The Grim Realities of a Doctoral Student in Aotearoa

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Introduction

There has been increasing media coverage on the stipends provided to PhD students in Aotearoa New Zealand, which has remained fairly stagnant and below minimum wage since 2014. Stipends typically cover a three year period, although evidence suggests that a PhD in most disciplines takes much longer than this, with a median time to completion indicated as four years for all disciplines[1]. This paper provides a narrative of the typical pathway for a PhD student and aims to exemplify some of the common problems that face doctoral students today.

The number of students

A large gap can be seen in the number of doctoral enrolments versus completions that do not match the expected tenure of a PhD in New Zealand (Figure 1). Although a PhD is expected to be completed in a three year period, the number of completions are far less than the expected ⅓ of the enrolments every year[2]. One of the reasons for this is attributed to the length of time that it actually takes to complete a PhD, which can take up to four or more years. Further, an unaccounted number of students do not complete their PhDs for various reasons, either switching to a research masters or dropping out entirely.

The number of doctoral enrolments each year is growing at a much faster rate than completions. The impact of COVID-19 can be seen from the enrolments in 2021, when less international students were able to enter the country due to border restrictions and with many students opting to suspend their studies. There would be an expected plateau of PhD enrolments as the current growth is unsustainable. There is a limited number of research groups and academics at universities in New Zealand, and therefore a limited number of jobs available for PhD students to go to.

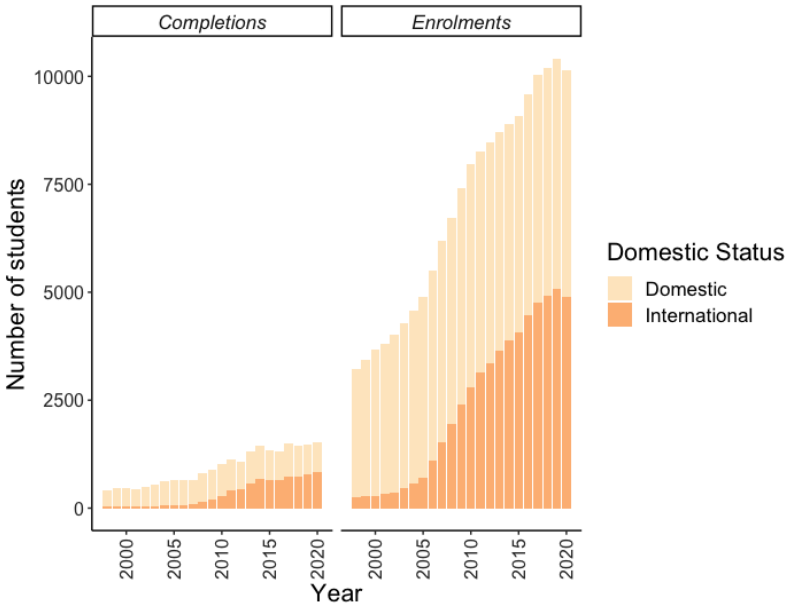

Figure 1: Doctoral completions and enrolments at New Zealand universities. The trends indicate an unsustainable growth in enrolments and completions that suggest that doctorates are taking longer than three years to complete.

Academic Trajectory

A PhD is designed to sit in the middle of the path of an academic trajectory. This looks like Bachelors (3 years) → Masters (2 years) → Doctorate (>3 years) → Postdoctoral Researcher → Lecturer → Senior Lecturer → Associate Professor → Professor. Some students will fast track to PhD with a Bachelors with Honours, skipping the Masters step and only taking a year to complete.

By design, doctorates train students to conduct research and in some ways push them towards a career in academia. Since their degree is considered as “training”, the stipend is tax-free and does not count as an income, which gives doctoral students a vague status as both working full time but not technically being “employed” by the university.

The post-PhD pipeline continues to postdoctoral/research fellowships, lecturer, senior lecturer, associate professor and finally professor. Recent reports on the precarity of academic jobs highlight the difficulties faced by early career researchers in staying within this pipeline and the lack of existing jobs at the lecturer level (and above). Data collected on the number of academic full-time equivalent staff (FTEs) for the University of Otago and Waikato shows little change across an eight year period, despite the increasing number of doctoral students entering the workforce each year.

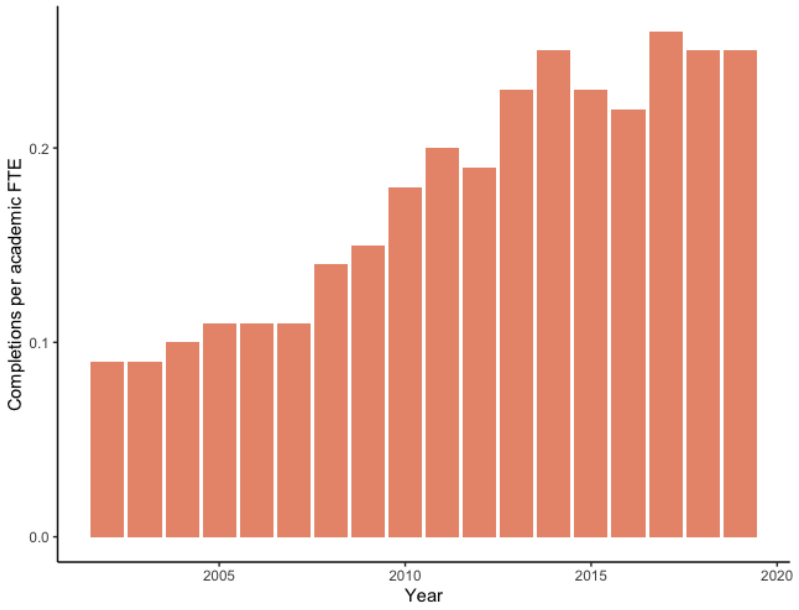

Figure 2: Number of doctoral completions as a ratio against number of academic FTEs employed at New Zealand universities. This data indicates that there are an increasing number of doctoral completions relative to full-time positions in the workforce.

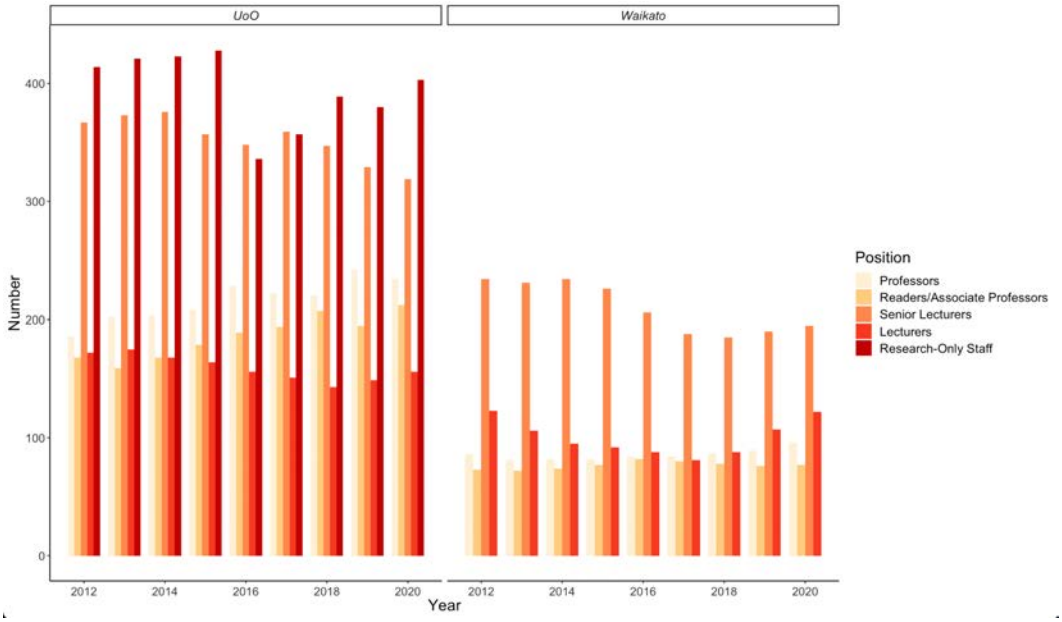

Figure 3: Number of FTE employed in various academic positions at the University of Otago and University of Waikato. The change in workforce numbers has remained largely stagnant, with a dip in employment from 2015 - 2018 and little growth observed following this.

Scholarships

Most universities in New Zealand offer a PhD scholarship to their Masters and Honours students to retain talented students within the university. At the University of Auckland, this is offered to students who complete their Masters or Bachelors with First Class Honours (GPA > 8.0). The values for doctoral scholarships are provided in Table 1 as stipend values, but tuition fees are also covered by the scholarship[3]. The University of Auckland gives one of the highest paid PhD scholarships across Aotearoa, but this still falls much lower than the

Table 1. New Zealand university stipends, taken from the doctoral regulations from the relevant university.

University	Stipend
Auckland University of Technology (AUT)	$25,000 p.a.
Lincoln University	$28,000 p.a.
Massey University	$25,000 p.a.
University of Auckland (UoA)	$28,500 p.a. + annual cost of living adjustment
University of Canterbury (UoC)	$21,000–$26,000
University of Otago (UoO)	$28,600 p.a.
University of Waikato (UoW)	$25,000 p.a.
Victoria University of Wellington (VUW)	$27,5000 p.a.

minimum wage (Figure 4). Students on a PhD scholarship at some institutions are able to apply for an extension for an additional six months if they have sufficient proof that the PhD could not be completed in this time. This is not available at all universities, however.

For students who do not reach the GPA requirement, or those who come from external universities/overseas, there are options to gain “external” scholarships from other sources (e.g. Marsden funding, MBIE funding or CoRE/CRI/Industry funded scholarships). These external scholarships do not always come with additional funding to cover any extensions. For students that are on these external scholarships, there is an additional layer of anxiety, as they will often have to seek extra funding to cover any extensions. For international students, this is heightened, as they will often have student visas that are tied to their enrolment. This will often lead to an increased urgency for international students to complete their degrees faster.

PhD stipends are designed to cover the living costs of students during their tenure as a PhD student, however there is a clear mismatch between the stipends offered to students across the country. Auckland has arguably the highest living costs of all the cities, although Wellington is comparable ($1500 vs. $1400 per month). Despite being located down the road from the University of Auckland, which has one of the highest PhD stipends, the Auckland University of Technology offers one of the lowest stipend rates. Meanwhile the University of Otago offers one of the highest PhD stipends despite having one of the lowest living costs. None of these universities have stipends that match the minimum (or living) wage for Aotearoa.

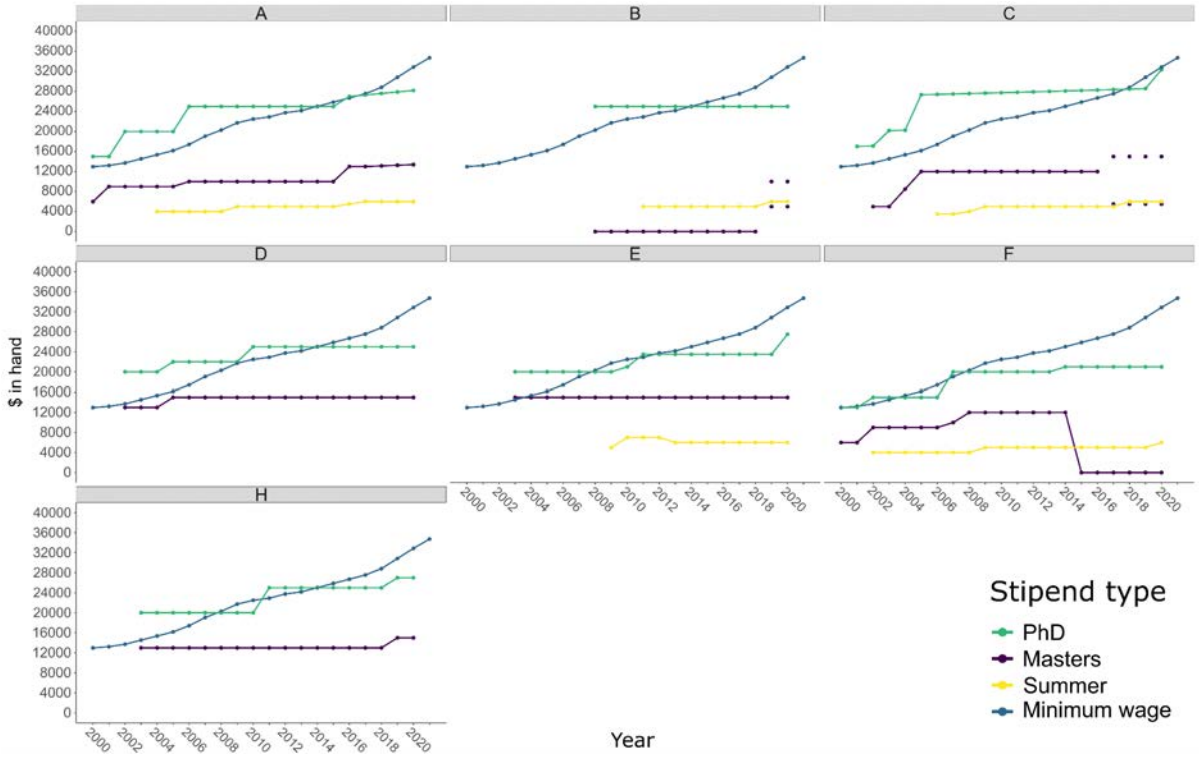

Figure 4: The value of PhD, Masters and Summer scholarships compared to the minimum wage at each university from 2000 to 2020. Taken from Soar et al. (2021)[1]

Successive increases have been made to the minimum wage since 2017 but PhD stipends have largely remained stagnant, widening the gap between a PhD stipend and the minimum wage. An open letter with 700 signatories, and consequent media attention, inspired some external scholarships, such as those provided by the Marsden Fund, MBIE and The Macdiarmid Institute, to raise their stipend to $35,000 p.a. from 2022.[4,5] However, there has been no commitment to continue such raises and with a scheduled increase to minimum wage in April 2022, the stipend may struggle to keep up with the minimum wage for New Zealand,with new concerns emerging due to a sudden surge of inflation[6,7].

A PhD student on a doctoral stipend faces a strange position in which they are treated both as an employee and as a student. Legally, a stipend does not count as an income, which means the money gained through a PhD will not be sufficient evidence of income for loans such as mortgages. Universities may inform their students that they are entitled to annual leave, but with no way to log or mark this, students will often work through this. Any annual leave that would otherwise be owed to them is then not covered by their stipend at the end of their degree. In the same way, PhD students have no legal protections surrounding paid sick, bereavement or maternity leaves.

PhD students do not pay off their student loans with stipend money, which leaves a gap in their student loan repayment schedule. From the perspective of a loan issuer, this indicates a large gap in time where the loan was not repaid, which does not provide evidence that a PhD student is a capable borrower of money. A PhD stipend also does not contribute to a student's KiwiSaver. The 3% matching contributions and the compounded interest on ‘missing’ KiwiSaver investments should be calculated over the period to indicate this loss on investment. The time investment is also important, as a student who wishes to use their

KiwiSaver for a deposit on a home may not have been investing in their KiwiSaver for the prescribed period that allows them to use it.

Teaching

Within some disciplines, such as the natural sciences, there are opportunities for PhD students to undertake additional paid work in the university education space. However, teaching in undergraduate or postgraduate courses is not credited towards the PhD in any way and takes time away from actively working on the PhD. This is especially true for those with lab-based research projects, who can only conduct their research during regular working hours, but are also required to teach during regular working hours. Although teaching is optional, students will often take on this opportunity as a way to bring in some extra money (where stipends are not enough to cover living costs) and as a way to add additional skills to a CV.

Teaching roles will vary depending on the course. For a chemistry graduate teaching assistant (GTA), this will typically involve demonstrating in labs or running tutorials for undergraduate students. The number of hours available vary depending on the course, with first stage courses offering up to 70–80 hours of teaching across a semester (4–6 hours per week), whilst a third stage course might only offer 18 hours across the same time period (1–2 hours per week). GTA rates are set in the university collective agreement, with PhD students starting on GTA1 and moving through the different pay scales annually. There has been some suggestions that different disciplines pay different rates to their GTAs, but evidence on this has not been collected for this brief.

Teaching hours are set at the beginning of the semester and it is often found that GTAs are working more than their allocated hours. A typical example of this is being given a set number of hours to mark a specific number of lab reports, which is less than the actual time needed to mark them.

Students can only undertake teaching roles with the approval of their supervisor. Some supervisors do not allow their students to participate in these activities to bring focus back to the PhD itself, but this is unfair to students who need the additional money to fund their studies or wish to build teaching skills. These students will often have to find employment elsewhere, where supervisor approval is not required, although most scholarship regulations only allow up to 10 hours paid work outside of the full time research work[1].

Teaching work also needs to be noted as seasonal and precarious, adding gaps in income to the lack of reliability. This work is only available during the university semester and so can only provide additional financial support for 30 weeks of the year. For most students, there will be no opportunities to teach over the summer between November and March.

Many people will use the opportunity for teaching to justify the low stipends that PhD students receive. As exemplified, the amount of teaching available does not make up for this, as teaching is not available to everyone or on a regular basis. Teaching should be seen as an optional activity for PhD students separate to their workload, and should be provided on top of payment for their full time employment as a PhD researcher.

The end of the PhD

The length of a PhD in New Zealand is advertised as being three years. This includes a literature review, research and writing up of the final thesis and three years is not a true indication of how long a PhD will take. Many PhD students will include the six month extension as part of their internal PhD timeline, as they know from anecdotal evidence that their PhD will not be completed within the three year period. Despite this, the PhD stipend still only applies for a three year period (even with a possible six month extension).

The third year for a PhD student is their most crucial time period. This is the year they will be wrapping up their final experiments/research and beginning to write up three years of research into a readable thesis. As they come to the end of their third year, they are also applying for extensions and funding to carry them through into their fourth year.

When a scholarship runs out, students are expected to cover their own tuition fees. This is a costly activity, as tuition fees for a full time PhD student can be up to $500 per month. If a PhD student wishes to stay enrolled full time, they are required to pay this amount whilst also bringing in no additional income to support themselves. Moreover, they are only allowed to work a maximum of 20 hours per week* when enrolled on a full time basis, which for most is not enough to cover typical living costs. Thus, for most PhD students, they will be dipping into their savings (provided they have any) or taking out a loan to fund their PhD at this point.

Many students at this point may opt to switch into part time enrolment, despite carrying out full time work. This reduces their tuition fees by half, reducing the financial burden. If a student is on a six month scholarship extension, this increases the length of time that their tuition fees are covered by their scholarship, which justifies the decrease in stipend they will receive.

This time period exacerbates the inequalities between the financial positions of various students. It is not financially viable for some students to continue their PhD beyond the scholarship extension and for many they will have no other option but to switch their PhD to a research masters or drop out. This will be especially difficult for students with families to take care of and caregiving responsibilities. Furthermore, student loans are not offered to most PhD students, as they are now outside the five year study period that student loans cover in New Zealand.

The impacts of COVID-19

Like most workforces, the impact of COVID-19 was felt throughout the PhD student community, especially those who require access to university workspaces (e.g. laboratories and workshops). The 2020 and 2021 lockdowns saw students essentially locked out of their workplaces, and for a PhD with an experimental component (e.g. a synthetic chemistry student) there is no work to be done at home. This leaves them in a tight situation where they are expected to work from home, but there is little work that can actually be done. Additionally, they are not eligible for any government COVID-19-relief support, as they are not technically receiving any income. Although the scholarship continues to be paid out over this time period, students are now facing up to six to nine months of lost time. At the end of 3.5 years, even when justified on COVID-19 grounds, these students cannot receive any further stipends from the university.

The University of Auckland offers its PhD students impacted by COVID-19 (i.e. students who were enrolled in a PhD prior to 1 August 2021) a 'Doctoral Fees Free Waiver'. This waives the tuition fees of students for up to six months after 3.5 years of research work, however there is no additional stipend. This means students will have to find other ways to support themselves.

After submission

The time period after submission for a PhD student creates a "limbo" where the researcher can in some ways be considered to have finished their PhD but at the same time are waiting for their defence for full confirmation of this. This blocks certain jobs from being available to them.

This means that their highest qualification is that of a Masters student (or Honours), even when they bring with them at least three years of doctoral research experience. Additionally, since they have not ticked the final box on their checklist to complete their PhD, they can not be considered a postdoctoral researcher. This fact is often exploited in the workplace to justify hiring a post-submission PhD student on a research assistant salary (the same salary provided to a Masters student), even with the argument that there is little additional experience that can be gained between submission and defence (although there is the possibility that a doctoral student may not succeed in their defence).

This "limbo" lasts for however long it takes for the thesis to be examined, which currently is taking up to six months. Although examiners are given three months to examine a thesis and provide comments and feedback for the defence, there is currently a large backlog in the academic workforce. This also depends on whether a suitable examiner can be found in the first place. From the perspective of an academic, examining a thesis is a lot of additional (often unpaid) work for people who already have too many other responsibilities. The impacts of COVID-19 are still being felt worldwide, and the idea of taking on this additional task for little reward is not particularly appealing.

Pathways after a PhD

There is an expectation that after a PhD is completed, there will be ample job opportunities for the students to transition into. For some, this justifies four years of low pay and increased student debt as this will be made up for after completion, when in reality, this is not the case as the number of FTE researchers with PhDs in research and development (R&D) are relatively static, while the number of doctoral students completions are increasing[2].

For an international student, there is usually a limited time period for them to find work if they wish to stay in NZ on a work visa. This will also often be tied to a minimum income as part of the skilled migrants scheme. Some PhD students in this category will therefore have less time and flexibility to find a job that matches their skill sets and are more likely to enter the workforce with a lower pay simply to have a job.

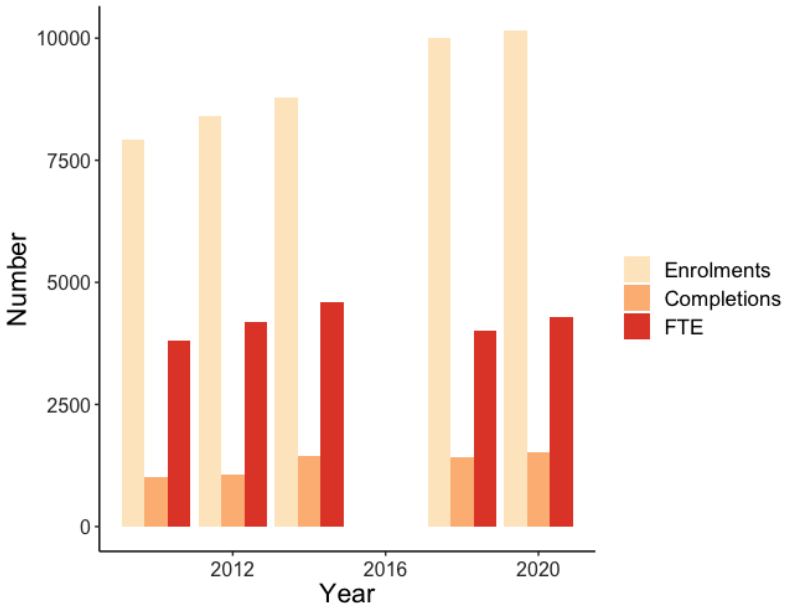

Figure 5: Doctoral enrolments and completions compared to those employed in the research workforce with a PhD in New Zealand.

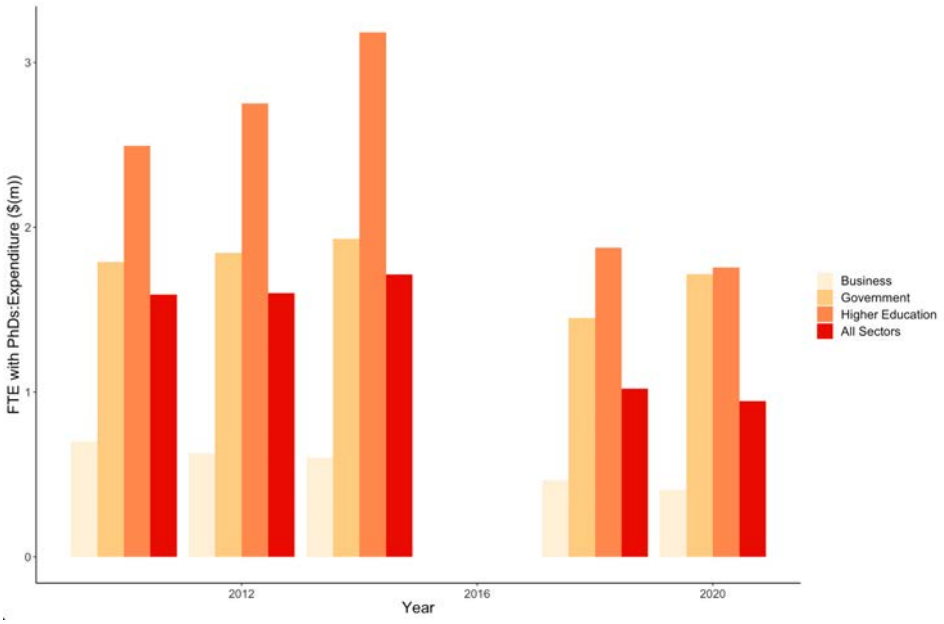

Figure 6: R&D expenditure ($(million)) across various sectors compared to the FTE with PhDs employed in that sector.

There is also an argument to be made that there is a mismatch between the skills that are taught to a PhD student and the skills that are required in the workforce. Despite an increase in government expenditure to R&D, there is no increase observed for the number of FTE employed with PhDs in the government sector. This brings into question where the money in R&D is being spent if not for staffing.

Toxic workplaces

A note has to be made on the toxicity of academic workspaces, driven by a hypercompetitive environment that has been suggested to create a culture of bullying.[8] For most students, it is unsurprising to hear stories on principal investigators (PIs) with unreasonable expectations of workloads. A full time research degree should be no more than 40 hours a week, but there is often a regular expectation that doctoral students work on weekends and after hours. The hypercompetitive funding schemes create negative impacts on PIs who feel additional pressure to publish data for further research, which has a flow down effect when it is taken out on postgraduate students.

External scholarships will often be tied to funding received by a particular PI on contestable funding grants. This creates a power imbalance between the PI and their student, as the student feels like they owe their PI for the funding they receive. A PhD student on such funding is less likely to speak out on unreasonable behaviour from their PI for fear of losing their funding source and being unable to complete their PhD. Although students are given the option to speak out about this during their annual reports, and given the option to switch PIs, the realities of the situation create barriers that are too large to overcome, which see PhD students staying with the PI they signed up with despite the detrimental effect to their wellbeing. Complaints about PIs also often amount to nothing, as senior researchers continue to be protected by their universities. This means that the benefits of speaking out against such behaviour are largely dismissed.A recent survey by Simpson et al. reported the mental health challenges and workplace bullying for respondents (which includes all early career researchers).[9]

Conclusion

This report sets out the various problems that face a doctoral student currently undertaking their research degree. Although it does not seek to provide solutions to the problems, it aims to provide a narrative of problems faced by this cohort that largely remains unreported. It also helps to bring awareness to future PhD students who may be considering whether or not it is worth enrolling in a PhD.

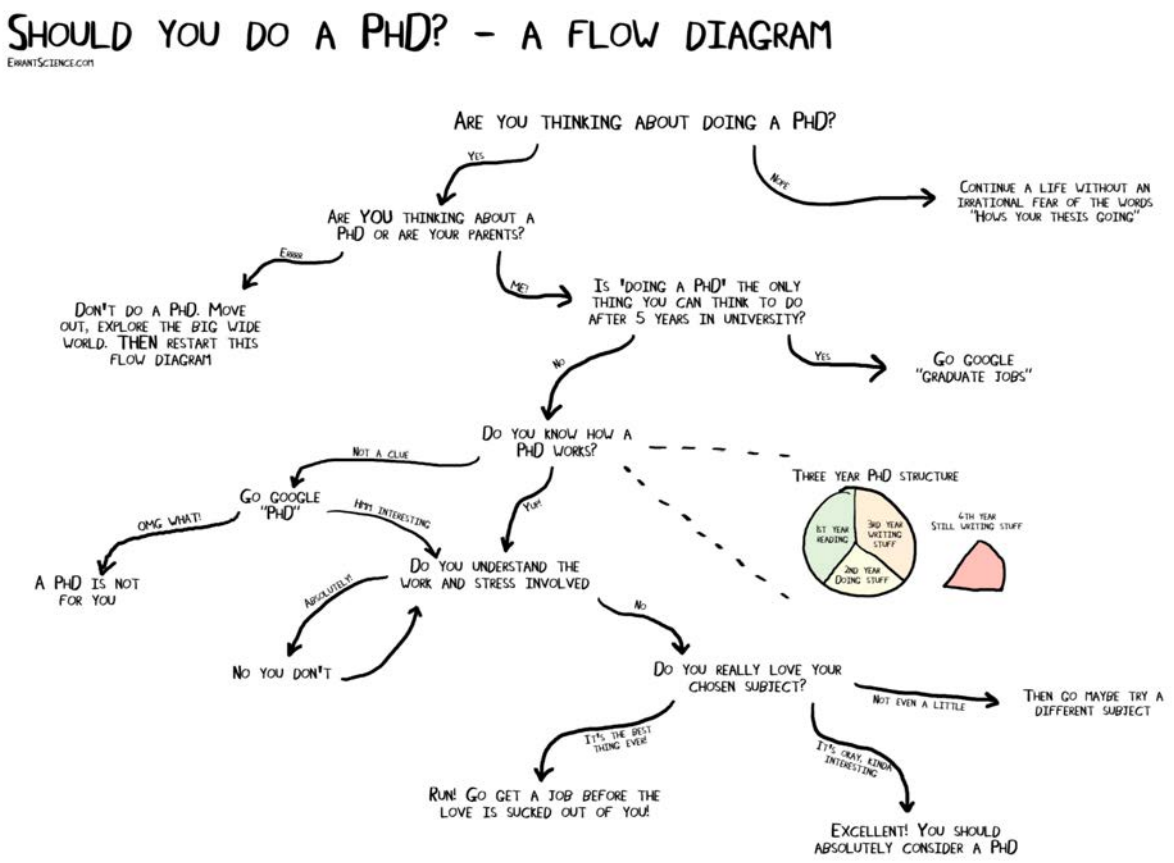

Figure 7: Should you do a PhD flowchart by ErrantScience[10]

Acknowledgements

Thank you to Lucy Stewart and Kate Lee for helpful comments, contributions and editing. Te Pūnaha Matatini CoRE provided funding.

References

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