just the both cohorts, reinforcing the validity of our identification strategy.

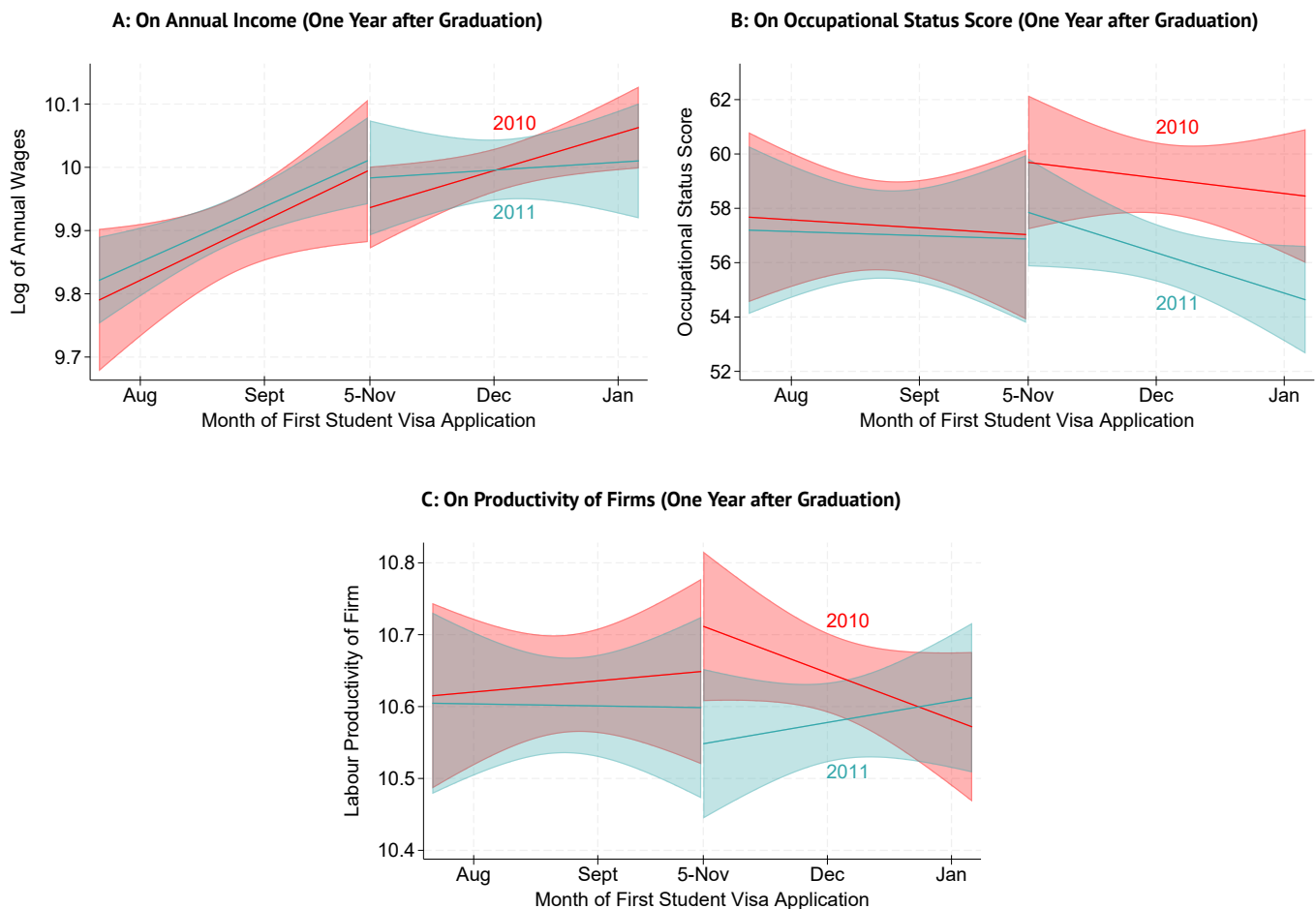
The Effects of Extending PSWRs on Migrants' Labour Market Outcomes

By extending post-study work rights, the policy aimed to improve international students' access to meaningful and relevant employment opportunities upon graduation, at least in the minds of international students (Chew, 2019). In this section, we examine whether longer PSWRs influenced graduates' labour market outcomes and subsequent visa pathways after receiving a Temporary Graduate Visa, providing insight into the policy's effectiveness in supporting successful transitions into the Australian workforce.

The economic theory behind the effect of extending PSWRs on incumbent migrants' labour market outcomes is unclear. On one side, we may expect that the extended work rights granted by the TGV provide a longer job search window, increasing international graduates' ability to secure better employment opportunities. Additionally, firms may be more inclined to hire and invest in training these workers, as the TGV guarantees an additional six months of legal stay. These improved labour market prospects may directly influence visa pathways, as higher earnings and stable employment enhance migrants' eligibility for permanent residency.

On the other side, there is also a possibility of unintended negative consequences. The additional stay period may lead to inflated expectations among migrants, causing them to pass up viable job opportunities in search of something better, which may never materialise, ultimately forcing them to accept less favourable opportunities. Conversely, some migrants may seek to maximise the benefits of their extended stay by accepting any available job to ensure a stable income stream post-graduation, potentially leading to suboptimal job matching.

Figure 4: Policy Effects on Incumbent Students (Diff-RDD Design)



Notes: The occupational status score is measured with the AUSEI06 index developed by McMillan et al., 2009. The code represents a scale that converts occupational classifications into status scores. AUSEI06 ranks occupations based on the assumption that they facilitate the conversion of education into financial rewards (income). It is a continuous measure ranging from 0 (low status) to 100 (high status). AUSEI06 serves as a proxy for migrants' skill index, as higher-status jobs are generally associated with greater skill requirements. For instance, highly specialised professions such as Surgeons and Anaesthetists have an AUSEI06 score of 100, while livestock and crop farm workers have scores below 5. *Source:* ABS; Department of Home Affairs; e61 Institute.

While theory offers competing predictions, empirical evidence is essential to understand the actual impact of the policy in practice. Figure 4 presents results from the Difference-in-Regression Discontinuity design outlined above, estimating the impact of a six-month extension in PSWRs on three key outcomes in the financial year following Graduate Visa approval: annual income, the skill level required in the graduate's occupation - measured by the Occupational Status Score AUSEI06 - and the productivity level of the firm where they are employed.¹¹

The figures plot the migrants' labour market outcomes by week of first student visa application, comparing two groups of university graduates: those who received their first student visa in the 14 weeks before 5 November 2011 (who were not eligible for the extended PSWRs), and those who applied in the 14 weeks after 5 November 2011 (who became eligible for the extension but were unaware of the policy change at the time of application).¹² Results are shown for both the 2010 and 2011 cohorts, with the 2010 group serving as a control for seasonal variation in visa applications and labour market outcomes. Full details of our empirical strategy are provided in Appendix A.3, and additional results can be found in Appendix A.5.5.

A six-month extension in PSWRs had no measurable immediate effect on migrants' real income, the types of occupations they entered, or the characteristics of the firms they worked for.¹³ These null effects could be driven by confounding factors, such as employer reluctance to hire migrants on temporary visas, labour market discrimination, or the possibility that an additional six-month stay was insufficient to yield meaningful wage gains.

The Effects of Extending PSWRs on Migrants' Visa Trajectories

Next, we estimate the impact of extended PSWRs on the visa trajectory of migrants three years after the financial year of their Graduate Visa approval. Even if employment outcomes do not show meaningful improvements, extending the duration of PSWRs may affect the visas migrants transition into. This is particularly relevant given that Australia's skill-based, points-tested migration system rewards education, skills, and work experience acquired in the country. Thus, even if migrants do not earn higher wages, securing better-quality jobs may improve their long-term migration prospects.

Specifically, we estimate the effect of extended PSWRs on the probability of migrants being on either a Student Visa, a Permanent Visa, an Employer-sponsored visa or any Valid Visa three years after their TGV grant.

Figure 5 shows the mean probability of being on a Student Visa (Figure 5A), on a Permanent Visa (Figure 5B), on an Employer-Sponsored Visa (Figure 5C) or any Valid Visa (Figure 5D) for the 2010 and 2011 cohorts around the cut-off date of 5 of November. Full details of our empirical strategy are provided in Appendix A.3, and additional results can be found in Appendix A.5.5.

The estimates reveal an important and somewhat unexpected pattern: international students entitled to longer PSWRs—specifically, those who applied for a student visa after 5 November 2011—are significantly less likely to hold a valid visa to remain in Australia three years after receiving a Temporary Graduate Visa, particularly a permanent visa. **In other words, extending PSWRs reduces the probability that the average international student remains in Australia long term.**

One likely explanation for this result is increased competition for a limited number of longer-term visas. As shown in Figure 2, the policy change led to a rise in the number of students transitioning to a Temporary Graduate Visa after graduation. This surge in graduate visa holders intensified competition for permanent residency pathways, ultimately lowering the probability that any individual applicant secures a long-term visa.

Figure 6A illustrates this dynamic by comparing the number of planned permanent migration spots with the estimated number of temporary residents seeking permanent residency (PR).¹⁴ The number of temporary residents in Australia has gradually increased between 2011 and 2013. However, this has not been matched by a commensurate rise in the number of permanent

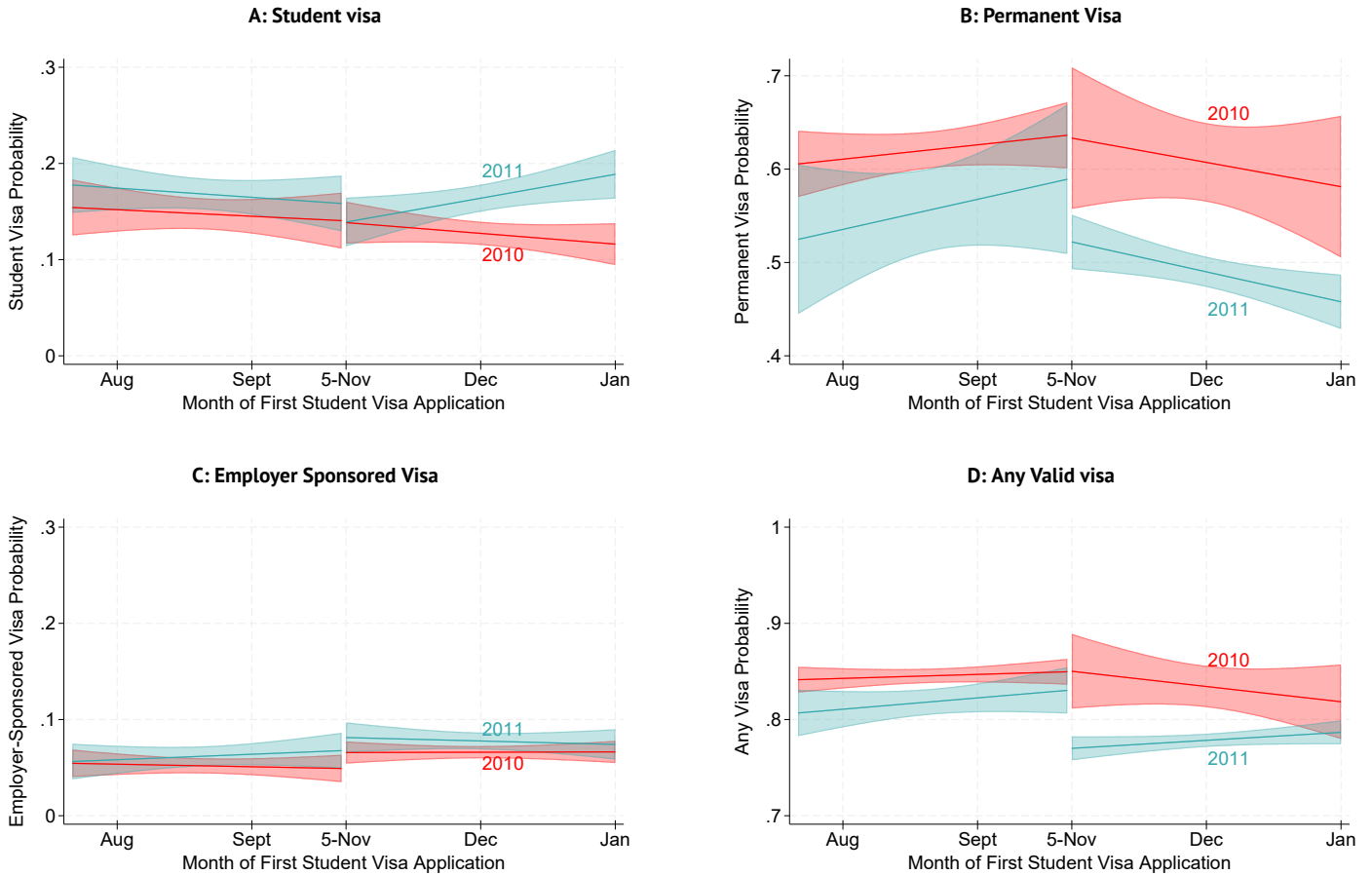
11 We include only migrants with positive wages, thereby restricting the sample to graduates who are active in the Australian labour market and excluding those who returned to their home country or those in Australia, but not employed. Data from the Continuous Survey of Australia's Migrants (CSAM) for the years 2009 to 2011 show that approximately 95% of graduate visa holders were employed, while 2.8% were unemployed. (Buddelmeyer et al., 2013).

12 Weekly bins are constructed in seven-day intervals from 5 November 2011. By construction, the treated cohort in 2011 starts on 5 November 2011, while the pseudo-treated cohort in 2010 begins on 6 November 2010.

13 The Occupational Status Score is based on the Australian Socioeconomic Index 2006 (AUSEI06). For instance, Domestic Cleaners and Housekeepers score around 20, while occupations in the mid-fifties include Real Estate Sales Agents, Credit and Loans Officers, Insurance Agents, and Agricultural Technicians. At the top end, Barristers, University Lecturers and Tutors, and Surgeons all have scores above 90.

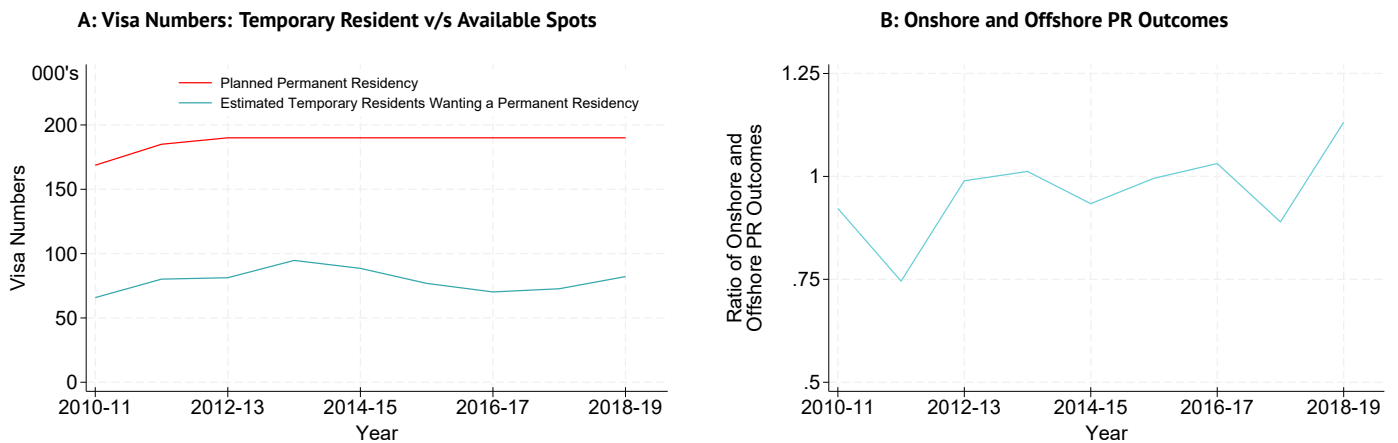
14 The number of temporary residents seeking PR is estimated using arrival data on international students, temporary skilled migrants, and Working Holiday Makers. These arrivals are translated into PR demand using observed transition rates from the 2006–07 cohort: 69% of temporary skilled migrants, 39% of international students, and 32% of Working Holiday Makers obtained a permanent visa within ten years (Centre for Population, 2023). Expected applicants are then assigned to a likely PR application year based on average transition times: five years for students, three for skilled migrants, and four for Working Holiday Makers (Australian Bureau of Statistics, 2023).

Figure 5: Effect of Longer PSWRs on Probability of Obtaining Different Visas



Source: ABS; Department of Home Affairs; e61 Institute

Figure 6: Competition for Permanent Residency



Source: ABS; Department of Home Affairs; e61 Institute

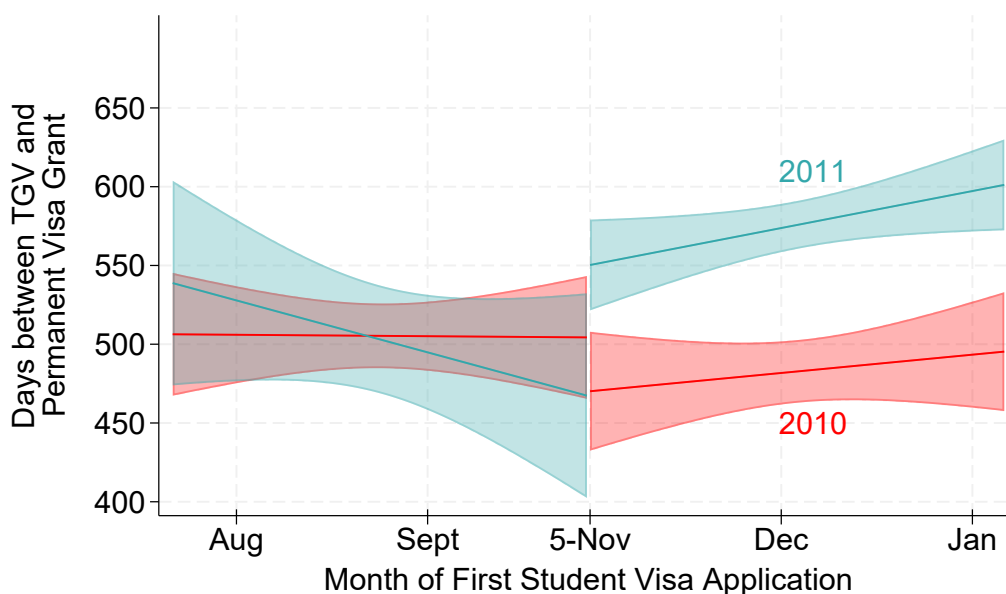
residency spots. Figure 6B further indicates that, between 2012 and 2018, the number of onshore PR grants has remained broadly similar to offshore grants.¹⁵ In the face of persistent competition from offshore applicants and limited growth in PR

¹⁵ Visa outcomes include both the Skilled and Family streams of Australia's Permanent Migration Program (DHA, 2019). We exclude program years beyond 2018–19 to avoid distortions caused by the COVID-19 border closures.

allocations, temporary migrants may face heightened challenges in their pursuit of permanent residency. As securing a PR visa becomes increasingly uncertain, a larger share of treated migrants may eventually opt to leave Australia altogether.

The observed decline in permanent visa success among the treated cohort may also reflect a competition-driven timing effect. Specifically, the extended post-study work rights—24 months for the treated group compared to 18 months for the control group—may alter migrants’ strategic behaviour regarding the timing of their permanent residency applications. The additional six months of lawful stay potentially enable treated migrants to delay their applications, inadvertently positioning themselves within a more competitive applicant pool. This strategic delay, while seemingly advantageous, may reduce their likelihood of success in securing permanent residency. We document this shift in application timing by plotting the distribution of days between the Temporary Graduate Visa (TGV) grant and subsequent permanent visa grant in Figure 7.

Figure 7: Days Elapsed Between Temporary Graduate Visa and Permanent Visa Grant



Source: ABS; Department of Home Affairs; e61 Institute

On average, treated migrants experienced a delay of approximately 95 days between the grant of their Temporary Graduate Visa (TGV) and the award of permanent residency, relative to the control group. This shift in timing underscores a potential change in migration strategy induced by the policy, which may have inadvertently exposed applicants to a more competitive selection environment, thereby reducing their likelihood of securing a permanent visa.¹⁶

Figure 5C displays no statistically significant change in the probability of treated migrants being on employer-sponsored visas. This result is consistent with the overall null effect of extended PSWRs on international graduates’ labour market outcomes. Moreover, migrants with longer PSWRs are unlikely to engage in visa hopping, namely applying for further student visas (Figure 5A). Unlike some migrants who extended their stay in Australia by exploiting loopholes in the migration system by applying for successive student visas (Griselda & Shah, 2024), extending PSWRs does not change this behaviour. The average probability of being on a student visa for treated migrants increased by a modest 0.7%. These migrants are instead more likely to have re-migrated altogether, as evidenced by their lower likelihood of holding any valid visa.

¹⁶ An additional channel that could contribute to lower permanent visa attainment is selection through attrition. Over time, as more treated migrants opt to remain in Australia, negative selection may arise—wherein the average ‘quality’ of those who remain three years post-TGV grant is lower than that of earlier cohorts. If these migrants accumulate fewer points under Australia’s points-based skilled migration system, their chances of obtaining a permanent visa may decline accordingly. However, there is limited evidence to support this mechanism in our context. If negative selection were driving this effect, we would expect to observe a divergence in wage outcomes over time. Yet, wages observed one or two years after the TGV grant remain statistically indistinguishable between treated and control groups. Detailed results are available upon request.

Do Longer PSWRs Make Australia More Attractive to International Students?

In the previous sections, we analysed how extending PSWRs affected incumbent international students' likelihood of remaining in Australia, their labour market outcomes, and their chances of securing a valid visa. These results reflect the response of students who had already committed to studying in Australia.

However, another important policy objective of extending PSWRs is to increase the attractiveness of studying in Australia. By offering graduates more time to gain local work experience, the policy was designed to strengthen Australia's position in the global education market as a leading study destination (Chew, 2019). The opportunity to stay and work after graduation is a critical factor influencing international students' choice of where to pursue higher education (Tran et al., 2019). Accordingly, the 2013 PSWRs extension is expected to have encouraged more students to select Australia as the starting point of their international education journey.

In this section, we examine whether longer PSWRs increase Australia's attractiveness as a study destination and explore the longer-term impact on migrants' labour market outcomes. Unlike earlier sections, which focused on incumbent students who were unaware of the reform, this section investigates how the policy affected entrant cohorts—students who made study decisions after the reform was enacted.

The Difference-in-Regression Discontinuity design used in the previous section is not suitable for this question, as it compares international students who, at the time of applying for their student visa, were unaware of the possibility of extended PSWRs.

To empirically assess whether longer PSWRs influenced the number of students choosing to study in Australia, we adopt a Difference-in-Differences framework. Specifically, we estimate the change in student visa applications following the legislation of the new Temporary Graduate Visa.¹⁷ The Difference-in-Differences approach compares outcomes between two groups of students:

- **Control group:** Students who did not pursue a Bachelor's or Master's degree (hereafter referred to as *Non-university Students*). These students were ineligible for the Post-Study Work Stream, and the duration of their PSWRs remained unchanged (see Figure 1).
- **Treatment group:** Students who pursued a Bachelor's or Master's degree (hereafter referred to as *University Students*). Among these, only those who applied for a student visa after 5 November 2011 were eligible for the extended PSWRs.

By comparing trends across these two groups, we isolate the effect of the reform from broader changes over time. Additional details on data construction are provided in Appendix A.1, and the empirical strategy is described in Appendix A.3.

Figure 8 presents the difference in student visa application numbers between *university* and *non-university* students, grouped into one-year intervals based on the year of their first application.¹⁸ The figure provide strong evidence that **longer PSWRs increased the number of international student applications to Australia**. Following the formal introduction of the Temporary Graduate Visa in March 2013, the gap in student visa applications widened – driven by a larger relative increase in applications from *University Students* (those eligible for the extended PSWRs) compared to *Non-university Students*.¹⁹

This suggests that **the extension of post-study work rights was a key factor in making Australia a more attractive destination for international university students**.²⁰

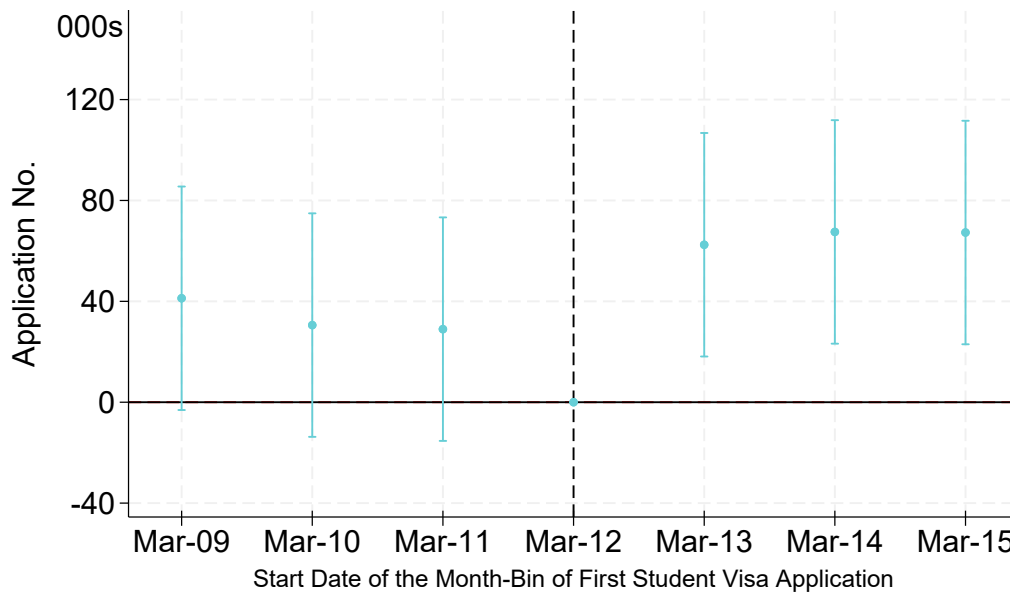
17 The Australian Government began discussing the introduction of the TGV—which extended post-study work rights for university graduates—in late 2011, but formal legislation was passed in March 2013. This does not pose a threat to our identification strategy, as the exact eligibility date was not disclosed prior to enactment. Given the substantial financial commitment involved in pursuing higher education abroad, we expect any response in application numbers to occur only after policy certainty was established.

18 We aggregate application numbers into one-year bins to reduce the influence of seasonal variation in student application patterns.

19 The observed increase in the difference in applications between University and Non-university graduates could be driven not only by a rise in university student applications but also by a decline in applications from non-university students. To distinguish these trends, we provide additional evidence in Appendix A.5.2, which demonstrates that the pattern observed in Figure 8 was primarily driven by an increase in university student applications.

20 The increase in international student inflows likely had broader macroeconomic implications. Education-related travel services—which includes tuition and living expenses paid by international students—was Australia's fourth-largest export in 2014, generating \$17 billion AUD in export earnings. The sector ranked just behind Iron Ore, Coal, and Natural Gas (DFAT, 2015).

Figure 8: Differences in Student Visa Applications between Non-university and University Students



Source: ABS; Department of Home Affairs; e61 Institute

Policy Effects on Entrant Cohorts: Labour Market Outcomes and Selection Effects

Our findings on entrant cohorts highlight that longer PSWRs played a critical role in influencing prospective students' decisions – making Australia more competitive in the global education market and attracting a larger pool of international students – but the composition of students responding to these incentives is equally important.

A longer work period may appeal to high-achieving students seeking to leverage Australian work experience, but it may also attract students who prioritise extended employment access over academic quality. If post-study work rights become the dominant motivation for studying in Australia, there is a risk that educational objectives take a backseat, potentially lowering the overall average calibre of graduates entering the labour force.

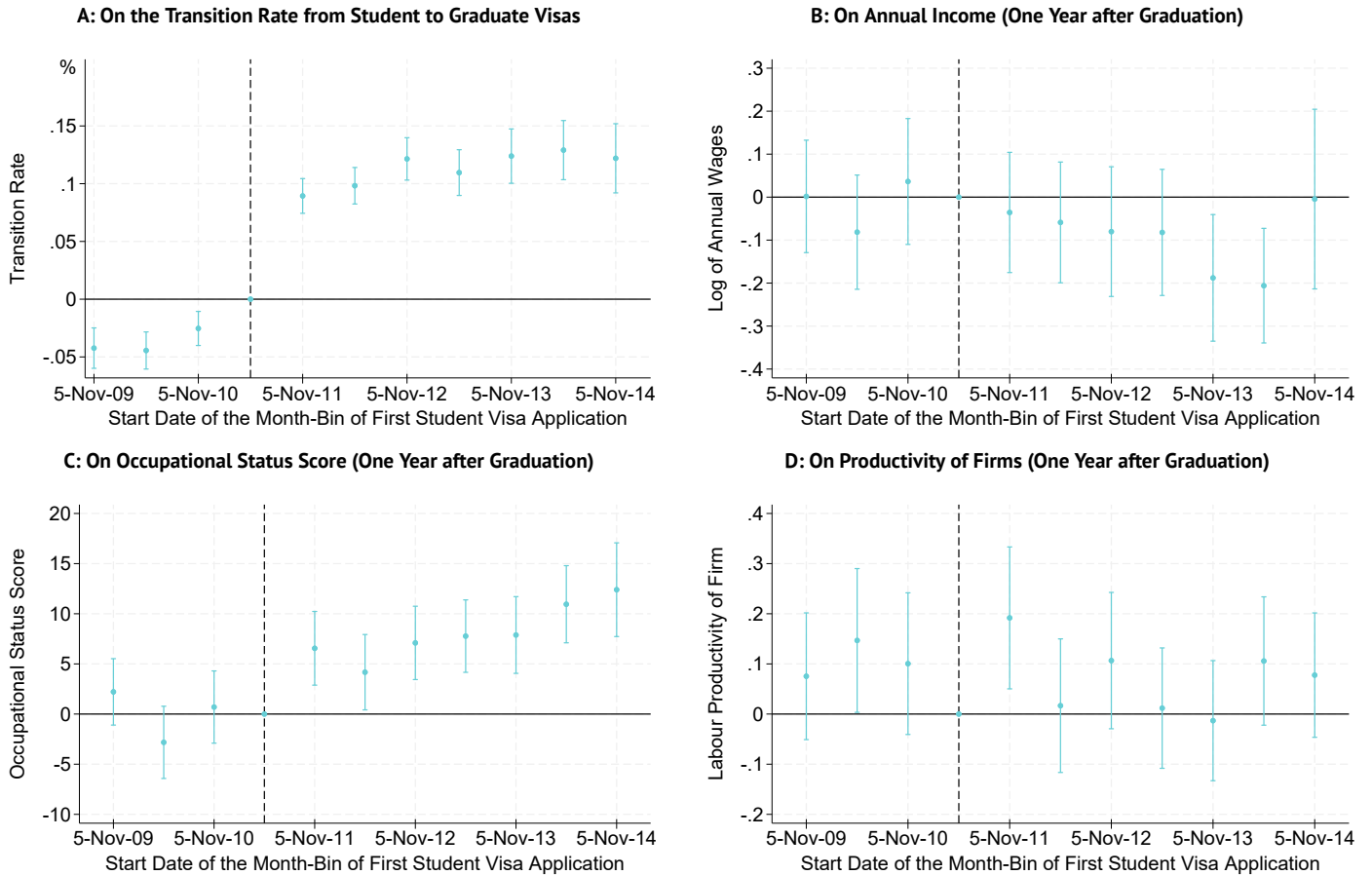
To investigate the overall effect of extending PSWRs – incorporating both the selection effect (i.e., the type of students attracted by longer PSWRs) and the impact of the longer stay itself – we estimate the effect of PSWRs on students' likelihood of transitioning to a graduate visa and their labour market outcomes using a difference-in-differences approach.

Figure 9A presents the estimated difference in transition rates from a student visa to a Temporary Graduate Visa between university and non-university students. Further details on the empirical strategy are provided in Appendix A.3. We find a statistically significant increase in transition rates from student to graduate visas among university students, further widening the gap relative to non-university students, who were not affected by the policy change.²¹ Students in who were eligible for extended PSWRs were significantly more likely to transition from a student visa to a Temporary Graduate Visa (TGV). **This suggests that both the policy change and a shift in the type of students attracted by longer PSWRs contributed to the higher transition rate.**

However, it is crucial to recognise that an increase in student numbers and prolonged stays on temporary visas may not necessarily be optimal—neither for Australia nor for the migrants themselves, as it comes with economic and social costs (see Griselda and Shah, 2024, Appendix A.1, for an overview). Extended reliance on temporary visas may lead to greater labour market uncertainty for migrants, increased visa churn, and potential misalignment with Australia's broader economic migration objectives. Therefore, we also investigate the effect of extending PSWRs on the labour market outcomes of these international students.

²¹ We observe some divergence in pre-trends prior to the policy eligibility date. To account for this, we conduct sensitivity analyses using the Honest Difference-in-Differences approach developed by Rambachan and Roth (2023). The results, which confirm the robustness of our findings, are presented in Appendix A.5.3.

Figure 9: Policy Effects on Entrant Cohorts (DiD Design)



Source: ABS; Department of Home Affairs; e61 Institute.

Figures 9B, 9C and 9D illustrate how extending PSWRs affected the migrants' income, occupation and the productivity level of the firms they end up working at. Graduates are grouped into six-month bins based on the date of their first student visa application. Full details of our empirical strategy are provided in Appendix A.3, while additional results are available in Appendix A.5.5.

Longer PSWRs did not increase the likelihood that international graduates would work in high-productivity firms. Moreover, one year after graduation, affected migrants experienced a decline in earnings. At the same time, students eligible for longer PSWRs were more likely to be employed in occupations requiring higher levels of skill and education (Figure 9C). Taken together, these findings suggest that the drop in average earnings is more likely due to increased labour market competition, caused by a larger pool of temporary migrants, rather than negative selection (i.e., attracting students who are systematically less employable or lower-skilled).²²

These findings provide suggestive evidence that extending PSWRs may have improved the overall quality of the international student pool choosing to study in Australia. Over time, these migrants appear more likely to work in higher-skill, higher-status occupations (the effect of extending PSWRs on occupational status for incumbent migrant is null, as shown in Figure 4B).

A natural question is why these improvements in occupational status do not translate into higher annual earnings. One possible explanation is wage discrimination. Non-English-speaking migrants tend to earn less than native-born workers, even when working in the same occupation (Islam & Parasnis, 2016). As a result, securing a higher-status job may not necessarily lead to wage gains—particularly if migrants face structural barriers that limit their earning potential. A second explanation relates to market dynamics. As more migrants remain in Australia under extended PSWRs, the supply of skilled labour in-

²² This explanation assumes that university and non-university students participate in distinct labour market segments.

creases, potentially intensifying competition for a limited number of high-paying roles. This competition may dampen wage growth, even as migrants secure better-quality jobs.

The Effects of Extending PSWRs for Indian Students

An important dimension of this analysis is examining how these policy changes specifically impact Indian students. This is particularly relevant given that the current policy framework for graduate visa stay periods grants Indian students an extended duration compared to international students from other countries of origin (Australian Government, 2024a). Indian nationals with a Bachelor degree with First Class Honours in STEM (including ICT) are granted three years of PSWRs, instead of two years. Additionally, Indian students with Masters (coursework and extended) and doctoral degrees are also awarded an additional year of stay compared to international students of different nationalities. Understanding whether this additional stay period for Indian students translates into differential labour market and migration outcomes is critical for evaluating the effectiveness and equity of Australia's PSWRs policy.

To assess these impacts, we replicate the entire analytical framework outlined above but restrict the sample to students whose country of origin is India. The results are presented in Table 1 and Table 2. Full details of our empirical strategy are provided in Appendix A.3.

Table 1: Effect of Extending PSWRs

Panel A: Labour Market Outcomes								
	Annual Income		Occupational Status Score		Productivity			
Treatment	-0.095 (0.182)	-0.100 (0.179)	4.704 (4.712)	3.884 (4.752)	-0.157 (0.235)	-0.142 (0.236)		
Num. Obs.	899	899	899	899	588	588		
Controls	No	Yes	No	Yes	No	Yes		

Panel B: Visa Pathways								
	Student		Permanent		Employer		Any	
Treatment	0.002 (0.047)	0.005 (0.048)	0.021 (0.071)	0.010 (0.071)	-0.070* (0.038)	-0.070* (0.037)	-0.009 (0.045)	-0.009 (0.045)
Num. Obs.	1130	1130	1130	1130	1130	1130	1130	1130
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Notes: This table shows the impact of longer PSWRs durations using a Difference-in-Regression Discontinuity design. The treatment group includes international students who applied for a student visa after 5 November 2011, compared to those who applied before the cutoff. * p < 0.1, ** p < 0.05, *** p < 0.01

Results from Panel A of Table 1, which focuses on incumbent students and thus isolates the effect of the extended stay period from selection effects, indicate that extended PSWRs had no statistically significant impact on any observed labour market outcomes for Indian students. Although an extended stay period may be perceived as an advantage by Indian students, the findings suggest that it does not necessarily translate into stronger employment prospects for migrants.

It is important to recognise that labour market outcomes may not always be the primary objective of migration decisions. Some migrants may view a student visa as a stepping stone toward permanent residency, rather than as a means to optimise post-graduation labour market outcomes. To account for this possibility, we also analyse the visa pathways migrants transition into post-graduation.

Panel B of Table 1 presents the results, which are similarly unfavourable for migrants with permanent residency aspirations. There is no statistically significant difference in the likelihood of securing a permanent visa for Indian students who benefited from the additional stay period. Moreover, they are less likely to obtain an employer-sponsored visa, which, in the long run, is associated with better labour market outcomes for migrants (Varela et al., 2021).

Next, an important consideration for Australia is the type of migrants from India who are likely to be attracted to study in Australia as a result of this policy. The best-case scenario for Australia would be if the extended stay period attracts

'high-ability' Indian students, thereby raising the average 'quality' of the prospective permanent migrant pool. If the policy primarily appeals to high-skilled individuals who contribute positively to the labour market, it could enhance Australia's long-term economic and migration outcomes. To assess this, we examine results that incorporate selection effects, which are presented in Table 2

Table 2: With Selection Effects

	Labour Market Outcomes					
	Annual Income		AUSEI06		Productivity	
Treatment	-0.130*	-0.117	4.021**	3.222*	-0.039	-0.036
	(0.071)	(0.071)	(1.920)	(1.905)	(0.089)	(0.088)
Num.Obs.	17,350	17,350	17,350	17,350	12,246	12,246
Controls	No	Yes	No	Yes	No	Yes

* p < 0.1, ** p < 0.05, *** p < 0.01

When selection effects are incorporated into the total effects, we again find no significant improvement in the labour market outcomes of migrants. There is no statistically and economically significant difference in the labour market trajectories of *university* and *non-university*-educated Indian migrants. The occupational score for treated migrants increased by 3.22-4.02 percentage points, significant at 5-10% level. This suggests that extended post-study work rights have not significantly impacted the employment outcomes of Indian migrants.²³

If extended PSWRs has neither improved the economic outcomes of Indian migrants nor attracted higher-quality talent, the effectiveness of the policy comes into question. While it is understood that the policy is part of the Australia-India Economic Cooperation and Trade Agreement, its long-term implications for both migrants and Australia warrant further scrutiny.

For migrants, the evidence suggests that the longer stay period does not translate into improved labour market prospects, raising concerns about the misalignment between policy incentives and actual economic benefits. For Australia, the quality composition of incoming migrants has not significantly changed, suggesting that the policy has not effectively raised the skill profile of Indian graduates in the migration system.

However, one critical dimension that must be considered is the large quantity effects associated with longer PSWRs. If extended stay rights lead to a disproportionate increase in Indian students entering the Australian education system, it could tilt the composition of future migrant cohorts in favour of Indian nationals. While such a shift may align with strategic, economic and diplomatic objectives, it also raises broader questions of equity, diversity, and social cohesion within Australia's migration framework. A well-functioning migration system must strike a balance between economic priorities, fairness in visa allocation, and long-term social integration goals, ensuring that no single nationality or demographic group disproportionately benefits from policy changes.

Conclusion and Policy Implications

Post-Study Work Rights are a cornerstone of Australia's international education and skilled migration policy. They help attract international students, facilitate smoother transitions into the labour market, and can serve as a bridge to longer-term migration. Understanding how the design of PSWRs influences student behaviour and outcomes is critical for building a migration system that is both fair and effective.

We use Australia's 2013 PSWRs reform – which extended post-study work rights for university graduates – as a natural experiment to generate new insights into the effects of longer PSWRs. The findings show that extending PSWRs increased

23 As a further robustness check, we verify that our findings are not driven solely by using 2010 as the control year. First, we include both 2009 and 2010 as controls, excluding 2008 to avoid contamination from the policy's initial implementation in that year. Under this specification, results are largely unchanged, except that the decline in the probability of treated Indian students obtaining an employer-sponsored visa (Table 1) is no longer statistically significant at the 10 percent level. Next, we allow all years from 2006 through 2010 to serve as controls, accommodating any lagged seasonal effects. Again, the main results hold: the only substantive differences are that (1) the effect on employer-sponsored visas for the full migrant sample becomes positive (significant at 10 percent), and (2) for treated Indian students, the income effect turns negative and their probability of securing an employer-sponsored visa is no longer significant at 10 percent. In all other respects, our findings remain robust to these alternative sets of control years. Results available upon request.

graduate visa uptake, prolonged post-study stays, and made Australia a more attractive destination for prospective international students. These are important and positive effects, particularly in the context of global competition for skilled talent.

However, longer PSWRs did not lead to better labour market outcomes for incumbent migrants. Migrants did not earn more, nor work in higher-productivity firms, or have higher chances of transitioning to permanent residency. In fact, they were less likely to remain in Australia three years after graduation, suggesting that longer stays may have increased competition for a fixed number of permanent visas, reducing individual chances of success.

Our findings distinguish between the policy's effects on incumbent students—those who did not anticipate the reform—and on entrant cohorts, who made educational decisions in response to the policy.

Among entrant cohorts, international students eligible for extended PSWRs are more likely to enter higher-status occupations. This suggests that longer work rights are likely to attract international students who have better prospect of working in higher status occupation. Yet, these gains do not necessarily translate into higher earnings, likely due to wage compression and labour market barriers faced by temporary migrants.

The case of Indian students — who benefit from special PSWRs provisions under a bilateral agreement — offers limited evidence of improved outcomes, either in employment or migration pathways. This raises questions about the equity and effectiveness of targeted extensions.

Policy Implications:

- **PSWRs are an effective lever for attracting high-skilled international students.**
- **However, extended work rights alone are not enough.** Without efficient pathways to permanent residency or improvements in employer incentives, longer PSWRs may prolong uncertainty without improving long-term outcomes.
- **Greater alignment is needed between temporary and permanent migration settings.** To maximise the benefits of extended PSWRs, reforms must ensure that high-potential graduates can successfully transition into stable, skilled employment and eventually the most deserving gets the permanent residency.
- **While longer PSWRs attract more students, they may also intensify labour market competition and visa bottlenecks,** particularly if permanent spots remain capped.

In summary, longer PSWRs are an effective tool for attracting international students, but their impact depends on how well they align with Australia's broader migration goals and labour market needs. To deliver lasting benefits—for both migrants and the Australian economy—these policies must be part of a more integrated strategy that supports not only temporary retention but also long-term settlement and success.

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A.1. Data Construction

Our analysis leverages visa-level administrative data collected through the implementation of Australia's visa regime, covering the entire universe of visa approvals from 2000 to 2021. This dataset provides granular information on visa type, start and end dates, country of citizenship, and other key attributes.²⁴ We classify our sample of TGV holders into university and non-university students based on their highest level of study prior to obtaining the TGV. All individuals in our sample initially held a student visa categorised under either the *Higher Education Sector* or the *Vocational Education and Training Sector*. We exclude individuals whose student visa was categorised under School Sector, Independent ELICOS, or Non-Award Sector, as these students are ineligible for the TGV.

To distinguish between university and non-university students, we define:

- University students as migrants who, prior to obtaining the TGV, pursued a Bachelor's Degree, Bachelor's Honours Degree, or Master's Coursework.
- Non-university students as those who pursued any other qualification, excluding those classified under the university category.

The level of study is determined based on the Confirmation of Enrolment (CoE) attached to the student visa record of each migrant. We exclude all migrants who completed a Master's by Research or PhD. Please read Appendix A.2 for detailed reason behind the exclusion and other changes in Australia's student visa program following the Knight Review.

We construct the transition rate of migrants as an indicator of whether an individual obtained a TGV at any point after holding a student visa, regardless of their subsequent length of stay. This measure accounts for the fact that some migrants may leave Australia, while others may transition to alternative visa categories without obtaining a TGV. The objective of this analysis is to assess changes in the take-up rate of TGVs among international students over time, providing insights into evolving post-study migration patterns.

We construct a linked employer-employee dataset of all migrants using administrative records from BLADE (firm-side data) and PLIDA (individual-level data). A comprehensive overview of these datasets is provided in (Andrews et al., 2023). We combine the migrant visa information with the PLIDA data. For labour market outcomes, we merge in the annual wages received by the migrants in the financial year following the one in which they received their TGV grant. Other labour market outcomes, i.e. AUSEI06 and firm productivity are all measured at the same time frame.

The primary occupation of each migrant is derived from income tax records, with occupation codes mapped to status scores using the Australian Socioeconomic Index 2006 (AUSEI06). This index provides a standardised measure of occupational status, ranking occupations on a continuous scale from 0 (low status) to 100 (high status). AUSEI06 is grounded in the premise that education translates into economic rewards primarily through occupational attainment, establishing a causal link between education, occupation, and income. All estimates of income and occupational status scores include only those migrants for whom both measures are available.

To analyse firm productivity, we utilise Business Income Tax data to obtain firm-level information on sales and expenses. We link workers to their primary employer using firm-worker relationships derived from payment summary records. The primary job of a migrant is defined as the job from which they derive the highest income, ensuring that productivity measures reflect the dominant employment relationship. Firm productivity is computed as: $\log(\text{Value Added}/\text{Headcount})$ where Value Added is Turnover – Cost of Goods Sold and Headcount is an estimate of firm headcount using payment summary data and requiring wages to be paid (i.e. excluding termination and other one off payments). To ensure the robustness of our productivity analysis,

²⁴ For the majority of our analysis on Temporary Graduate Visa (TGV) holders, we restrict our sample to individuals whose total stay on a graduate visa does not exceed four years (1,470 days), unless otherwise specified. The maximum permissible stay on a graduate visa is four years, and any recorded duration beyond this threshold may be due to extensions granted under exceptional circumstances or data recording errors.

we restrict the sample to market-sector firms, given the inherent challenges in measuring productivity in non-market sectors. Additionally, to mitigate biases from small firms with extreme productivity values, we exclude firms with fewer than three Full-Time Equivalents and winsorised the top and bottom 1% of the productivity distribution to control for outliers.

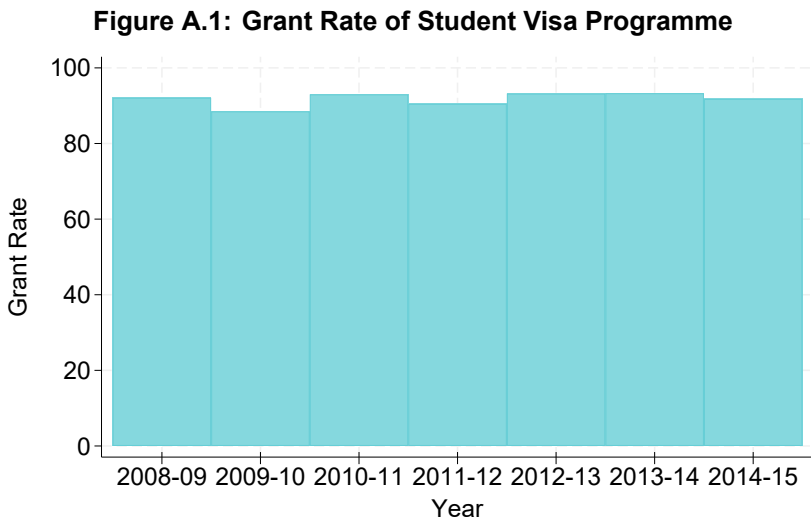
To examine the visa trajectories of TGV holders, we track their visa status three years after receiving their graduate visa. We classify migrants into four distinct visa categories:

- 1. **Student Visa** – The migrant held a visa primarily issued for international students three years post-TGV grant.
- 2. **Unlimited Stay Visa** – The migrant transitioned to a permanent residency visa, classified as allowing unlimited stay including SC491, three years post-TGV.
- 3. **Employer-Sponsored Visa** – The migrant obtained a visa requiring sponsorship by an Australian employer (e.g., subclass 119, 121, 856, 857, 186, 187, 403, 408, 407, 457, 482).
- 4. **Any Visa** – The migrant held any valid visa three years post-TGV, excluding bridging, transit, and diplomatic visas.

A.2. Changes Around Student Visa: The Knight Review

The Student Visa Program Review, commonly referred to as the *Knight Review*, presented 41 recommendations to the Australian Government aiming “for a sustainable program which will balance Australia’s economic, interests, educational interests and migration interests” (Knight, 2011). In its formal response, released in September 2011, the Government “gave in-principle support for all 41 recommendations, and indicated that it would implement them all, with some modifications” (Spinks, 2016). Among the most consequential changes introduced in the initial phase of implementation was the introduction of the ‘Genuine Temporary Entrant’ (GTE) requirement, a policy with direct relevance to the empirical strategy employed in this study. The Genuine Temporary Entrant (GTE) criterion was introduced in November 2011 as a means to assess the intentions of international students applying to study in Australia. Its stated purpose was to ensure that applicants were genuinely seeking a temporary stay for educational purposes and intended to return to their home country upon completion of their studies. To satisfy the GTE requirement, applicants were required to submit a detailed personal statement outlining their background, study plans, and future intentions as part of their visa application.

While our treated cohort, defined around the student visa application cut-off of November 5, 2011, was subject to this additional requirement, we argue that the GTE criterion did not substantially distort visa outcomes around the threshold. If the introduction of the GTE had a material effect on application quality or visa decisions, we would expect to observe a sharp decline in the student visa grant rate—defined as the share of visa grants out of total decisions— following its implementation. The grant rates from 2008-09 to 2014-15 programme years is shown in Figure A.1.



Source: ABS; Department of Home Affairs; e61 Institute

The grant rate for the 2011–12 program year declined only marginally—from 93% in 2010–11 to 90.5%—and still remained above the 88.5% grant rate observed in 2009–10. This modest change suggests that the introduction of the GTE criterion did

not generate a substantial disruption in visa processing or applicant composition around the cut-off. As such, it provides additional confidence that our Diff-RDD estimates are plausibly not confounded by the implementation of the GTE requirement, and that the observed discontinuity primarily reflects the causal effect of the extended post-study work rights policy.

Following the Knight Review, another significant policy change was the introduction of a visa extension of up to six months for Higher Degree by Research students after the submission of their thesis. Additionally, it was announced that “in recognition of the importance of the higher degree by research sector, the Government will also allow postgraduate research (subclass 574) visa holders to work an unlimited amount of hours per week once their course has commenced, which will mean they can engage in employment related to their research”. Due to this, we exclude postgraduate research visa holders and Master’s by Research and PhD students from our sample.

Additional reforms stemming from the Knight Review—such as the cessation of Pre-Visa Assessment (PVA) arrangements—aimed to streamline student visa processing by reducing application delays. These changes improved administrative efficiency without explicitly altering the selection criteria, thereby having minimal implications for selection bias in our analysis.

The second phase of the Knight Review was implemented in March 2012, which falls outside the bandwidth of our Diff-RDD framework and hence does not affect those estimates. In the context of our difference-in-differences analysis, policy changes that affect both treatment and control groups symmetrically would not bias the estimated treatment effects.

One notable reform introduced during this second phase was the reduction of assessment levels for student visa applicants across all levels of study. While this reduction applied uniformly to all Master’s and Bachelor’s students, regardless of their country of origin, the changes were selectively applied to students pursuing Vocational Education and Training (VET). Specifically, students from 29 countries benefited from a lower assessment level. However, these included key source countries such as India, China, and Indonesia. While these changes may have affected overall student inflows, their timing and broad applicability reduce the risk of differential impact on treatment versus control groups in our DiD specification.

A.3. Empirical Analysis

This section outlines the empirical approach employed to derive the results presented in this study.

For Figure 3, we plot the mean duration (in days) spent by migrants on their Temporary Graduate Visa (TGV). To construct this measure, migrants are grouped based on the week of their first student visa application, and the mean duration is calculated for each cohort. The coefficient β in the figure represents the difference in the average duration on the TGV for migrants whose student visa application date falls before and after the eligibility cut-off date. This estimate captures the jump in TGV duration induced by the policy change.

For Figure 8, we estimate the following event study specification:

$$(1) \quad Applications_{dt} = \alpha_d + \sum_{j=0}^M \gamma_j Leads_j + \sum_{k=1}^N \eta_j Lags_k + \epsilon_{dt}$$

where $Application_{dt}$ denotes the total number of student visa applications for group d in year bin t . The sample includes two groups, university and non-university students. As discussed earlier, year bins are constructed from March to March to ensure that the first treated-bin begins at the date of the policy legislation. The term α_d captures group-specific fixed effects. $Leads_j$ are binary variables representing the years before the group got extended post study work rights. $Lags_k$ are binary variables representing the years following the group got extended post study work rights. The year before the policy granting university students additional post study work rights was legislated, is used as the reference period for our analysis. Non-university students serve as a pure control group throughout.

To estimate the effects depicted in Figure 9A, we employ the following event-study specification:

$$(2) \quad TR_{idt} = \alpha_d + \gamma_t + \sum_{j=0}^M \gamma_j Leads_j + \sum_{k=1}^N \eta_j Lags_k + \beta X_i + \delta_c Trends + \epsilon_{idt}$$

Here, TR_{idt} is an indicator variable that equals 1 if migrant i , from group d , who applied for their first student visa in month-bin t , was granted a Temporary Graduate Visa (TGV) after holding a student visa. It takes the value 0 if the individual never

received a TGV following their student visa. The sample includes two groups, university and non-university students. We construct 6-month bins starting from November 5, 2011, ensuring that the first treated bin aligns with the eligibility date of the extended post-study work rights policy. The term γ_t denotes month-bin fixed effects. X_i includes individual-level controls, specifically the student's marital status at the time of their initial student visa application. $\delta_c Trends$ represents course-specific linear trends, where the course is identified using the Confirmation of Enrolment (CoE) linked to the student's last student visa, and the time trend is anchored to the year of their first student visa application. $Leads_j$ and $Lags_k$ are indicator variables for each 6-month bin before and after the policy implementation respectively. The 6-month bin before university students got additional post study work rights is used as the reference period for our analysis.

The Diff-RDD figures (Figures 4 and 5) plot the fitted lines along with 95% confidence intervals of the mean outcome values, calculated within weekly bins, over a three-month window on either side of the eligibility cut-off of November 5. To account for seasonality, we estimate this specification both around the actual policy cut-off date—November 5, 2011—and around a pseudo cut-off—November 5, 2010. In Figure 5, we use fortnightly bins instead of weekly bins due to smaller sample sizes, in accordance with Australian Bureau of Statistics (ABS) output clearance requirements. In all analysis, income, occupational status score and labour productivity relates to migrant's outcome 1-year after the TGV grant whereas visa-pathways are taken 3-years after their TGV grant.

The figures depicting the selection effects (Figures 9B, 9C and 9D) are estimated using the following equation:

$$(3) \quad Y_{idty} = \alpha_d + \gamma_t + \sum_{j=0}^M \gamma_j Leads_j + \sum_{k=1}^N \eta_j Lags_k + \beta X_{iy} + \gamma_y + \epsilon_{idty}$$

Here, Y_{idty} denotes the outcome variable for TGV holder i , from group d , who applied for their first student visa in month-bin t , was granted a TGV in year $(y - 1)$ and is observed in year y . The sample includes two groups, university and non-university students. We construct 6-month bins starting from November 5, 2011, ensuring that the first treated bin aligns with the eligibility date of the extended post-study work rights policy. The outcome variables include the log of annual income, the Occupational Status Score, and the labour productivity of the firm employing the migrant. Productivity analysis includes additional industry fixed effects. The vector X_{iy} includes individual-level controls: gender, age, age squared, and marital status.²⁵ γ_y denotes year fixed effects. $Leads_j$ and $Lags_k$ are indicator variables for each 6-month bin before and after the policy implementation respectively. The 6-month bin before university students got additional post study work rights is used as the reference period. Standard errors are clustered at the firm level.

The detailed estimates of Diff-RDD approach outlined in Table 1 and Table A.4 are estimated using the following equation:

$$(4) \quad Y_{icey} = \alpha + \beta_1 Cohort_c + \beta_2 Eligibility_e + \beta_3 (Cohort_c \times Eligibility_e) + \delta X_{iy} + \gamma_y + \epsilon_{icey}$$

Here, Y_{icey} denotes the outcome variable for university student TGV holder i , whose date of application of their first student visa lies in cohort c and eligibility e , was granted a TGV in year $(y - 1)$ and is observed in year y . The sample includes migrants 96-days around the original cut-off date of November 5, 2011 and pseudo cut-off date off November 5, 2010. The cut off is the optimal bandwidth selected using the methods based on Calonico et al., 2019. Cohort takes value 1 if the date of application is around the original eligibility year i.e. 2011 and 0 if it is around the pseudo cut-off year of 2010. Eligibility takes value 1 if the date of application of first student visa is 96 days after the cut-off date of November 5, for both cohorts. It takes value 0 if the date of application is 96 days before cut-off date of November 5, for both cohorts. β_3 is our outcome of interest which captures the double difference around the cut-off. It captures the true effect of policy change, controlling for seasonality. The vector X_{iy} includes individual-level controls: gender, age, age squared, and marital status. Visa outcomes only controls for marital status. γ_y denotes year fixed effects. Standard errors are clustered at the firm level for labour market outcomes and robust standard errors reported for visa outcomes. Number of observations in Panel B of Table 1 and Table A.4 have been rounded off to base 10 to meet ABS output rules.

Lastly, the detailed estimates of DiD approach is outlined in Table 2 and Table A.5 are estimated using the following equation:

$$(5) \quad Y_{idey} = \alpha + \beta_1 Group_d + \beta_2 Eligibility_e + \beta_3 (Group_d \times Eligibility_e) + \delta X_{iy} + \gamma_y + \epsilon_{idey}$$

²⁵ All variables except marital status are measured in year y . Marital status is recorded at the time of TGV grant, i.e., in year $(y - 1)$.

Here, Y_{idey} denotes the outcome variable for TGV holder i , from group d , whose date of application of their first student visa lies in eligibility group e , was granted a TGV in year $(y - 1)$ and is observed in year y . Group takes value 1 for university and 0 for non-university students. Eligibility takes value 1 if the date of application of first student visa is 3.5 years after the cut-off date of November 5, 2011, and 0 if its 2 years before the cut-off date. β_3 is our outcome of interest which captures the double difference between university (treated) and non-university students, before and after the cutoff date of student visa application. The vector X_{iy} includes individual-level controls: gender, age, age squared, and marital status. γ_y denotes year fixed effects. Standard errors are clustered at the firm level.

A.4. Country of Origin Effect

We adopt Equation 4 as our main specification instead of a standard regression discontinuity framework because, at the eligibility cut-off, the two cohorts differ not only in treatment status but also along other dimensions. One such difference is illustrated in Table A.1.

Table A.1: Country of Origin

	2011 Cohort		2010 Cohort	
	Control	Treatment	Control	Treatment
India	9.93	15.54	3.76	8.86
Malaysia	1.82	11.69	1.34	11.83
China	38.25	18.59	45.56	25.28
Pakistan	8.04	4.80	6.59	5.14
Vietnam	4.06	4.32	6.52	5.09
Others	37.90	45.06	36.22	43.81

When restricting the sample to university students within 96 days of the eligibility cut-off, we observe a substantial shift in the composition of applicants. For example, in the control group—students who applied for their first student visa before the cut-off—only 1.82% were from Malaysia. In contrast, this share rises sharply to 11.69% in the post-cut-off group. This discontinuity likely reflects seasonal application patterns tied to Malaysia’s academic calendar, which facilitates graduation and subsequent visa applications during this period. A similar pattern is evident in the 2010 cohort. To account for such seasonality, we rely on the difference between the two cohorts in our empirical strategy.

A.5. Additional Analysis & Robustness

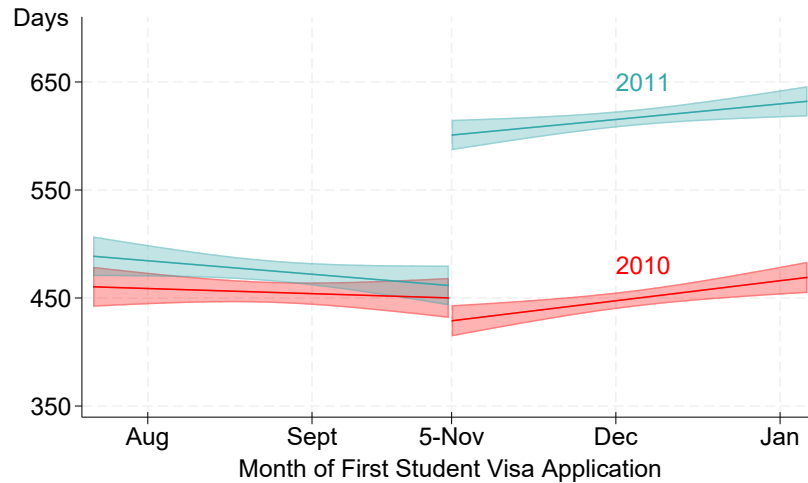
A.5.1 Testing the Cutoff: Cohort-Based Evidence on TGV Stay Periods

For the validity of our Difference-in-Regression Discontinuity (Diff-RDD) design, we assume that the additional stay period on the Temporary Graduate Visa (TGV) affects only the 2011 cohort at the discontinuity (i.e., students whose first student visa application date falls on or after November 5, 2011) by granting them the option to extend their stay, conditional on their decision to exercise this right. In contrast, the 2010 cohort should remain unaffected, as the policy change did not alter the stay duration for students on either side of the corresponding 2010 cut-off date (November 5, 2010). This assumption is crucial for ensuring that our empirical strategy isolates the causal effect of the policy change rather than capturing the seasonal fluctuations.

Figure A.2 illustrates the average number of days University Students remained on their graduate visa, binned by the week of their first student visa application. The sample covers 14 weeks around the cut-off, aligning with our selected bandwidth of 96 days. The figure provides compelling visual evidence in support of our identification strategy: we observe a sharp and discrete increase in stay duration for the 2011 cohort, while the 2010 cohort exhibits no such jump, with visa durations remaining stable across the cut-off.

These findings provide strong empirical support for the validity of our Diff-RDD approach, demonstrating that the policy change had a clear and measurable impact on post-study visa durations, independent of seasonal application patterns. By

Figure A.2: Days Spent on Graduate Visa



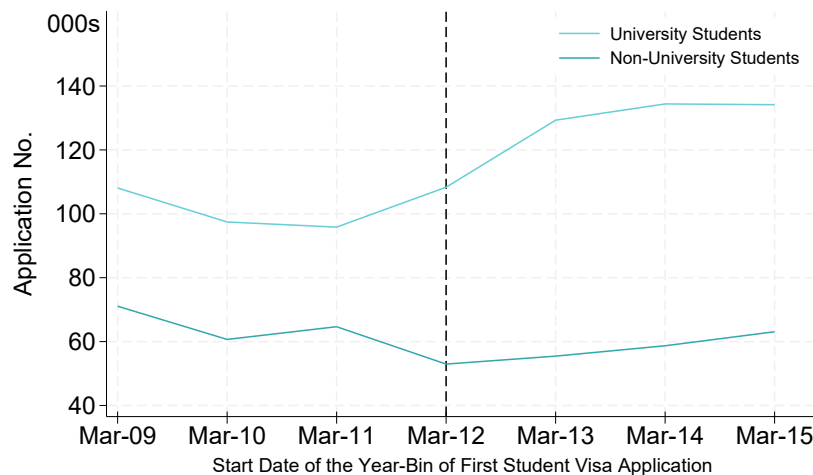
Source: ABS; Department of Home Affairs; e61 Institute

leveraging the natural experiment created by the eligibility cut-off, our design offers a credible and robust estimate of the policy's effects on international students' outcomes in Australia.

A.5.2 More Than a Shift: The Expanding Pool of University Student Applications

The divergence in student visa applications between university and non-university graduates, as observed in Figure 8, could be driven by either an increase in applications from university students, a decline in applications from non-university students, or a combination of both. To better understand the underlying mechanisms, we examine the raw number of student visa applications for both groups, plotted against their first student visa application date. The numbers are binned into six-month intervals, and the results are presented in Figure A.3.

Figure A.3: Visa Application Numbers



Source: ABS; Department of Home Affairs; e61 Institute

The results indicate that following the legislation of the TGV, there was a substantial increase in student visa applications from university students, whereas applications from non-university students exhibited a steady but minimal increase. This finding has important policy implications, as one of the key objectives of the reform was to attract more international students to Australia, particularly those who might otherwise choose alternative destinations or forgo international education altogether.

A crucial concern in assessing the effectiveness of the policy is whether the observed increase in university student applications was merely due to substitution—i.e., students who would have otherwise pursued non-university qualifications shifting to university degrees to take advantage of the extended post-study work rights. If this were the case, we would expect to see a corresponding decline in non-university applications, leading to a similar pattern as observed in Figure 8, but without achieving the broader goal of expanding Australia's international student base.

However, Figure A.3 provides strong evidence that this was not the case. The number of non-university applications remained relatively stable, suggesting that the policy primarily attracted new international students rather than simply redistributing students across degree types. The absence of a sharp decline in non-university applications reinforces the conclusion that the reform succeeded in expanding the total pool of international students in Australia, rather than merely reshuffling existing preferences.

From a broader economic perspective, this result underscores the significant role of post-study work rights in shaping international student mobility decisions. By offering a clear and predictable pathway for post-study employment, Australia positioned itself more competitively in the global education market.

A.5.3 How Much Pre-Trend Violation is Too Much? Evidence from HonestDID

The robust inference framework developed by Rambachan and Roth, 2023 provides a two structured approaches to assess pre-trends as a diagnostic tool for evaluating potential deviations from parallel trends.

First approach involves bounding the relative magnitudes of deviations. This method assumes that any post-treatment divergence from parallel trends cannot substantially exceed the deviations observed during the pre-treatment period. Specifically, a constraint can be placed such that the post-treatment deviation is at most $\bar{M}$ times larger than the largest pre-treatment deviation. For example, setting $\bar{M} = 1$ implies that the maximum post-treatment violation is no greater than the largest observed deviation in the pre-treatment period, whereas $\bar{M} = 2$ allows the post-treatment deviation to be at most twice the pre-treatment deviation.

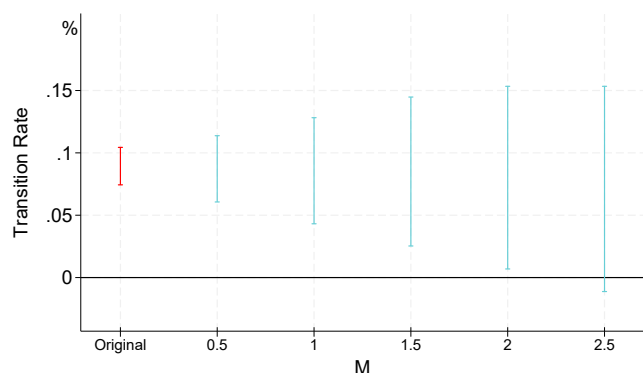
The second approach introduces smoothness restrictions, which assume that post-treatment deviations should not diverge excessively from a linear extrapolation of pre-trends. Under this framework, a constraint is imposed such that the slope of the pre-trend can change by at most M across consecutive periods. For instance, setting $M = 0$ enforces a strictly linear counterfactual trend, while larger values of M permit greater flexibility, allowing for some degree of non-linearity.

These methodological constraints offer a systematic approach for evaluating violations of parallel trends, thereby enhancing the robustness of causal inference in event-study frameworks. The results obtained using this approach are presented in Figure A.4.

Specifically, Figure A.4A applies the bounding approach, which restricts the extent to which post-treatment deviations can exceed pre-treatment violations of parallel trends. Meanwhile, Figure A.4B illustrates the results under the smoothness restriction framework.

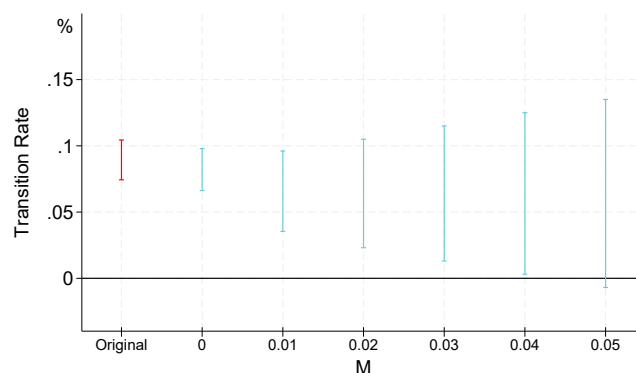
Figure A.4: Transition Rate of Migrants - Sensitivity Analysis

A: Bounds on Relative Magnitudes



Source: ABS; Department of Home Affairs; e61 Institute
ABS; Department of Home Affairs; e61 Institute

B: Smoothness Restrictions



Source: ABS; Department of Home Affairs; e61 Institute

Source:

The results suggest that our estimates remain robust to a certain degree of pre-trend violations. Figure A.4A shows that the breakdown value of $\bar{M} \approx 2.5$, indicating that the observed increase in the transition rate of students to temporary migrants on a Graduate Visa remains statistically significant even when allowing for post-treatment violations of parallel trends up to 2.5 times the maximum violation observed in the pre-treatment period.

Similarly, Figure A.4B presents the breakdown value for smoothness restrictions, where a significant effect holds as long as $M \approx 0.05$. This implies that we can reject a null effect unless we permit deviations from the linear extrapolation of pre-trends to

exceed 0.05 percentage points across consecutive periods. These robustness checks reinforce the credibility of our findings, ensuring that the estimated policy impact is not driven by minor deviations from the parallel trends assumption.²⁶

A.5.4 Transition Rate

In addition to comparing the mean transition rates of the 2010 and 2011 cohorts in Figure 2, we estimate the difference-in-discontinuity regression model, as specified in Equation 4, to assess the impact of the PSWRs extension on the transition rate from a student visa to a graduate visa. The results are presented in Table A.2.

Table A.2: Effect of Extended PSWRs on Transition Rate Without Selection Effects

	Transition Rate	
	(1)	(2)
Treatment	0.091*** (0.009)	0.091*** (0.009)
Num. Obs.	47,057	47,057
Controls	No	Yes

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Both regressions include for Year FE. Controls include Migrant's marital status. Robust standard errors reported in parentheses.

The findings indicate that the extension of PSWRs increased the probability of obtaining a graduate visa by 9.1 percentage points. By leveraging the difference-in-discontinuity approach, the estimation accounts for seasonal effects by controlling for any systematic differences between the 2010 and 2011 cohorts at the visa application date discontinuity. These results underscore the role of visa transition pathways in shaping international students' incentives and decisions to remain in Australia.

To assess the robustness of our findings, we conduct a placebo test. We introduce a false eligibility threshold by shifting the policy implementation date backward. Instead of using November 5, 2011, as the eligibility cutoff, we artificially set it to November 5, 2010. We then re-estimate the difference-in-discontinuity model specified in Equation 4, comparing the 2009 and 2010 cohorts.

Table A.3: Effect of Extended PSWRs on Transition Rate Without Selection Effects - Placebo Check

	Transition Rate	
	(1)	(2)
Treatment	-0.007 (0.008)	-0.007 (0.008)
Num. Obs.	59,837	59,837
Controls	No	Yes
Sample	1 Year Before	

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. All regressions include year fixed effects. Controls include migrants' marital status. Columns (1) and (2) present results obtained by falsifying the eligibility cutoff date. Robust standard errors are reported in parentheses.

The rationale behind this test is that the 2010 cohort was unaffected by the new TGV policy. Consequently, we should not observe a significant treatment effect in the results. The results, reported in Table A.3, serve as a falsification check, confirming that our main estimates are not driven by spurious discontinuities or unobserved trends unrelated to the policy change.

²⁶ We conducted sensitivity analyses for specifications that exclude linear trends or clusters standard errors at the course level, as discussed in Appendix A.3. Across all cases, the breakdown value of $\bar{M}$ remains no less than 2, and the breakdown value of M never falls below 0.04. Results are not included and are available upon request.

A.5.5 Labour Market and Visa Pathways

Table A.4: The Effect of Extending PSWRs for Incumbent Students

Panel A: Labour Market Outcomes								
	Annual Income		AUSEI06		Productivity			
Treatment	-0.027 (0.043)	-0.018 (0.043)	-2.705** (1.182)	-3.152*** (1.162)	-0.034 (0.052)	-0.034 (0.053)		
Num.Obs.	8,282	8,282	8,282	8,282	4,980	4,980		
Controls	No	Yes	No	Yes	No	Yes		
Panel B: Visa Pathways								
	Student		Permanent		Employer		Any	
Treatment	0.007 (0.013)	0.007 (0.013)	-0.061*** (0.018)	-0.061*** (0.018)	0.000 (0.009)	0.001 (0.009)	-0.038*** (0.013)	-0.037*** (0.013)
Num.Obs.	12,720	12,720	12,720	12,720	12,720	12,720	12,720	12,720
Controls	No	Yes	No	Yes	No	Yes	No	Yes

* p < 0.1, ** p < 0.05, *** p < 0.01

Table A.5: The Effect of Extending PSWRs for Entrants Cohorts

Labour Market Outcomes						
	Annual Income		AUSEI06		Productivity	
Treatment	-0.105*** (0.024)	-0.100*** (0.024)	6.723*** (0.689)	7.261*** (0.665)	-0.013 (0.031)	-0.014 (0.031)
Num.Obs.	74,858	74,858	74,858	74,858	49,000	49,000
Controls	No	Yes	No	Yes	No	Yes

* p < 0.1, ** p < 0.05, *** p < 0.01

A.5.6 Falsification Tests

To assess the robustness of our findings in Table A.4, we conduct a placebo tests, similar to the one discussed in section A.5.4. We use a false eligibility threshold by shifting the policy implementation date backward to November 5, 2010. We only present the results for outcomes which showed significant changes in our main results. The results are presented in Table A.6. The results, again confirms that our main estimates are not driven by spurious discontinuities or unobserved trends unrelated to the policy change.

Table A.6: Falsification Tests - Incumbent Students

False Eligibility Date of 1 Year Before						
	AUSEI06		Permanent		Any	
Treatment	1.250 (1.101)	1.510 (1.093)	-0.007 (0.017)	-0.007 (0.017)	-0.012 (0.013)	-0.012 (0.013)
Num.Obs.	8,223	8,223	12,546	12,546	12,546	12,546
Controls	No	Yes	No	Yes	No	Yes

A.6. TGV Eligibility: Selected Examples

Figure A.5 illustrates various scenarios for students applying for Post-Study Work Rights (PSWR) under the Temporary Graduate Visa (TGV). Student A is not eligible for TGV, as their first student visa application was lodged before 5 November 2011, despite a subsequent student visa application occurring after this date. However, they remain eligible to apply for the Skilled Graduate Stream (SGS) within six months of completing their second degree. Student B qualifies for the PSWS since their first student visa application was withdrawn, and a subsequent, successful application was made after 5 November 2011. Upon completing their degree, they are entitled to a four-year stay under PSWR. Student C is not eligible for TGV because their first student visa application was submitted just one day before 5 November 2011. Nevertheless, they can still apply for SGS, granting them an 18-month stay upon graduation. Student D qualifies for PSWS and is eligible for a two-year stay post-graduation. Student E is eligible for TGV but only under the GWS, receiving 18 months of stay rather than the two years granted under PSWS. This restriction arises because their last completed qualification in Australia was a Graduate Diploma, which generally provides an 18-month stay period under the TGV framework.

Figure A.5: TGV Eligibility: Selected Examples

